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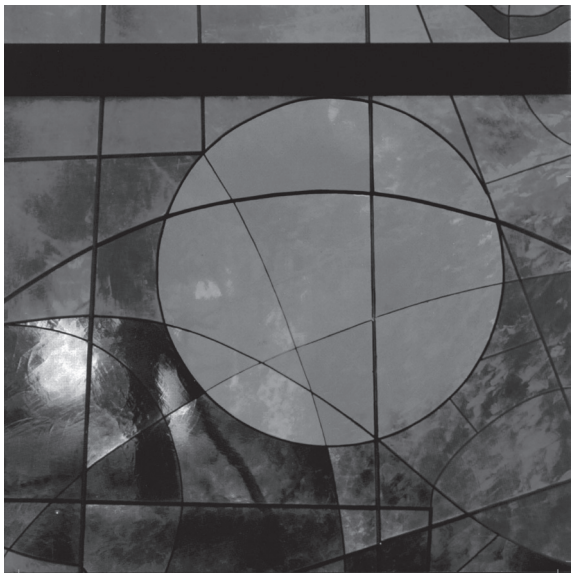
Organised by
the Pontifical Council
for Health Care Workers

The Culture of Salus and Welcome at the Service of Man and the Planet

19-20-21 November 2015

New Synod Hall
Vatican City



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Speech of Greetings

H. E. MSGR.
ZYGMUNT ZIMOWSKI
President of the
Pontifical Council
for Health Care workers,
the Holy See

Most Blessed Father,
It is with filial devotion and gratitude that we thank you for wanting to meet us on the first day of the deliberations of our thirtieth international conference which seeks to address the subject 'The Culture of *Salus* and Welcome at the Service of Man and the Planet'.

On the occasion of the thirtieth anniversary of the life and activity of our Pontifical Council, and at the same time as the twentieth anniversary of the publication of the encyclical *Evangelium vitae*, we thought it suitable to place ourselves in the furrow traced by St. John Paul II, in order to retrieve the meaning of the dignity of human life and the value of every person, in the lineaments of which shine brightly the likenesses themselves of the Son of God.

This teaching always reminds everyone, and in a completely singular way the various professional figures of the world of health and health care, that God does not love man from far away and from a heavenly or abstract height, but, rather, He loves him from the very depths of his condition, where evil appears to triumph. Above all nowadays and specifically where the gift of the Creation seems to be profoundly compromised as well, one perceives a growing sensitivity towards the environment and care for nature, as well as the advance of sincere and pained concern about what is happening to our planet.

As Your Holiness points out in the recent encyclical letter *Laudato sì'*, this is not a matter of two crises, one that is environmental and one that is social, but, rather, of a single and complex socio-environmental crisis, the strategies for a solution to which 'demand an integrated approach to combating poverty, restoring dignity to the excluded, and at the same time protecting nature' (n. 139).

Responding to the invitation to look for integral solutions which consider the interactions of natural systems with each other and with social systems, during the course of the deliberations of this international conference of ours we will address in particular the problems connected with the impact that these this various factors of pollution involve, above all at the level of the consequences for health care that are already observed today, not only in economically advanced countries but also, and above all else, in the poorest and most vulnerable populations of the planet, whose right to health is not always recognised.

This commitment, it may be added, cannot make us inattentive, not even as regards the responsibilities that are entrusted to us with respect to future generations, to whom we owe the gift itself of the Creation which has been given to us so that we may be its faithful and responsible 'stewards'.

Your Holiness, a few days before the beginning of the Extraordinary Jubilee of Mercy, I would like to express to you once again our gratitude for your encyclical *Laudato sì'*, within whose furrow we intend to offer our contribution to a deep and effective 'conversion of hearts', in the certainty that 'a true ecological approach *always* becomes a social approach; it must integrate questions of justice in debates on the environment, so as to hear *both the cry of the earth and the cry of the poor*' (n. 49).

In addition, we want here and now to assure you of our prayers for the by now imminent apostolic journey that will take you to Kenya, Uganda and the Central African Republic, that is to say in direct contact with some of the problems that require of everyone, urgently, an 'ecology of the heart'.

It is with filial obedience, Holy Father, that we prepare ourselves to listen to your words and to receive your apostolic blessing which will accompany all those who are present, health-care workers, as well as all people who people who are sick and in difficulty, that is to say those to whom are dedicated our daily moving towards them, always and in every circumstance seeing in each one of them the inviolable value of life and the dignity that is written into in every person. ■

Address of His Holiness Pope Francis

SALA REGIA, THURSDAY, 19 NOVEMBER 2015

Dear Brothers and Sisters,

Thank you for your welcome! I thank Archbishop Zygmunt Zimowski for the courteous greeting he addressed to me on behalf of all those present, and I give my cordial welcome to you, organizers and participants of this 30th International Conference on "The Culture of *Salus* and of Welcome at the Service of Man and the Planet". I extend a heartfelt thank you to all the collaborators of the Dicastery.

Many questions will be addressed in this annual meeting, which marks the 30 years of activity of the Pontifical Council for Health Pastoral Care, and which also coincides with the 20th anniversary of the publication of St John Paul II's Encyclical Letter *Evangelium Vitae.*

In fact respect for the value of life and, even more so, love for it, finds irreplaceable fulfillment in reaching out, drawing near, taking care of those who suffer in body and spirit: all actions that characterize health pastoral care. Actions and, even before, attitudes that the Church will especially emphasize during the Jubilee of Mercy, which calls us all to be close to our most suffering brothers and sisters. In *Evangelium Vitae* we can trace the constitutive elements of the "culture of *salus*": namely, *hospitality*, *compassion*, *understanding* and *forgiveness*. They are the habitual attitudes of Jesus in relation to the multitude of needy people that approached him every day: the sick of every kind, public sinners, the demon-possessed, the marginalized, the poor, foreigners.... And, curiously, in our *throwaway culture*, they are rejected, they are left aside. They don't count. It's curious... What does this mean? That the throwaway culture is not of Jesus, it's not Christian.

Such attitudes are what the Encyclical calls "positive requirements" of the Commandment about the inviolability of life, which, with Jesus, are manifested in all their breadth and depth, and which again today can, or better yet, must distinguish health pastoral care: they "range from caring for the life of one's brother (whether a blood brother, someone belonging to the same people, or a foreigner living in the land of Israel) to showing concern for the stranger, even to the point of loving one's enemy" (n. 41).

This *closeness* to the other – true closeness, not feigned – to the point of regarding him as someone that belongs to me – an enemy also belongs to me as brother – surmounts every barrier of nationality, of social extraction, of religion... as the "Good Samaritan" of the Gospel parable teaches us. It also surpasses that culture in a negative sense, according to which, whether in rich countries or in poor ones, human beings are accepted or rejected according to utilitarian criteria, in particular, social or economic utility. This mentality is parent of the so-called "medicine of desires": an ever more widespread custom in rich countries, characterized by the quest for physical perfection at any cost, in the illusion of eternal youthfulness; a custom that in fact leads to discarding or marginalizing those who are not "efficient", those who are regarded as a burden, a bother, or are simply unappealing.

Likewise, "reaching out" – as I recalled in my recent Encyclical *Laudato Si*' – also implies assuming *unbreakable responsibilities towards Creation and the "common home*", which belongs to all and is entrusted to the care of all, also for the coming generations.

The anxiety that the Church harbours is for the fate of the human family and of all of creation. It is about educating everyone to "care for" and to "administer" Creation as a whole, as a gift entrusted to the responsibility of every generation, so that it is handed down as intact and humanly liveable as possible to the coming generations. This conversion of heart to the "Gospel of Creation" implies that we make our own and render ourselves interpreters of the cry for human dignity, which is raised above all by the poorest and most excluded, as sick and suffering people often are. In the now imminence of the Jubilee of Mercy, may this cry find a sincere echo in our hearts, so that in the exercise of the corporal and spiritual works of mercy, according to the different responsibilities entrusted to each one, we can also receive the gift of God's grace, while we render ourselves "channels" and witnesses of mercy.

I hope that in these days of reflection and debate, in which you also consider the environmental factor in its aspects most strongly related to the physical, psychological, spiritual and social health of the person, you may contribute to a new development of the culture of *salus*, understood also in an integral sense. I encourage you, in this perspective, to always bear in mind in your work the reality of those populations, which suffer most the damages that stem from environmental degradation, serious, often permanent injuries to health. And, speaking of these damages that stem from environmental degradation, it is a surprise for me to find – when I go to the Wednesday Audience or to parishes – so many sick people, especially children.... The parents say to me: "He has a rare illness! They don't know what it is". These rare illnesses are the consequence of the sickness that we inflict on the environment. And this is serious!

Let us ask Mary Most Holy, Health of the Sick, to accompany the work of your conference. We entrust to her the commitment that, every day, the different professional figures of the world of health carry out in favour of the suffering. I wholeheartedly bless you, your families, your communities, as well as all those you meet in hospitals and in nursing homes. I pray for you; and you, please, pray for me. Thank you.

THURSDAY 19 NOVEMBER

INTRODUCTION

Pastoral Care in Health and the Promotion of Human Life: the Thirty Years of Activity of the Pontifical Council for Health Care Workers

H.E. MSGR. ZYGMUNT ZIMOWSKI
President of the Pontifical Council for Health Care Workers, the Holy See

At the beginning of the deliberations of this thirtieth international conference I would like to greet all those present who have come from far away and not so far away. I would like to apologise if I do not list all the countries that are represented here but I do not want to forget one of them! Over the next three days we will have many opportunities to be together and thus to exchange ideas and opinions.

The international conference that we are about to begin has a special character inasmuch as it is being held in a year when we are remembering respectively: the fiftieth anniversary of the Second Vatican Council; the thirtieth anniversary of the foundation of the Pontifical Council for Health Care Workers; and the twentieth anniversary of the publication of the encyclical *Evangelium Vitae* of St. John Paul II; and, in the year now underway, the publication of the encyclical *Laudato sì'* of Pope Francis. In addition, this international conference is taking place a few days before the opening of the Extraordinary Jubilee of Mercy. Within this framework, our international conference seeks to take into consideration at least some of the most relevant points connected with pastoral care in health and the promotion of human life.

1. Pastoral Care in Health and the Culture of Life

As is well known, on 11 February 1985, the liturgical memorial of the Blessed Virgin Mary of Lourdes, Pope St. John Paul II, by his *Motu proprio Dolentium Hominum*, instituted an Pontifical Commission *ad hoc* which had the task of coordinating the activities of the Roman Curia connected with pastoral care in health as engaged in by the Church. Subsequently, this *Motu proprio Dolentium Hominum* set out the mission and the tasks of this new body of the Apostolic See, that is to say to safeguard and protect the value of life, from its emergence until its natural sunset, and the dignity of the human person, in particular as regards realities connected with the sphere of health and the health-care world. This dicastery, from the outset, was entrusted to the then Bishop Fiorenzo Angelini, who was subsequently made a Cardinal (1991) and was the first president of this dicastery and for very many years the central Ecclesiastical Assistant of the Association of Italian Catholic Doctors. Cardinal Angelini passed away on 22 November of last year, precisely at the end of the last international conference. I would like to observe here that on the first anniversary of his pious transit, on Sunday next, 22 November, in the Church of the Holy Spirit in Sassia – at 11.00 – a Holy Mass will be celebrated in his memory presided over by His Eminence Cardinal Angelo Sodano, the Deacon of the Cardinals' College. We owe the much lamented Cardinal Angelini deep gratitude for having perceived that the world of health and health care, together with action in the sphere of education, constitutes one of the principal instruments that exists for evangelisation; this was a perception which met with full assent, and was corresponded, by St. John Paul II.

From 1997 onwards his successor was Cardinal Javier Lozano Barragán who held his post until 18 April 2009. On 30 October of last year Cardinal Lozano celebrated the sixtieth anniversary of his priestly ordination. Our most cordial and sincere best wishes go to Cardinal Javier Lozano Barragán and they are accompanied by my and our gratitude for his contribution to the development of our Pontifical Council.

I would also like to take this opportunity to thank all the Members and Consultors of the Pontifical Council, both of the present time and those who have followed one another over the last three decades, as well as the personnel and staff who have made, and still make, their contribution to its mission.

During the three decades of its existence, our Pontifical Council has been strongly involved in the study of – with activities involving promotion and dissemination in relation to – everything that is related to the culture and pastoral care of *salus* and thus care for the person, in both a physical and spiritual sense.

I would like to mention only four of the immense contributions and activities of the Pontifical Council which in an emblematic way reflect its mission and its service to the culture of life.

1.1 The Pontifical Academy for Life

By the *Motu proprio Vitae Mysterium* of 11 February 1994 of Pope John Paul II the Pontifical Academy of Life was founded, being located at our Pontifical Council. Its principal mission is to study, inform and shape opinion as regards the principal questions of biomedicine and law connected which are connected with the promotion of the culture and defence of life, above all in relation to Christian morality and the Magisterium of the Church.

1.2 The Charter for Health Care Workers

In 1995 our Pontifical Council published its *Charter for Health Care Workers* which has been translated into nineteen languages. At the present time, taking advantage of the help of experts in the various medical-surgical, theological-moral, pastoral and political-legal disciplines, a revision of this document has been completed, as well as its updating, in the light of the new advances in medicine, specific declarations of the Magisterium of the Church made after the year 1995, and new developments that have concerned the health-care world (of a political-legislative and political-economic character). A new development which it appears useful to refer to is the anthropological value that the biomedical sciences have acquired in contemporary culture, in specific service to the integral good of life and the dignity of every human being, within a fertile and reciprocal dialogue between biomedicine and the affirmation of moral principles by the Magisterium of the Church. In this activity, attention has been addressed not only to the classic professional figures of health care (medical, nursing and auxiliary personnel) but also biologists, pharmacists and health-care workers who work in the local areas, administrators, legislators in the health-care field, pharmaceutical companies, and workers in the public and private sectors, whether secular or confessional.

After the positive assessment of the plenary assembly of March 2014 and the addition of suggestions and observations that came from Members or Consultors, the text obtained from the Congregation for the Doctrine of the Faith the necessary *nihil obstat* for its publication. The translation into English of the text is in its final stage and it is envisaged that the *Charter for Health Care Workers* will be launched with a suitable press conference so as to achieve a suitable resonance for this document which in various countries is usually adopted for specific formation as regards questions connected with bioethics and pastoral care in health in faculties of medicine and surgery and in university courses on nursing and for health-care workers.

1.3 The World Days of the Sick

In the letter addressed to Cardinal Fiorenzo Angelini of 13 May 1992 – the day that commemorates the first apparition of Our Lady of Fatima in 1917 – the Blessed John Paul II established 11 February as the date for the celebration of the World Day of the Sick, the liturgical memorial of the Blessed Virgin Mary of Lourdes. As with what was established by Pope Benedict XVI for the World Youth Days, the World Day of the Sick is celebrated every three years in solemn form, whereas individual dioceses are asked to dedicate themselves to the annual celebrations.

As regards these World Days, on 11 February 2016 the Pontifical Council for Health Care Workers will celebrate in solemn form the twenty-fourth World Day of the Sick which will take place in Nazareth. The theme of this World Day will be: 'Entrusting Oneself to the Merciful Jesus like Mary: "Do whatever he Tells you!"' (Jn 2:5). The *Message* of the Holy Father for that event has already been published.

On this occasion the local Churches will be involved, as by now is customary, not only in the celebration of this World Day itself but also in the preparations for the connected theological-pastoral conference whose theme will, in addition, address specific questions and issues of the Middle East: ones connected with peace, reconciliation and health. In addition, a meeting will be organised with bishops of the region who are responsible for pastoral care in health. In particular, it seemed appropriate on this occasion to address the subject of health as an element that could stimulate ecumenical and inter-religious dialogue, in line with what is also recommended in the Bull of indiction *Misericordiae Vultus*. This will also be an opportunity to visit and to bring concrete help, of an economic character as well, to a number of health-care institutions of the region of Palestine which find themselves in especial difficulty because of the well known problems that they have to endure.

Furthermore, in this place I am honoured to communicate to you that as regards the Extraordinary Jubilee of Mercy the Pontifical Council has been directly involved, through the Pontifical Council for the Promotion of the New Evangelisation, in the organisation of two great events which bear upon the world of health and health care, that is to say respectively the *Day for Sick and Disabled People* (to be held on 12 June 2016) and the *Day for Workers and Volunteers of Mercy* (to be held on 4 September 2016).

1.4 The 'Good Samaritan' Foundation

This Foundation was wanted and established by St. John Paul II in the year 2004. It expresses the solidarity-inspired and preferential love of the Church for abandoned and less protected people. This Foundation, from an economic point of view, helps those sick people who are most in need, and in particular those who suffer because of infection by HIV/AIDS and other related pathologies.

This Foundation is also involved in a project whose aim to donate medical products and centres to health-care institutions of the Catholic Church in the world. The methodology of its activities envisages the involvement in each country of the apostolic nuncios, the national bishops' conferences, dioceses, and religious Congregations who promote initiatives that are connected with providing help and care in the health-care field.

This initiative has been implemented in cooperation with the Catholic Medical Mission Board

(CMMB), a non-profit making non-governmental organisation whose head offices are in the United States of America, a body which is committed to providing high quality health-care services, health-care material, and medical products, without any form of discrimination based on race, politics or religions, to sick people and people who live in need, throughout the world.

2. Challenges: Continuity and Discontinuity

The Fathers of the Second Vatican Council, in the pastoral constitution *Gaudium et Spes* (7 December 1965), emphasised the responsibilities of future generations, and listed in particular the many crimes and attacks on human life and its dignity: 'any type of murder, genocide, abortion, euthanasia, or wilful self-destruction', and on to 'disgraceful working conditions ' (*GS*, n. 27).

The same list was also taken up and condemned by St. John Paul II in his encyclical *Evangelium Vitae* (cf. n. 3). All these practices, and ones similar to them, as the Holy Father stated, are not only 'shameful' but also 'poison human society, pollute' people, and offend the Creator. In other words, the Second Vatican Council and the Magisterium that was to follow it were already emphasising the close connection between attacks on life and human dignity and injury to the environment in which man lives.

It is also well known that St. John Paul II, during his papacy, often referred to dramatic 'threats to life' which were '*scientifically and systematically planned*' and an 'objective "*conspiracy against life*", involving even international Institutions, engaged in encouraging and carrying out actual campaigns to make contraception, sterilization and abortion widely available' (*EV*, n. 17).

Benedict XVI himself emphasised the possibilities of 'manipulating life' as 'bio-technology places it increasingly under man's control' and observed that human cloning and hybridisation were an 'expression of technology's supremacy' (*Caritas in veritate*, n.75). As a consequence, the Holy Father continued, when discussing the subject, 'we must not underestimate the disturbing scenarios that threaten our future, or the powerful new instruments that the "culture of death" has at its disposal' (*ibidem*).

Opposing these trends, Pope Francis has often invited us to 'care for frailty' and to reject the 'throw-away culture'.

Today, unfortunately, these threats have become even stronger and more sophisticated and, often with arrogance and cynicism, they are imposed and then introduced into mentalities and daily life. But all men and women of good will, and in particular all believers in Jesus Christ, are invited to promote and strengthen the 'culture of life' and to 'proclaim' and 'celebrate the Gospel of life' (cf. *EV*, nn. 79, 82).

3. The Culture of *Salus* and Welcome at the Service of Man and the Planet

This, indeed, is the central approach of the encyclical *Laudato sì* of Pope Francis who has emphasised the need for individuals and authorities really to address the environmental and social problems that have such an impact on health and the psycho-physical, and also spiritual, wellbeing of people. The Holy Father has also stressed that 'The work of the Church seeks not only to remind everyone of the duty to care for nature, but at the same time "she must above all protect mankind from self-destruction"'. (*LS*, n. 79).

In order to understand in a better way a question that is so delicate, wide-ranging and urgent, the analysis of the authoritative speakers at this international conference is important. They will follow one another in the various sessions of this meeting and they will address burning questions concerning man and nature and their mutual interconnections. I would like to emphasise only some of these subjects: climate change and the safeguarding of biodiversity; pollution and waste; animal experiments and genetically modified organisms; viral and bacterial pathologies connected with environmental change; waves of heat and cold; endocrine disrupting chemicals and their impact on health: the environmental impact of economic initiatives and development projects: dialogue between politics and the economy; the ethical and social responsibilities of companies towards environmental resources; innovative projects in favour of a 'healthy world'; a culture of the life of the planet; education and ecological spirituality motivated by a return to simplicity; and the ecology of health-care systems marked by a personalist approach.

In the international conference are suitably placed two round tables and these will aim at achieving dialogue for the safeguarding of life and the creation, as well as ecological education and spirituality that are marked by another lifestyle. Places for the promotion of education in ecology, such as the family, schools, Christian communities, national and international institutions, and other settings, are important at the level of analysis and practical implementations.

And all of this should be done without forgetting about the pastoral dimension of the initiative, that is to say that in particular in places of care and work for suffering people, as in contributing to wellbeing at a planetary level, one can always offer witness in an increasingly better way, the compelling need for which is increasingly perceived. Knowing how to really welcome the other, and other people and how to bend down to people following the example of the merciful, simple and humble Christ himself; growth in gospel wisdom with a view to creating a 'culture of care'; and a 'return to simplicity' to construct 'universal fraternity' (cf. *LS*, nn. 231, 222, 228): these are the challenges that require the highest and most personal involvement.

Lastly, I would like to express my sincere wish that this international conference will be able to bring enrichment and abundant fruits to each one of us, both at the level of theoretical analysis and at the level of practical applications.

I bid you all welcome to our international conference! ■

Greetings

DON CARMINE ARICE, SSC
Director of the National Office for Pastoral Care in Health, the Italian Bishops' Conference, Italy

Most Reverend Excellency Msgr. Zygmunt Zimowski and all the Officials of the Pontifical Council for Health Care Workers, Your eminences, Your Excellencies, and those taking part in this international conference,

I am grateful and honoured to have been invited to address those taking part in this thirtieth international conference, the subject of whose deliberations is a deep reading of the encyclical of Pope Francis *Laudato si'* and its operational consequences for care for, and the promotion of, health. I bring the greetings of the presidency and the general secretariat of the Italian Bishops' Conference who are following this event with interest both because of the contemporary relevance and the importance of its subject and because of the authoritativeness of the speakers who are taking part in it.

Last week the Italian Church celebrated in Florence the fifth National Ecclesial Conference on the subject 'Jesus Christ the New Humanism'. In addressing his rich and extraordinary thoughts to the delegates, the Holy Father expressed himself in the following way: 'One can say that today we are not so much living through an epoch of change as a change of epoch. The situations that we are experiencing today pose new challenges which at times for us are even difficult to understand. This time of ours requires living problems as challenges and not as obstacles: the Lord is active and at work in our world'.

Taking care of our common home is without doubt one of these challenges that should be addressed with courage, urgency and enterprise, both by those who have the grave responsibility of administering the public realm and by all those who hold dear handing over to those who will come after them an inhabitable world and a creation that still bears the beauty and the goodness of its Creator (cf. *LS*, n. 160). Yes, this is an arduous challenge, but it is a possible one if, as Pope Francis writes, we know how to make of ecological culture 'a way of thinking, policies, an educational programme, a lifestyle and a spirituality which together generate resistance to the assault of the technocratic paradigm' (*LS*, n. 111).

History tells us that the victims of an exaggerated technocratic paradigm that no longer places man at the centre of things but, rather, prestige and economic interests, are above all else the poor. Indeed, 'the deterioration of the environment and of society affects the most vulnerable people on the planet' (*LS*, n. 48).

We should not forget that although everyone can boast of being citizens of the world and inhabitants of the earth, and rightly so, nobody can boast of the privilege of saying 'the land is mine' because 'the earth is essentially a shared inheritance, whose fruits are meant to benefit everyone' (*LS*, n. 93). It is not enough to affirm, for example, that a right exists to water: one has to work in a practical way to ensure that this essential, fundamental and universal right, which is a pre-condition for the exercise of other human rights, is guaranteed to everyone (cf. *LS*, n. 30) through targeted initiatives because 'As long as the problems of the poor are not radically resolved by rejecting the absolute autonomy of markets and financial speculation and by attacking the structural causes of inequality, no solution will be found for the world's problems or, for that matter, to any problems. Inequality is the root of social ills' (*EG*, n. 202). The new humanism of Jesus Christ is a humanism of self-giving, of support, in which the culture of encounter and peace should be promoted in line with the culture of justice and truth.

To end, I will take the passage from the encyclical that was cited at the beginning of my speech in which the Holy Father observes the aggressive advance of a technocratic paradigm: how can we cure ourselves of this disease which none of us can be certain of not having? Those who have the grace of living by the side of those who suffer well know that human wounds can become important slits of light by which to reach that demand for meaning which illness and death ask with emphasis. Pastoral care in health should not underestimate this resource; indeed it should be a privileged direction of its action. We must be vigilant so that at least the community of believers which professes faith in Jesus Christ, the new man, keeps alive its awareness of human limitations, human frailty, and man's infinite wish for salvation.

Thank you for listening to me and I wish you well in your deliberations.

Evangelium vitae Twenty Years On

FATHER WOJCIECH GIERTYCH, O.P.
Theologian of the Papal Household, the Holy See

The Gospel of Life

'Teacher, what good must I do? (Mt 19:16)'… 'Do not be conformed to this world (Rm 12:2)'… 'Lest the Cross of Christ be emptied of its power (1 Cor 1:17)'. When these three chapter titles of St. John Paul II's encyclical *Veritatis splendor* are read together, it becomes clear that the Cross of Christ and the divine power and love flowing from the Saviour's heart are at the centre of Christian life. A truly Christian morality cannot be built solely on the natural law. The natural law is the fruit of a rational analysis that studies the inherent finality of creatures and draws conclusions from it. It offers a correcting and illuminating light, but it does not save. Like a signpost, it shows the way, but it does not move. In the pilgrimage of life, we need something more. We need the new law of the Gospel, 'the law of the Spirit of life in Christ Jesus' (Rm 8:2), which is made up of the grace of the Holy Spirit offered to those who believe in Christ, and of the teaching imparted in the Church that points towards that saving grace and shows how to live it out in practice.[1] The Church is concerned about the world and its functioning. But, even more, the Church does not want the power of the Redemption to be wasted.

The encyclical *Evangelium vitae*, which was published twenty years ago by St. John Paul II, is a theological document. Its rich Biblical teaching is not just a devout addition that we can easily ignore as we focus on its defence of the dignity of life. The strictly theological message is central in this voice of a pastor who sees clearly the brutal consequences of the rejection of Christ and of the light of nature and thus urges Christians to maintain their faith in the healing power of grace. St. John Paul II invites us 'to contemplate the One who was pierced' (50),[2] because the Redemption 'is the very life of God which is now shared with man. It is the life which through the Sacraments of the Church – symbolized by the blood and water flowing from Christ's side – is continually given to God's children… From the Cross, the source of life, the "people of life" is born and increases' (51). The Gospel is not just a written text. It is the event, the saving work, of Christ, which has the power to uplift, to heal, to correct and to change erroneous mores. Thus, the encyclical on the Gospel of Life is a prophetic text that announces the power of Christ. It is not just an ideological manifesto that invites people to engage in political struggles, even for a good cause. It is an invitation to practise faith in the power of God that is made manifest in charity (Gal 5:6). 'The blood of Christ, while it reveals the grandeur of the Father's love, shows how precious man is in God's eyes and how priceless the value of his life… Furthermore, Christ's blood reveals to man that his greatness and therefore his vocation, consists in the sincere gift of self… It is from the blood of Christ that all draw the strength to commit themselves to promoting life. It is precisely this blood that is the most powerful source of hope, indeed it is the foundation of the absolute certainty that in God's plan life will be victorious' (25). Thus, the Church not only proclaims but also celebrates and serves the living Gospel of Life (28).

This means that political struggles in the defence of life, noble though they may be, are not central. 'It is not enough to remove unjust laws' (90). When moral reflection is centred on the grace of Christ it is not limited to an analysis of the moral qualification of acts, to a denunciation of horrors or to the establishment of appropriate laws and procedures. The prime concern is the fecundity of grace that leads to a living of a virtuous life. The Gospel of Life stimulates, makes possible and praises all sorts of grassroots social and ecclesial initiatives that support life, that assist the weak and defenceless, and that cultivate the virtues of generosity (26). 'The Spirit becomes the new law which gives strength to believers and awakens in them a responsibility for sharing the gift of self and for accepting others, as a sharing in the boundless love of Jesus Christ himself' (76).

There is no doubt that an encounter with Christ that generates service needs time to develop. The Holy Spirit is working in the hearts of believers according to his own rhythms and according to the extent of human responses. A joyful appreciation of life, whether it is that of a baby who makes its first appearance, or of a sick, frail, old person who maybe, finally, is learning how to let go of attachments and adhere to God, is a fruit of the Cross of Christ that elicits hitherto unknown, unrealised sources of generosity that spring from a hidden grace. When believers draw on the power of grace and live it out in charity, they change the face of the earth from within. When individuals truly live the Christian ethos, they transform society, manifesting thereby the need for consistency between the official laws and the values that are in fact upheld by people. This is difficult in periods when new challenges and the clash of ethics lower moral standards. At such moments faith in Christ and in the power of his grace needs to be cultivated even more.

Revelation tells us that life and death are in the hands of God. Jesus came so that we 'may have life, and have it abundantly' (Jn

10:10). Whereas death entered the world through the evil one, Jesus conquered death (28) giving it a new meaning. Death is now a transfer to eternity. The Gospel of Life knows that beyond the life of the body there is the life of immortality which is 'the Principle of life, the Cause and sole Wellspring of life' (84). This means that suffering and death 'are a part of human existence, and it is futile, not to say misleading, to try to hide them or ignore them. On the contrary, people must be helped to understand their profound mystery in all its harsh reality' (97). Even though the dignity of life has to be defended, 'the life of the body in its earthly state is not an absolute good for the believer' (47). For this reason, the encyclical does not insist upon 'aggressive medical treatment… when death is clearly imminent and inevitable' (65). 'As they approach death people ought to be able to satisfy their moral and family duties, and above all they ought to be able to prepare in a fully conscious way for the definitive meeting with God' (65). A prolonging of the final agony, which is possible with present-day techniques, is not necessarily a sign of charity. The important issue is whether the last stage of earthly life is an expression of faith and of love for God. So, the assisting service of those who, animated by charity, are present at this moment should be a *viaticum*, 'companionship, sympathy and support in the time of trial' (67). The prime evangelical concern is that the ultimate passage will be to the eternity of the heavenly Father.

We know that 'human life finds itself most vulnerable when it enters the world and when it leaves the realm of time to embark upon eternity' (44). The vulnerability of these two extreme moments may be an occasion for a mysterious, hidden, yet true, faith and trust in God, or it may be an occasion for panic, hatred, despair or anger. At the beginning of human life, God creates the immortal soul. At its end, God chooses the best moment for the final encounter. Human manipulations are a proud denial of divine supremacy and cannot undo the hand of God, but they can wound the vulnerable by generating a mental and social context that is not conducive to true trust and love. That is why we need to remember that 'no one… can arbitrarily choose whether to live or die; the absolute master of such a decision is the Creator alone' (47). 'In life and in death, man has to entrust himself completely to the "good pleasure of the Most High", to his loving plan' (46). But the witnesses of these two vulnerable moments, by their own faith and love, exercised precisely at this moment, may facilitate the transfer to the loving hands of God.

New Challenges

A development in morality is a normal phenomenon of history. Apart from variations in moral science, whether philosophical or theological, which are conditioned by social and cultural currents and internal ecclesial inspirations for renewal, there is also a development of moral awareness that arises from the appearance of new challenges. The same moral principles that derive from unchangeable human nature and from the message of the Gospel need to be applied to new and mutable situations. The conscience, being an act of reason, cannot function in a rubberstamp manner. It has to understand the issues and provoke appropriate and creative reactions. But the current velocity of scientific discoveries and technical inventions means that there is a constant need to address surprisingly new ethical questions without having available immediate answers that are suggested by Tradition. Not only every generation but also every individual is faced by issues which seemed unthinkable a short time previously. In our childhood, did we reflect upon the moral implications of using drones as spying paparazzi or as means of transport that can interfere with airport traffic? Ways of being virtuous have to be found in private life as it comes to be challenged by revolutions in technology and communications and encounters with civilisations that have different ethical standards. The ethics of the workplace are constantly tested, in every profession. And in the fields of politics, economic life and international relationships, new moral responses have to be worked out. The addressing of new challenges is particularly visible in the field of bioethics as medicine takes advantage of new techniques.

When St. John Paul II wrote *Evangelium vitae*, the prime threats to human life that sparked his reaction were abortion and euthanasia. Reading the encyclical we have the impression that these were the two major problems. In a brief way he also mentioned other evils such as the harvesting of organs for transplants through a sophisticated prolonging of life in situations of extreme frailty (64) and 'without respecting objective and adequate criteria which verify the death of the donor' (15). He warned that 'health-care professionals can be strongly tempted at times to become manipulators of life, or even agents of death' (89). Since in the meantime new developments have come about, the defence of the sanctity of life requires further insights and reactions. There are new peripheries that need to be noted which require the healing touch of clear thinking and the power of grace.

Among these new moral challenges, which directly concern the medical world. are such issues as *in vitro* fertilisation, the obtaining and use of sperm and eggs, the freezing of unwanted embryos, the renting of wombs, trafficking in organs and biological material, manipulation of the definition of death and its neurological criteria so as to facilitate the harvesting of organs, the production of new chemical narcotics, and also issues that arise from the collapse of the family and the appearance of unstable ephemeral homosexual or heterosexual relationships which demand the civil rights of families and the right to adopt children. New technical possibilities in the field of medicine and fluctuations in social mores place a heavy burden on all those engaged in service to life. Medicine, psychiatry, psy-

chology, pedagogy, programmes of social aid and legal practice all have to deal with new situations, and soon they will have to intensify the multifaceted care offered to the victims of nihilist medical, mental, cultural, social and political engineering. The development of new medical and morally acceptable solutions to real problems is a great service. By way of an example, naprotechnology may be mentioned. It heals infertility, it is cheaper than *in vitro* fertilisation, and it is morally licit. Other morally permissible solutions to practices that endanger the dignity of human life also need to be found. The pastors of the Church cannot step into this field which is one that requires professional medical competence. But they can, and have to, remember that unchanging moral principles are always binding.

The Roots of Disorder

Evangelium vitae lists a number of fundamental roots of moral disorder which lead to the denial of the dignity of human life. Years have passed since its publication but the pertinence of these observations is still evident. The 'culture of death' has its origin in the fact that 'when the sense of God is lost, there is also a tendency to lose the sense of man' (21). 'Man is no longer able to see himself as "mysteriously different" from other earthly creatures' (22). 'When God is not acknowledged as God, the profound meaning of man is betrayed and communion between people is compromised' (36). Anthropology is intrinsically connected with theology, and where the perception and reception of the revealed God is eclipsed then 'people live as though he did not exist' (96). This leads 'to a practical materialism, which breeds individualism, utilitarianism and hedonism' (23).

A direct result of the denial of God is the 'trivialization of sexuality' which is 'among the principal factors which have led to contempt for new life'. When sexuality is not seen to be intrinsically destined for procreation, 'openness and service to life' (97) disappear. The reduction of sexuality solely to being a source of hedonistic pleasure degrades human relationships and generates egoism. An unbridled sexuality first of all deforms men who fail to mature in paternity. The weakest are the first victims of this. The suggestion that sex has to be 'safe', safe from the 'enemy', (23) entails a mental aggressiveness towards a potential child. The immediate consequence of a lack of chastity is hostility towards children and the abandonment of their mothers.

The Gospel of Life points to distorted understandings of liberty, divorced from truth, nature and generosity. The 'culture of death, taken as a whole, betrays a completely individualistic concept of freedom, which ends up in becoming the freedom of "the strong" against the weak' (19). Freedom is attributed 'a perverse and evil significance: that of absolute power over others and against others' (20). 'Freedom negates and destroys itself, and becomes a factor leading to the destruction of others, when it no longer recognizes and respects its essential link with truth' (19). 'In this way, any reference to common values and to a truth absolutely binding on everyone is lost, and social life ventures on to the shifting sands of complete relativism. At that point, everything is negotiable, everything is open to bargaining: even the first of the fundamental rights, the right to life' (20). It is not surprising, therefore, that 'grave crimes and radical denials of freedom have… been committed… in the name of "ethical relativism"' (70).

Positions that are contrary to life are often presented as philosophical convictions. One may ask oneself to what extent they are the fruit of honest, although erroneous, thinking, and to what extent they are merely conclusions drawn from assumptions accepted *a priori* and uncritically in the name of hedonist comfort. When 'the only goal that counts is the pursuit of one's own material well-being… the so-called "quality of life" is interpreted primarily or exclusively as economic efficiency, inordinate consumerism, physical beauty and pleasure, to the neglect of the more profound dimensions – interpersonal, spiritual and religious – of existence' (23). Such a mentality 'carries the concept of subjectivity to an extreme and even distorts it, and recognizes as a subject of rights only the person who enjoys full or at least incipient autonomy' (19). This amounts to an equation of 'personal dignity with the capacity for verbal and explicit, or at least perceptible communication' (19), suggesting that man in a sort of post-Cartesian definition can be reduced to mental awareness functioning through the brain to which an irrelevant body is attached. It needs to be clearly recognised that these views introduce a profoundly distorted understanding of human nature. Instead of the classical definition of man as having a single nature, in which the soul is the form of the body, allowing the body made of matter to be a living human body,[3] 'the body is no longer perceived as a properly personal reality… It is reduced to pure materiality: it is simply a complex of organs, functions and energies to be used according to the sole criteria of pleasure and efficiency' (23). Thus, suffering, 'a factor of possible personal growth is "censored", rejected as useless… When it cannot be avoided… then life appears to have lost all meaning and the temptation grows… to claim the right to suppress it' (23).

The Ethical Foundations of the Political Order

The appearance of new moral challenges provokes political reactions and questions. How and to what extent should the state, with its regulations and penal system, be engaged in new areas where moral values are endangered? This is particularly difficult where there is general moral relativism and scepticism about the cognition of moral truth. Furthermore, experience shows that as a result of socialism there is an extension of the competence of the state, producing as a result expectations, but the greater the inter-

ference of the state in all realms of life, the lower are the moral standards that it can enforce. All this has direct implications in medical practice. *Evangelium vitae* responds to these issues referring to the teaching of St. Thomas Aquinas. Since new ethical problems are constantly appearing, his clear distinctions are extremely useful.

Aquinas insists that human laws are based upon the natural law. The state does not have the task of leading man to salvation, but it does have to respect justice and human rights. It channels people towards virtuous living, even though this is done slowly and not with the immediacy of sacramental grace.[4] Since states administer various institutions, and more than was the case in medieval times, they need moral clarity. It is impossible to run prisons, schools, hospitals and orphanages, and also to formulate policies for the economy and international affairs, without a knowledge of moral principles. The Church, thanks to divine Revelation, knows moral truth, but states need to know it as well for their own functioning. When society is formed by the Church and by a living moral tradition this grants interior support to the state, because those serving it adhere to moral values. When society lacks moral clarity and espouses moral relativism, states are left hanging in the air and are dependent on ephemeral and changing moods.

Human laws have their dignity, specific autonomy and limitations. Their dignity derives from the social nature of man. Men require a social organisation and so the laws that are enacted for society and officeholders deserve respect. Human laws, including penal laws, are not directly and solely deduced from general moral principles. They have to take into consideration the specific conditions of the state, the means that it has available, and the morale of the society that they serve. Thus in the process of legislation, political prudence has to be aware of sociological data and of practical possibilities which may vary from time to time and from country to country. And, lastly, since the laws of the state use coercive force, their capacity to instil virtue is limited.

Aquinas clearly distinguishes between the moral order and the penal order. The two are not identical. Human laws need to affirm basic human values that are perceived by the natural law. If they are contrary to the natural law, they are tyrannical and generate serious moral dilemmas which in turn weaken the state and reduce social cohesiveness. The penal order is justified by the moral order, but it does not enforce all the virtues. The prime concern of the state is justice. Temperance, chastity, faith and hope have to be cultivated in society through other means and institutions. It follows that decisions about the criminalisation of some sins require a social support, an understanding, a peaceful acceptance that will not generate a *turbatio*, a civil war or contempt for moral rules, and they require technical means. Since such decisions are political, and involve an appreciation of a given society and state, they pertain to the *ars* of statesmanship and not solely to the *scientia* of moral knowledge. Whereas there may be complete agreement about the negative moral qualification of a sinful act, there may be disagreement about its eventual criminalisation or about the forms of its criminalisation. The Catholic understanding of the relationship between ethics and the penal system is not puritan in character. Not all sins are punished by the state. Laws may forbid evil acts in some situations, accepting that there are other situations in which the state shall not intervene. The limited competence of criminal laws may be cherished, as this leaves space for freedom and personal growth in virtue, and this does not mean the approval of evil. It may be accompanied by awareness that some people will misuse the liberty that is given and will opt for evil, and yet a limited criminalisation of evil may be appreciated.

Evangelium vitae stresses the importance of the moral foundation of laws, particularly as regards the fundamental issue of the defence of life. It criticises the view that attacks on human life can be legally justified in the name of the supposed 'opinion and will of the majority of citizens' (68) and that every politician 'should clearly separate the realm of private conscience from that of public conduct' (69). This amounts to a drastic reduction of moral responsibility, its exclusion from the public sphere. 'Democracy cannot be idolized to the point of making it a substitute of morality or a panacea for immorality', because 'without an objective moral grounding not even democracy is capable of ensuring a stable peace' (70). 'The doctrine on the necessary conformity of civil law with the moral' (72) put forward by the Church is a 'part of the patrimony of the great juridical traditions of humanity' (71). Recalling Aquinas, the encyclical reminds us that if a law 'is somehow opposed to natural law, then it is not really a law but a corruption of the law' (72). Laws which are in complete opposition to the inviolable right to life are tyrannical. 'There is no obligation in conscience to obey such laws: instead there is a grave and clear obligation to oppose them by conscientious objection' (73).

But, again following Aquinas, the encyclical does accept that 'public authority can sometimes choose not to put a stop to something which – were it prohibited – would cause more serious harm' (71). Political, social and not solely ethical concerns come into the process of legislation. Furthermore, there are situations where politicians are not capable of eradicating evil totally, but they can introduce measures that reduce it. Such a political compromise 'aimed at limiting the number of authorized abortions, in place of a more permissive law already passed' (73) is acceptable. It is not a compromise with evil or its moral approval, but the introduction of restrictions that lessen the scope of the evil that is committed. It specifies the extent of the penal power of the state, which by the decision of the legislator, for various reasons, is not absolute.

At the time of writing of the encyclical, legislators and vot-

ers in many countries were faced with vociferous groups demanding the extension of access to abortion and in some countries to euthanasia as well. It is clear that the Church in her stance opposed such a development. Some countries, however, had already, and for decades, permitted abortion on demand. There were attempts to restrict access to abortion, and in some cases these turned out to be successful, even though a total criminalisation was not attained. These moves have to be assessed positively as being a step in the right direction. The problem remains, however, that in reducing evil in many respects, some clearly defined loopholes were left available. The introduction of a restrictive but not absolute penal law does not necessarily entail an approval of evil in those cases where the state refrains from criminalisation, even though legally such un-criminalised evil action is treated by some as a right. Not all politicians and voters understood the intricacy of the situation. In the name of an outright rejection of abortion, some politicians, even Catholic ones, refrained from supporting a compromise restrictive solution, thereby in fact favouring the previous legal arrangement which was much worse.

New developments in medical practice, but also in other fields, generate moral dilemmas. There is always a time gap between the arrival of a new problem, its clear ethical understanding, and then the legal, and we should also add, canonical, reaction to the new challenge. Where there are no regulations, because the problem is totally new, the absence of restrictive or penal laws permits abusive practices. The subsequent introduction of restrictive regulations that are not absolute in their condemnation – because due to the lack of a general understanding of the issue such an outright condemnation is politically unattainable – can be accepted, even though loopholes remain. Where there are no regulations concerning *in vitro* fertilisation, malpractices are rampant. Where such malpractices are restricted by the law, this is a step forward in the right direction, even though, within some limits, evil actions are still taking place.

It needs, however, to be always remembered that an honest person does not reduce his moral standards to the level imposed by the state but follows the perception of the true good as it is recognised by his own reason. Honesty is more demanding than the penal system of the state. The consciences of Christians, animated by the interior grace of the Holy Spirit, introduce a higher ethos to society. Their input is not only political. It is expressed in a host of activities that express adherence to true values, social responsibility and generosity.

But, as *Evangelium vitae* reminds us, 'although laws are not the only means of protecting human life, nevertheless they do play a very important and sometimes decisive role in influencing patterns of thought and behaviour' (90). Laws have not only a penal but also a pedagogical function. Where the state refrains from criminalising some evil act, the morally weak cease to see any problem with it, and others even demand access to it, as a civil right, sometimes even insisting that it be financed by the taxpayer. Experience shows that when the public order tolerates evil, or, even worse, when it justifies the limitation of its involvement by moral agnosticism, very soon the state becomes totalitarian, imposing as political correctness what hitherto has only been tolerated. Then profound injustices are treated as rights that should be legally protected and required of society. Thus 'choices once unanimously considered criminal and rejected by the common moral sense are gradually becoming socially acceptable' (4). Society, therefore, has to react, demanding that moral values be defended. But where new problems arise that had not existed before, first their moral significance has to be understood and the moral sense has to be formed. This requires a multifaceted pastoral and educative effort and not only legislative action.

In political debates and negotiations, it should be stressed that the limitation of state involvement, justified by various reasons, which leads to the legal toleration of some evil is never to be interpreted as a treating of the committing of that evil as a right or even more as an obligation. Privacy and a limitation of state interference is a value that can be respected, but moral clarity is still necessary. Even where the state does not intervene, and, for example, does not prevent adultery, it should not treat it as a protected social value that has to be promoted by the state. All citizens, therefore, should have the right to refrain from cooperation in evil, even if they are employed in state institutions where evil actions are taking place. The Gospel of Life reminds us: 'To refuse to take part in committing an injustice is not only a moral duty; it is also a basic human right' (74). It is important, therefore, that the high standards of the Christian ethos be maintained in society, even though those who adhere to these standards may be a diaspora in a world that has lost its moral rooting. The pastoral effort of the Church needs to be addressed not only to those people who do not respect basic moral values but also to those people who appreciate them but need to be strengthened so that they will strongly adhere to them as they meet opposition in society and the state. Holding onto the Gospel of Life even by a minority of convinced Christians is a defence of freedom. We can say this because we note that the rejection of the natural and Christian ethos has led to the imposition of immoral practices by the full force of intolerant states and their secular inquisition.

In this context, it is well worth recalling the principle of subsidiarity and this is an age-old feature of Catholic social ethics. The extension of the power of states with a concomitant reduction of space for grassroots social initiatives that are independent of state financing and state control is attacking the moral fibre of societies. Private initiatives, private schools and universities, private health-care systems and insurance companies, are generally cheaper to run and are more in accord with

the moral values of those whom they serve and who support them than those that are run by the state. Furthermore, they are conducive to virtuous generosity. Omnipotent states greatly limit the fields of individual moral response, attributing excessive, even moral, power to their officials and ideologies, and they generate a passive sense of entitlement among the population. They also provoke moral qualms among taxpayers, who are forced to support initiatives that they do not uphold. In some countries, Christians are engaged in defending the liberty to live in their private and public lives according to the moral values that they affirm. In other countries, Christians have passively accepted the thinning out of religious liberty, as moral responsibility has been excluded from it and has been transferred from the individual conscience to the decisions of the state or even of supranational institutions.

The Sword of Grace

The author of the Letter to the Hebrews tells us: 'The word of God is something alive and active: it cuts like any double-edged sword but more finely: it can slip through the place where the soul is divided from the spirit, or joints from the marrow; it can judge the secret emotions of thoughts' (Heb 4:12). This sword of the Word of God, coupled with the force of grace, is more powerful than the sword used by St. Peter to cut off the ear of Malchus (Jn 18:10-11). The Church's response to the dramas of life and death is not solely political. Primarily, it is supernatural, even though Christians are often tempted to restrict themselves to political measures. An actively exercised faith opens a window in the soul to the graces flowing from the Cross of Christ. Through graced charity, Christians bring the power of grace to seemingly impossible situations and transform them from within. St. John Paul II cried out in *Evangelium vitae*: 'A great prayer for life is urgently needed, a prayer which will rise up throughout the world. Through special initiatives and in daily prayer, may an impassioned plea rise to God, the Creator and lover of life, from every Christian community, from every group and association, from every family and from the heart of every believer. Jesus himself has shown us by his own example that prayer and fasting are the first and most effective weapons against the forces of evil' (100). ■

Notes

[1] St. Thomas Aquinas, *Summa Theologiae, Ia-IIae,* q. 106, a. 1.

[2] All the quotations in the text are from the 1995 encyclical *Evangelium vitae*.

[3] Cf. *The Catechism of the Catholic Church*, n. 365, with a reference to the Council of Vienna.

[4] *S. Th., Ia-IIae,* q. 96, a. 2, ad 2: '*Lex humana intendit homines inducere ad virtutem, non subito, sed gradatim*'.

A 'Theology of Life' in the Work of Joseph Ratzinger/Benedict XVI

HIS EMINENCE CARDINAL GERHARD LUDWIG MULLER
The Prefect of the Congregation for the Doctrine of the Faith, the Holy See

During his address to the International Theological Commission in 2007, Pope Benedict XVI launched an invitation to justify and describe the foundations of a universal ethic – that broad and general ethic 'that is part of the great patrimony of human knowledge which in a certain way constitutes the rational creature's participation in the eternal law of God'.[1] In addition, the Pope Emeritus named the principles on which the theology of natural moral law and the attempt at a successful life are based: 'Do good and avoid evil' – this is the first element which in its turn is valid for all the most concrete principles, rights and obligations that govern the lives of individuals. In this context, for Benedict XVI, attention paid to the dignity of life, already starting at its beginnings and going on until its natural end, is the necessary pre-condition for life (which for men is an inviolable good cannot be disposed of as one pleases) being perceived and accepted as a gift of the creator. Life, as a gift of God, has its own dignity and its own inviolability, as Benedict emphasised in other speeches,[2] and both these qualities cannot be called into question, not least when it comes to those who suffer, to those who have handicaps, and to those who are not yet born. The dignity of life is inherent in human nature. And from this emerges the rights and duties of man as regards his neighbour when he meets him concretely, and as regards society which is understood as the social fabric in which individuals move.

The consequences for the debate about bioethics should be discussed within this fundamental framework. Can it be justifiable, given that human cloning is technically attainable, to freeze embryos, or, having available biomedical technologies that are

able to nurture claims and expectations, to assess the life of a person only from these points of view? How can one deny that human beings are no longer treated as 'someone' but as 'something' made non-human for the purposes of research which is able to go beyond the boundaries of bioethical responsibility?[3]

For Benedict XVI, relativism and subjectivism are the cause of a way of thinking according to which immorality is seen as a moral good. If man is assigned life by other men on the basis of criteria of convenience, according to the principle of the best return and mere self-evidence, then the possibility of depriving him of this life would also as a consequence appear to be legitimate.

In relativism, man is deprived of the non-disposable character of life, as well as of his own dignity which is subjected to the criteria of human competence. One can observe the impact of the consequences of such a reduction of the value of human life by considering the examples of the family and marriage. A marriage contracted voluntarily between two people, having value for the whole of life, would be reduced to a social convention and its essence could be modified at will. Concepts such as the family, taking care of children, and respect for the elderly and the sick, would be subordinated to the prevalent opinion and by this subjected to arbitrary will…

In his 'Message on the Occasion of the World Day of Peace of 2013', Benedict XVI expressed himself in a clear way about so-called secular society and the other religions. The single great human family which embraces the whole of the world, organised into small circles of interpersonal relationships and institutions with a political and ecclesiastical profile, is animated and underpinned by a communitarian 'We' that includes life in its entirety. By life one also understands here the construction of a coexistence based upon truth, freedom, love and justice, starting with great social relationships at the level of the state and society and going on to the family which is understood as the primordial domain in which interpersonal life is shaped. 'It is in the family', observed Benedict XVI, 'that peacemakers, tomorrow's promoters of a culture of life and love, are born and nurtured'.[4]

An Existential Foundation

The roots of deep knowledge of life in the eyes of God, and of an understanding of the character of the gift of life itself, are inherent in the existential and sacramental foundation that permeates the theology of Joseph Ratzinger. The words of the Apostle Paul to the Galatians (2:20), 'It is no longer I who live, but Christ who lives in me', place 'life' in the domain of an experience of conversion that provides us with the coordinates for a life based on faith. This is an aware orientation towards truth, towards love for faith and above all for the contents of faith that determine life. One can speak of a sort of 'change of subject' whose purpose is interior orientation towards Christ and it is the task of men to follow Christ and imitate him. Life, therefore, takes the meaning of a change in direction, of a struggle for truth in an existential and philosophical sense with the challenges posed by the questions of the contemporary world. The 'Regensburg Lecture' of 2006, and the discussion held with the German sociologist Jürgen Habermas in Munich in Bavaria in 2004, or again the discourse with Marcello Pera, demonstrate the seriousness of his thought – for that matter documented many years previously – about the broad questions and issues of 'life' under the heading of the right to truth, to life and to hope. In his encyclical *Caritas in veritate* Benedict XVI took up the encyclical *Populorum progressio* of the Blessed Pope Paul VI when he quoted the following words from it: 'in the design of God, every man is called upon to develop and fulfil himself, for every life is a vocation'.[5] Life is the development and exploration of faith and the search for truth.

Joseph Ratzinger was able to give clear concrete expression to this aspect in the homily on the Good Samaritan (Luke 10:25-37) which he gave in Chile in the summer of 1988 and which is now also to be found published as an appendix to the volume *Introduzione al Cristianesimo* (*Opera Omnia*, vol. 4).[6] In his famous 'Introduction to Christianity' he illustrates the Creed as the key by which to interpret our lives: where existence wants to be interpreted according to the matrix of faith and at the same time wants to be understood by that matrix. And it could not be otherwise.

At the beginning of this research there is the question posed to Jesus by a doctor of the law: what is the right way to live? What do I have to do to manage to be a man? These are questions that concern each one of us and to which we would like to have answers. Is it enough for us to have money, to have influence over other people, or is it power that assures us real life? And the answer is found not least in recognising that one can lead a life that is genuine and consonant with truth only if its origins and goal are considered, that is to say the creation and being a creature, as well as eternal life. God has assigned to man a mission in the world and in due time man must realise this. Life in the eyes of God cannot, therefore, mean that man is his own yardstick and can therefore lead a life that denies his neighbour his own independence and his being a creature of God. Rather, it means acting in order to bring into the world a gleam of divine goodness.[7] So here is the first criterion: true life, for man, means living so that there is God, aware of the fact that it is God who has entrusted a 'mission' to each one of us.

The right path for life passes by way of acceptance of the commandment 'Love the Lord your God with all of your heart, with all of your soul, with all of your strength and with all of your mind!' and 'Love your neighbour as yourself' (Luke 10:27). This co-penetration of life becomes, therefore, the very pathway to follow for a just and successful life. It is not enough to believe at a theoretical level – one has to accept God as the fundamental aspect of

our lives.[8] This is the fundamental requisite for a happy life because, depending on God, it constitutes at the same time the revelation of an existential greatness for every individual man.

Spe salvi

Spe salvi, the second encyclical of Benedict XVI, at n. 27 coins the following programmatic statement about the concept of life in relation to the Christian hope of achieving fulfilment: 'Man's great, true hope which holds firm in spite of all disappointments can only be God – God who has loved us and who continues to love us "to the end," until all "is accomplished" (cf. *Jn* 13:1 and 19:30). Whoever is moved by love begins to perceive what "life" really is. He begins to perceive the meaning of the word of hope that we encountered in the Baptismal Rite: from faith I await "eternal life" – the true life which, whole and unthreatened, in all its fullness, is simply life. Jesus, who said that he had come so that we might have life and have it in its fullness, in abundance (cf. *Jn* 10:10), has also explained to us what "life" means: "this is eternal life, that they know you the only true God, and Jesus Christ whom you have sent" (*Jn* 17:3). Life in its true sense is not something we have exclusively in or from ourselves: it is a relationship. And life in its totality is a relationship with him who is the source of life. If we are in relation with him who does not die, who is Life itself and Love itself, then we are in life. Then we "live"'.

Life is Relationships

The salient point is the concept of 'relationships'. Life does not imply an isolated and monadic life far from other people but, rather, it sees its vocation in community. First of all, community with God. He is the one who creates life and leads it to completion. Then there is the community of the Church, the people of God called by Jesus – who are led back to God in the Eucharist – as the body of Christ, who is the head of this people and in the crucifixion and the resurrection makes us today participants in the ultimate sacrifice of the Son of God as a unique moment in the history of the world. To live, therefore, means to share in Christ and his salvific mission, which will have no end and is always present.

Models of life such as the individualism of salvation or Pelagian self-redemption are revealed to be a pathway that is inaccessible for true life. Benedict XVI, in his first encyclical *Deus caritas est*, also speaks about the exercise of charity as an integral part of the Church, something that is clearly reflected in her mission.

Living means community.

Living means acting for the poor and the sick, dedicating oneself to those in need, respecting dignity and autonomy…The community moment of life does not end in a sociologically definable institution such as the state but, rather, is realised in love and in dedication to neighbour.

Living means seeing God who has given us freedom, deciding for Him, and behaving according to human nature.

Living means having self-perception in the domain of the responsibility that we have as creatures of God and accepting our own value in our relationship with God and our neighbour.

Knowledge of God in the Life of Man

For Christian faith, the meaning of life lies in accepting the love of God for men which was revealed once and for ever in Jesus Christ, a love that opens to us at the same time the way to God. Knowledge of God and encounter with God, for Joseph Ratzinger/ Benedict XVI, are not theoretical questions but a *praxis of life*. The incarnation of God implies that the obedience of the Son to the will of the Father was incarnated in the world and in a concrete form of life (cf. Heb 10; Ps 40 [39],7–9). Since then, the most important implementation of faith has no longer been listening but 'Incarnation': the theology of the Word becomes theology of the Incarnation. The dedication of the Son to the Father is the outcome of an intra-divine dialogue: it becomes acceptance and thus offering of the creation summarised in man. This body, or better the man-being of Jesus, is the product of obedience, the outcome of the love of the Son who responds to the Father. It is, so to speak, a prayer that has become concrete. In this sense, the man-being of Jesus is already contents that are entirely spiritual, with a 'divine' origin.[9]

Life – Theory of the Creation – Living in Faith

The *theology of life* in the thought of Ratzinger should be understood against the background of his theology of the creation. As was the case with St. Bonaventure, for Benedict XVI, as well, faith should be lived within the domain of the demand for universal salvation as a soon as man recognises that everything that exists comes from God the Creator. If, however, life in faith is reduced to a subjective feeling of interiority, so that everyone can feel and think what they want and what pleases them, Christian spirituality is detached from the objective world of matter. *The life of faith* in this case is assigned to the merely personal and thus appears to be reduced to a procrastinating or an alienation of human survival. Biblical faith is something completely different, as expressed in the message of the Immaculate Conception and the tomb that was found empty: God is able to create new things for the world and to intervene in the sphere of the body. One cannot reduce God to mere subjective interiority, as though He were not reality, while the world of matter obeys its own and different law.

With this Christological approach, in the theological work of Ratzinger one can find numerous parallels with, and references to, the encyclicals of his predecessor on the throne of St. Peter. In the pastoral constitution on the Church in the modern world, *Gaudium et spes*, which Cardinal

Karol Wojtyła to a substantial extent cooperated in producing, we read: 'The truth is that only in the mystery of the incarnate Word does the mystery of man take on light' (GS, n. 22). The history of humanity reached its insuperable summit with the incarnation of the Son of God. Pope John Paul II wrote in his encyclical *Redemptor hominis* of 1979: 'This act of redemption marked the high point of the history of man within God's loving plan. God entered the history of humanity and, as a man, became an actor in that history, one of the thousands of millions of human beings but at the same time Unique!' (n. 1). The Son of God enters the history of every man ensuring that he discovers his own greatness and dignity before God. Pope John Paul II adds in this encyclical: 'and because with man-with each man without any exception whatever-Christ is in a way united'(n. 14). Everyone is called to reach 'the summit which is God Himself' to live his own life in the image and likeness of God.

God – Teacher of Life

God does not draw near to the pathway of life of man from the outside. To live means also to take decisions within ourselves and to allow ourselves to be led by God. St. Augustine, one of the great theological teachers of Benedict XVI, emphasised that God guides and accompanies man from within his own spiritual pathway as a 'teacher'. 'Indeed, we must not only have faith but begin, as well, to have intelligence of the truth of what by divine teaching has been written, that is to say we must not see anyone as our teacher on earth because the only teacher of everyone is in heaven. What it means in heaven we will be taught by he, of whom, by men with signs from outside, we have been told to be taught, going back towards him inside ourselves'.[10]

Every individual bears written in his heart what he must do with his own life, what pathway to follow, and how the time that is available to him should be spent, and it is specifically in the heart that these answers should be looked for and interpreted.

In listening to the 'interior teacher', each individual learns to tune his own life to the spirit of Jesus. Romano Guardini, by whom, as early as the beginnings of his theological activity, Joseph Ratzinger was influenced, above all as regards these issues of an anthropological character, wrote as follows: 'In every Christian Christ relives, so to speak, his own life; first of all he is a child, and then he gradually reaches maturity, until he has fully reached the highest age of a Christian. He grows in this sense: his faith grows, his charity grows stronger, the Christian becomes increasingly perspicaciously aware of being a Christian, and he lives his Christian life with increasing depth and responsibility'.[11] Referring to Ephesians 4:13, Romano Guardini, as regards the spiritual growth of the faithful to the point of achieving maturity in Christ, observed: 'An incredible thought! Who could argue this other than in faith, by which Christ is truly the compendium of all things, and in charity that wants to become one thing with him? Or would perhaps the idea be bearable of being conjoined to one – not only conjoined in life and action but conjoined in *being* and in the *self* – if I were not loved like him by whom I find my own *I*, that of the Son of God; my own *You*, that is to say the Father?'[12]

The 'old man' is superseded by the 'new man' who is 'made in the image of Christ' because Christ dwells in the life of each one of us. In Ephesians 3:17, the following is stated on the subject: 'and that Christ may dwell in your hearts through faith; that you, being rooted and grounded in love…'. The interior formal law of human existence, as well as of the whole of history, is thus the life of Jesus.

Benedict XVI has shaped the whole of his life in the light of this orientation towards Jesus Christ, as a priest, as a professor, as a bishop, as a Cardinal and, lastly, during the eight years of his work as Pastor of the Universal Church. A life in the eyes of God and at the service of God and His Church. ■

Notes

[1] Benedict XVI, *Address to the Members of the International Theological Commission*, 5 October 2007.

[2] Cf. Benedict XVI, *Speech to the New Ambassador of the Republic of Ireland,* 15 September 2007*;* and his *Address to those Taking Part in the Plenary Session of the Congregation for the Doctrine of the Faith,* 31 January 2008.

[3] Cf. Benedict XVI, *Address to those Taking Part in the Plenary Session of the Congregation for the Doctrine of the Faith,* 31 January 2008.

[4] Benedict XVI, *Message for the Celebration of the Forty-sixth World Day of Peace,* n. 6, 1 January 2013.

[5] *Caritas in veritate*, n. 16; *Populorum progressio*, n. 15.

[6] Cf. Joseph Ratzinger, *Einführung in das Christentum* (Gesammelte Schriften [JRGS], vol. 4), edited by Gerhard Ludwig Müller (Herder, Friburg, 2014), pp. 481–485.

[7] *Ibid*., p. 481.

[8] *Ibid*., p. 482.

[9] Joseph Ratzinger, *Il Dio di Gesù Cristo. Meditazioni sul Dio Uno e Trino* (Queriniana, Brescia, 1978, ²2005), p. 71 s.

[10] Saint augustine, *De magistro*, 14.46.

[11] Romano Guardini, *Il Signore* (Vita e pensiero, Milan, 1976), p. 563.

[12] *Ibidem*.

The Encycical *Laudato Si'*: a Hymn to the Gospel of the Creation

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'We are called to be instruments of God our Father, so that our planet might be what he desired when he created it and correspond with his plan for peace, beauty and fullness' (*LS*, n. 53).

The appeal that Pope Francis makes in *Laudato Si'* is a founding text of the Magisterium. It is profoundly religious and scientific at one and the same time: it starts with faith, passes by way of philosophical and ethical analysis, and then adopts the most accurate knowledge available of the natural and social sciences. In essential terms, it affirms that the planet on which we are living is our sister 'common home' and that it is sick because of forms of ill-treatment that have been afflicted on it by the few, whereas many people have to endure its negative consequences. The word 'ecology' derives from *eikos* and *logos* which in Greek mean respectively 'home' and 'order', that is to say the science of ordering the single house of everyone, namely the common home. Pope Francis addresses the men and women of today, inviting them not to practise 'a false or superficial ecology which bolsters complacency and a cheerful recklessness' (*LS*, n. 59). Attentive to the cry of the poor brought about by the climate he returns to the heart of the gospel, to the 'Beatitudes', and to Matthew 25 'Whenever you did it to one of the least of my brethren, you did it to me'. He locates his new concept of 'integral ecology' within the social thought of the Church, on a par with dignity, freedom of conscience, fraternity, the universal destination of goods, solidarity…Integral ecology includes ecological imbalances, social justice and spiritual responsibility.

The Religious Vision of 'Sister Earth'

This message/appeal is first and foremost profoundly religious because it sees the world as the house of God, a gift that God has given to human beings, who are made in His image, so that they would steward it and organise it according to its potentialities for the good of men and women everywhere, for ever. Chesterton, in his incomparable *Life of St. Francis*, affirms that the saint of Assisi revealed to us the truth of the sky and the earth, created by God and redeemed by Christ, in their profound sacredness, whereas the Greco-Roman mentality, which was impregnated with mythology, saw in the sky and the earth, in the constellations and in life, only testimony to the passions of the gods and demi-gods.

Thus, to assert, as one candidate for the presidency of the United States of America has done, that the message of Francis is not religious because it talks about the earth, means not to understand true religion. Francis must be concerned about the earth as a requirement of the gospel, and not only about faith and people's customs. This is because, as we will see later in this paper, a human being cannot live without a healthy, good and fine environment in an overall sense. As St. Thomas Aquinas observed: 'In holy doctrine everything is addressed from the point of view of God; either because it is God Himself or because it is ordered to Him as a beginning and an end' (*Sth* I, q. 1, a. 7 c). Naturally enough, all things, because created from nothing, have a relationship with God as their beginning and their end, and thus the Pope must be concerned with everything because everything relates to God. Francis tries to unite what modernity has cut off or separated: on the one hand, human beings, and, on the other, the earth; on the one hand ecology and the natural environment, and, on the other, human ecology and above all else God and His creation. Francis unites the two dimensions in a revolutionary and integrated approach in what he calls 'integral ecology', because the home that God gave to men and women must be a common home 'like a sister with whom we share our life and a beautiful mother who opens her arms to embrace us. "Praise be to you, my Lord, through our Sister, Mother Earth, who sustains and governs us, and who produces various fruit with coloured flowers and herbs"' (*LS*, n. 1). The Pope is very careful not to offer specific technical solutions. And yet some Christians hesitate – they say once again a Pope who 'engages in politics'! Francis inscribes his objectives in the depths of the mystery of love of the creation. Probably he bases himself here, as elsewhere, on St. Thomas: 'Just as we say that the tree blossoms through the flowers, so we say that the Father through the Word, or through the Son, says himself and us, and that the Father and the Son love each other and us through the Holy Spirit, that is to say the love that proceeds from them (*Sth* I, q. 37, a. 2).

Concrete humanity – the people who live in the 'common home' – is invited to decipher the message of trust that God has offered since the beginning: 'The entire material universe speaks of God's love, his boundless affection for us' (*LS*, n. 84).

The Data of the Natural Sciences Adopted by Francis

However, on the basis of the evidence demonstrated by the natu-

ral and social sciences, 'This sister now cries out to us because of the harm we have inflicted on her by our irresponsible use and abuse of the goods with which God has endowed her. We have come to see ourselves as her lords and masters, entitled to plunder her at will' (*LS*, n. 2) without in the least considering her potential and her laws, as though one was dealing with inert material. It is difficult for the Pope, as it is for everyone, to understand how it has been possible to arrive at this destructive violence of man against himself, against his brethren and against his habitat. The Pope here gives himself over to a theological observation: 'The violence present in our hearts, wounded by sin, is also reflected in the symptoms of sickness evident in the soil, in the water, in the air and in all forms of life'. For this reason, concludes Francis, among the most abandoned and maltreated, there is our oppressed and devastated earth which '"groans in travail" (Rom 8:22). We have forgotten that we ourselves are dust of the earth (cf. Gen 2:7); our very bodies are made up of her elements, we breathe her air and we receive life and refreshment from her waters' (*LS*, n. 2).

The Pope then moves from a theological basis centred around the gospel to an examination and adoption of the most accurate and up-to-date data provided by science. On the basis of this, Francis, for the first time in the Magisterium of the Church, speaks about the climate as 'a common good, belonging to all and meant for all'. And he defines it, at the global level, as 'a complex system linked to many of the essential conditions for human life' Then, employing for the first time the concepts and the words of science, he argues that a 'very solid scientific consensus indicates that we are presently witnessing a disturbing warming of the climatic system'. He also states, and in a precise way, adopting the observations of these disciplines, that 'In recent decades this warming has been accompanied by a constant rise in the sea level and, it would appear, by an increase of extreme weather events, even if a scientifically determinable cause cannot be assigned to each particular phenomenon' (*LS*, n. 23).

Coming to the crucial point, the Pope accepts that 'there are other factors (such as volcanic activity, variations in the earth's orbit and axis, the solar cycle)' that can contribute to global warming but he denounces forcefully those causes of this evil which can be scientifically identifiable. He declares that 'a number of scientific studies indicate that most global warming in recent decades is due to the great concentration of greenhouse gases (carbon dioxide, methane, nitrogen oxides and others) released mainly as a result of human activity' (*LS*, n. 23).

The contribution of the earth sciences is very determining, *Laudato Si'* does not only speak about the problem of the climate, which is not mentioned in the Bible, it also argues that human activity involving 'fossil fuels' is the principal cause of global warming. And it is here that Francis, remembering his youthful days studying chemistry, seems to be happy to describe the phenomenon of global warming with reference to the natural sciences: 'As these gases build up in the atmosphere, they hamper the escape of heat produced by sunlight at the earth's surface'. In addition, he observes that his 'problem is aggravated by a model of development based on the intensive use of fossil fuels, which is at the heart of the worldwide energy system' (*LS*, n. 23).

At the same time, the Pope explains that 'Warming has effects on the carbon cycle. It creates a vicious circle which aggravates the situation even more, affecting the availability of essential resources like drinking water, energy and agricultural production in warmer regions, and leading to the extinction of part of the planet's biodiversity' (*LS*, n. 24).

We may emphasise once again the novelty of the epistemology of *Laudato Si'*. Although the statement that the earth is our home and we ourselves are its stewards has a Biblical root, the observation that the climatic crisis of global warming due to human activities that use combustible fuels is purely scientific in character. The Bible tells us that human beings have to conserve and develop the earth according to the plan of God but it cannot tell us what the real situation of the earth is today: knowledge about this situation belongs to science. Therefore faith and reason, philosophical knowledge and scientific knowledge, have been united for the first time in the papal Magisterium of *Laudato Si'*.

The Knowledge of the Social Sciences Adopted by the Encyclical

One of the axes which underlies and traverses this encyclical is the intimate relationship that exists between the fragility of the planet and the poor of the whole world (individuals and populations). One is dealing here with the deep belief that in the world everything is interconnected intimately and causally. In other words, 'Climate change is a global problem with grave implications: environmental, social, economic, political and for the distribution of goods. It represents one of the principal challenges facing humanity in our day (*LS*, n. 25). This encyclical is not ecological; it is not 'green'. It is, first and foremost, a social document.

Poor populations, even though they are less responsible, are those which are most severely hit. *Laudato Si'* tells us that 'Its worst impact will probably be felt by developing countries in coming decades. Many of the poor live in areas particularly affected by phenomena related to warming, and their means of subsistence are largely dependent on natural reserves and ecosystemic services such as agriculture, fishing and forestry' (*LS*, n. 25).

Climate change provokes the migration of animals and plants which do not always manage to adapt, and this in turn influences the means of production of the poorest of the planet who see themselves compelled to emigrate, with great uncertainty about their future and the future of their children. *Laudato Si'* states: 'There has been a tragic rise in the number of migrants seeking to flee from the growing poverty caused by environmental degradation. They are not recognized by international conventions as refugees; they bear the loss of the lives they have left

behind, without enjoying any legal protection whatsoever' (*LS*, n. 25).

The Consequences for Human Health

The Pope echoes the convincing and detailed explanations of our academician Professor. V. Ramanathan: 'Some forms of pollution are part of people's daily experience. Exposure to atmospheric pollutants produces a broad spectrum of health hazards, especially for the poor, and causes millions of premature deaths' (*LS*, n. 20). The poorest populations fall ill. For example, 'People take sick, for example, from breathing high levels of smoke from fuels used in cooking or heating. There is also pollution that affects everyone, caused by transport, industrial fumes, substances which contribute to the acidification of soil and water, fertilizers, insecticides, fungicides, herbicides and agrotoxins in general' (*LS*, n. 20).

Pope Francis also states that: 'The impact of present imbalances is also seen in the premature death of many of the poor, in conflicts sparked by the shortage of resources, and in any number of other problems which are insufficiently represented on global agendas' (*LS*, n. 48).

In reality, there is not a sufficiently clear and active awareness of the problems that afflict the excluded in particular, increasing as a result poverty and exclusion. The poor and the excluded 'the majority of the planet's population, billions of people. These days, they are mentioned in international political and economic discussions, but one often has the impression that their problems are brought up as an afterthought, a question which gets added almost out of duty or in a tangential way, if not treated merely as collateral damage. Indeed, when all is said and done, they frequently remain at the bottom of the pile. This is due partly to the fact that many professionals, opinion makers, communications media and centres of power, being located in affluent urban areas, are far removed from the poor, with little direct contact with their problems' (*LS*, n. 49).

This, however, 'should not make us overlook the abandonment and neglect also experienced by some rural populations which lack access to essential services and where some workers are reduced to conditions of servitude, without rights or even the hope of a more dignified life' (*LS*, n. 154).

After the crimes of slavery, of colonialism and of totalitarianism of recent centuries, humanity – and the very idea of the intangible value of human life – is thus once again threatened at the level of its existence and its dignity and freedom. All of these dramatic situations of poverty and social exclusion, which are caused or made worse principally by global warming, create a fertile terrain for new forms of slavery and human trafficking, such as forced labour, prostitution, organ trafficking, drug addiction, etc. It is clear that full employment and full schooling constitute the great defence against poverty, prostitution, drug addiction and the drug trade. Despite this fact, reducing our levels of carbon is not a mere environmental question! The 'anthropocene', a term proposed by our pontifical academicians to define the new geological era, in which the model of development is based upon human activity that uses combustible fuels, and which has made the earth sick, is 'the largest building site for the defence of human rights of our epoch' (Msgr. Desmond Tutu, preface to his book *Stop Climate Crimes*).

It is for this reason that Francis uses both the social sciences and the natural sciences. In a globalised world, we cannot but recognise that a true social approach is connected with ecology, and vice versa that 'a true ecological approach always becomes a social approach; it must integrate questions of justice in debates on the environment'. Therefore, argues Pope Francis, we have to 'hear both the cry of the earth and the cry of the poor' (*LS*, n. 49).

There is also a geopolitical factor. This first physical globalisation of the warming of the air and the oceans of our planet demonstrates that: 'The warming caused by huge consumption on the part of some rich countries has repercussions on the poorest areas of the world, especially Africa, where a rise in temperature, together with drought, has proved devastating for farming. There is also the damage caused by the export of solid waste and toxic liquids to developing countries, and by the pollution produced by companies which operate in less developed countries in ways they could never do at home, in the countries in which they raise their capital' (*LS*, n. 51).

Thus, 'every ecological approach needs to incorporate a social perspective', as well as an ecological and political one, 'which takes into account the fundamental rights of the poor and the underprivileged' (*LS*, n. 93), and vice versa every socio-political stance must have an integrated ecological dimension.

Solutions in Favour of an 'Integral Ecology': we are Still in Time to Solve the Problem

This invitation to safeguard the 'common home' is the most urgent appeal that God makes to man, asking him to set himself to work. What, therefore, could be the solutions? 'Developing the created world in a prudent way is the best way of caring for it, as this means that we ourselves become the instrument used by God to bring out the potential which he himself inscribed in things: "The Lord created medicines out of the earth, and a sensible man will not despise them" (Sir 38:4)' (*LS*, n. 124). Taking care of the earth is not like taking care of museum which conserves and keeps works of art which do not have a biological life. Taking care of the earth means developing it on the basis of the vital potential that God placed in it, in accord with scientific discoveries and activities, for the common good of man, for the sustainable development of our planet, paying attention to generational and inter-generational solidarity, that is to say in practice leaving to our children the inheritance of an earth that is more healthy than sick. In parallel, engaging in integral ecology means removing, in as quick a time as possible, social exclusion and marginalisation, in particular

poverty and new forms of slavery, which are now the most remunerative business of traffickers.

Pope Francis affirms that 'In the present condition of global society, where injustices abound and growing numbers of people are deprived of basic human rights and considered expendable, the principle of the common good immediately becomes, logically and inevitably, a summons to solidarity and a preferential option for the poorest of our brothers and sisters' (*LS*, n. 158). One is dealing, therefore, with aspiring to a common good that takes these various areas into account, honouring the gift that God granted to everyone in the fight for dignity, and embodying the care that the Lord has for the most marginalised, transforming socio-political mechanisms so as to reduce inequalities, recognising the infinite patience and the mercy of God towards men and women, and nurturing faith, hope and charity.

We could quote here the golden rule, the foundation of all civilisations and religious traditions, 'do not do to others what you would not have them do to you', or, expressed in positive terms, 'what you want men to do unto you, do unto them' (Lk 6:31). However, this rule would deserve today to be interpreted in the light of the gospel Beatitudes according to Matthew 5, and of the protocol by which we will be judged in Matthew 25, which are addressed to others, to the poorest and to the most in need in relation to their existential and real situations of suffering. To choose the Beatitudes and the poor, those who suffer, those who weep, those who pure of heart, the meek, the merciful, the peace-makers, those who love and are persecuted for justice's sake, is a choice that transcends the golden rule, which is too abstract to address the suffering of other people and those most in need. The option of following the Beatitudes 'entails recognizing the implications of the universal destination of the world's goods', but, as the Pope 'mentioned in the Apostolic Exhortation *Evangelii Gaudium*, [123] it demands before all else an appreciation of the immense dignity of the poor in the light of our deepest convictions as believers'. Francis concluded: 'We need only look around us to see that, today, this option is in fact an ethical imperative essential for effectively attaining the common good' (*LS*, n. 158).

In definitive terms, differently from the golden rule, in the Beatitudes the other is a *suffering* being to whom the gospel never ceases to give a central place. This suffering is defined not only by physical pain, or by moral or mental pain, but also by the diminution or even destruction of the ability to be and to act, to be able to act, which are seen as an attack on the integrity of the person. You know this better than me. And the novelty, compared to the golden rule, that appears in the Beatitudes is a sort of equity, at the origin of which there is a man who suffers and who, thanks to the suffering that is shared with the other, makes himself suffer. The love required by the Beatitudes cannot be confused with simple pity, which the other can secretly enjoy knowing that he is spared. The self who really lives the Beatitudes, whose power to act is initially greater than that of the other who suffers, is gratified by everything that the other offers him in exchange, because from the other that suffers proceeds a gift that does not derive exactly from his power to act and to exist but from his very weakness. Perhaps the supreme test of the love that the Beatitudes require comes specifically in the hour of agony, in that sharing that is the murmuring of voices or the weak embrace of hands that hold each other.

Pope Francis, in his homily of the 'Misa Criolla' of A. Ramirez in 2014, which was given on the occasion of the feast day of Our Lady of Guadeloupe, said that 'The *Magnificat* thus introduces us to the Beatitudes, the primordial synthesis and law of the Gospel message. In light of the *Magnificat*, let us feel compelled today to ask for a grace, a wholly Christian grace, that the future of Latin America be forged by the poor and by those who suffer, by the meek, by those who hunger and thirst for righteousness, by the merciful, by the pure in heart, by the peacemakers, by those who are persecuted for the sake of Christ's name, "for theirs is the kingdom of heaven" (cf. Mt 5:1-11). May the grace be forged by those who today, are relegated to the category of slaves, of objects to be exploited or simply be rejected, by the idolatrous system of the throwaway culture'.

And we make this request, declared the Pope, because Latin America is the 'continent of hope'! 'For we expect from it new models of development, which link Christian tradition to civil progress, justice and equity to reconciliation, scientific and technological development to human wisdom, fruitful suffering to hopeful joy. This hope can be protected only by great amounts of truth and love, the foundations of all reality, revolutionary engines of an authentic new life'.

The German philosopher Habermas, in his dialogue with Cardinal Ratzinger, affirmed that to save today's world 'a liberal political culture can also require secular citizens to take part in the undertaking of the translation of meaningful materials of religious language into a language that is accessible to everyone'. The most meaningful materials of religious language, the most revolutionary, most relevant to now, most human and most divine, shortest and most profound, discourse that a religious man has ever pronounced during the course of history is the discourse of the Beatitudes, the Sermon on the Mount of Jesus. Politicians, men of the social sciences, medical doctors and health-care workers are all called to reflect on how to embody the Beatitudes both in politics and in society and in the relationship between the medical doctor and the patient, but also as concrete common goods of globalised society, and, lastly, as new norms of the common good. Welcome is the thinker, the academic, the medical doctor, the health-care worker and the religious or social leader who can transmit the programme of the Beatitudes of Christ to contemporary globalised society!

Contemporary Climate Change and the Imperative to Safeguard the Creation

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In November 2013, the tropical storm 'Haiyan', the strongest typhoon ever recorded, made landfall in the Philippines. Peak wind speeds reached 315km/h and, in combination with the associated storm surge, devastated the central Philippines, killing more than 6,000 people. Only two years later, the record-breaking hurricane 'Patricia' crossed the western border of Mexico with similar maximum wind speeds. Luckily, the eye of the storm travelled over a sparsely populated area north of Manzanillo. These two single extreme events fit well into the picture of a conspicuous accumulation of weather extremes over the last decades [*Coumou and Rahmstorf*, 2012]. Currently, we are pumping additional energy into the earth's system equivalent to roughly 18 times the total global primary energy supply [*Hansen et al.*, 2011; *International Energy Agency (IEA)*, 2012]. It is hence not surprising that storms, which draw their energy primarily from the temperature of the surface of oceans, have increased in intensity.

The climate has always changed and glacial and inter-glacial periods have alternated in the past at time scales ranging from decades to ten thousands of years. In this regard, it seems like a whim of nature that for more than 11,000 years the climate virtually stabilised at a relatively warm temperature tableau, the so-called Holocene. This was the window of opportunity in which civilisation could develop and flourish. It brought about the invention of livestock farming and crop cultivation – the Neolithic revolution – that set the stage for a rapidly growing human population. Right now, we are about to leave this climate paradise because of the way we live, consume and produce.

In order to grasp why contemporary climate change is fundamentally different to changes in the past, we need to understand how the earth's climate evolves according to the laws of physics. There are basically two decisive factors which determine our climate. One is the variation of solar irradiation which mainly depends on how the earth is oriented towards the sun. This effect is able to explain long-term changes between glacial and inter-glacial periods and can be calculated exactly using today's computational power. The Serbian mathematician Milutin Milancovic summarised this theory for the first time in 1941 [*Milankovic*, 1941]. The other important factor driving the climate is the greenhouse effect. Simply speaking, incoming solar radiation with relatively short wavelengths can pass through our atmosphere whereas the outgoing long-wave (infrared) radiation is mainly absorbed by its 'greenhouse gases' (like CO_2). Some of the outgoing radiation is hence reflected back onto the earth's surface leading to additional heating of the planet. This very basic process had already been described by the famous Swedish scientist Svante Arrhenius in 1896 [*Arrhenius*, 1896]. And until recently, the greenhouse effect has been a wonderful gift to humankind – without it, global mean temperature would be around -18°C. Not very convenient for human beings… But as it is often the case with wonderful things, like a glass of good wine, too much of it and it turns into the opposite – or, in our example, into a terrible headache the next morning. In case of the greenhouse effect, the relationship reads like this: the more CO_2 is released into the atmosphere, the stronger the greenhouse effect is and the more additional energy is put into the system. Right now, we are turning this screw with severe consequences for ourselves and planet earth.

Human interference with the climate – the C-Story of humankind so to speak – can be used to re-narrate important steps in modern history. It started with the industrial revolution in the early eighteenth century in England, and from there it spread over nearly the entire world in the context of globalisation. One country after the other entered the map of cumulative CO_2 emissions (Fig. 1). Twice in history, the largest CO_2 emitting nations clashed with each other, resulting in two devastating world wars. If a *resumé* had to be made today, it would have to be one about growing inequality where only the richest part of the population benefit from the industrial revolution whereas the poorest are suffering from its environmental impacts. To sum it up in one punch line: the carbon history of humankind is a story of exploitation. So would it not just be fair if all countries were allowed to catch up on emissions with the largest emitters today? Right, yet we would need fifteen planets similar to our earth, if not more!

The accumulation of anthropogenic CO_2 in the atmosphere has led to a precipitous increase in the global mean temperature (Fig. 2a). It intuitively seems clear that such a rapid change cannot simply be the result of natural forcing. Indeed, it is now a well-established scientific consensus that today's global warming is mainly caused

by humans through the burning of fossil fuels [*IPCC*, 2013]. A closer look at the temperature curve reveals more details in terms of natural year-to-year fluctuations (Fig. 2b). There are various reasons for such temperature variations. Among the most common triggers are volcanic eruptions. In 1991, the eruption of the volcano Pinatubo in the Philippines blasted an estimated 20 million tonnes of sulphur dioxide and ash particles more than 20 km high into the atmosphere, reducing incoming solar radiation and thus lowering surface temperatures [*LeGrande et al.*, 2015]. Another important natural driver of the climate is described by the so-called El Niño-Southern Oscillation. This is a fascinating phenomenon in the tropical Pacific Ocean which has direct and indirect impacts on weather conditions around the globe. The corresponding index basically distinguishes between two different states: El Niño and its opposite, La Niña. During periods of strong El Niños, warm tropical water masses shift from South East Asia to the west coast of Central and South America where they strongly influence both local temperature and precipitation patterns. In general, El Niño years are characterised by anomalously high global mean temperatures. Last year's El Niño was much stronger than its predecessors and studies indicate that this trend will continue in the future [*Cai et al.*, 2014]. It is a great advance of science that by now we are able adequately to anticipate such events. For example, the 2014-2016 El Niño could already be predicted in September 2013, using the algorithm developed by Ludescherer *et al*. [2013, 2014].

So the time series of the global mean temperature is a rather wiggly curve. However, it is easy to see that its natural variability lies within an upward corridor. The temperature increase reached a new milestone last year, with 2015 being the hottest year on record [*World Meteorological Organization*, 2015]. This record broke the previous one of 2014 by an unprecedented margin of 0.16°C [*NOAA National Climatic Data Center*, 2015] and hence has put to rest the misleading debate about a 'hiatus' that apparently never existed. But this is not the end of global warming: under a business-as-usual scenario, the planetary mean temperature will increase by about 4°C above pre-industrial levels by the end of this century [*IPCC*, 2013]. This would fundamentally change living conditions on earth.

In a great attempt in 2015, 195 nations agreed in Paris to keep the temperature increase to 'well below 2°C' compared to pre-industrial levels. The most compelling argument for this guardrail comes from the behaviour of so-called tipping elements in the earth's system which have gained major attention in scientific and social debates over recent years [*Lenton et al.*, 2008; *Schellnhuber*, 2009]. In general, climate change does not happen gradually but abruptly. Crucial components of the earth's system, including geophysical patterns, cryospheric components and biospheric, entities may be tipped into fundamentally different states once a critical threshold is crossed. And the higher the global mean temperature, the higher the risk of crossing such a tipping point (Fig. 3). In terms of risk assessment, it is clear that global warming should be limited to a level where no major tipping points are crossed. Unfortunately, there is growing scientific evidence that some tipping elements have already been pushed into an irreversible process or eventually will be, even if we manage to stay below the ambitious Paris range (grey bar in Fig. 3). The huge West Antarctic ice sheet is a classic tipping element. Here, gigatonnes of ice accumulated from many ice ages over countless millennia are grounded on solid bedrock. Once molten and released into the ocean, this mass yields about 3 metres of sea-level rise [*Feldmann and Levermann*, 2015]. Recent studies have indicated that warming ocean waters have already triggered instabilities in this area of the ice, making it one of the most precarious elements of the earth's system about to tip [*Mouginot et al.*, 2014; *Rignot et al.*, 2014]. The Greenland ice sheet may collapse at a warming of about 2°C, contributing to long-term sea-level rise of seven metres [*Robinson et al.*, 2012]. It seems not surprising that a new study indicates that even with relatively moderate additional anthropogenic CO_2 emissions, we will likely suppress the next ice age which, under normal circumstances, would have begun approximately 50,000 years from now [*Ganopolski et al.*, 2016].

With unabated climate change, the implications for humanity and the environment are unprecedented and scary. And the poorest among the human population, who have contributed least to the given situation, will be hit hardest. Melting ice at the poles will reduce their gravitational pull and allow ocean water to flow more towards the equator. In addition, developing countries in these regions often have highly populated coastal cities with no/inadequate urban planning and limited adaptation resources, making them especially vulnerable to sea-level rise and storm surges. Not to mention that more severe heat extremes are expected to occur particularly in tropical regions [*Coumou and Robinson*, 2013] with negative impacts on agricultural production and food security [*World Bank*, 2012; *Rosenzweig et al.*, 2014]. The growing world population will exacerbate this dramatic situation, especially in Africa and Asia where expected population growth is highest (90 percent of projected global urban population growth) and climate impacts are among the strongest [*United Nations - Department of Economic and Social Affairs - Population Division*, 2015]. As a result, humanity is on the move. In a recent flagship report, the Germany Advisory Council on Global Change (WBGU) states that more than 2-3 billion people will move from the countryside to the cities within the next few decades, doubling the population of the world's slums [*German Advisory Council on Global Change (WBGU)*, 2016]. This will be the biggest migration movement human civilisation has ever seen.

The Intergovernmental Panel on Climate Change (IPCC) and

the most eminent scientific academies, including the Pontifical Academy of Sciences and the Pontifical Academy of Social Sciences, have put great efforts into addressing the topics of climate change and global sustainability. Particularly, there have been three key gatherings of the Pontifical Academies on global sustainability in recent years. It started with a scientific panel on 'The Fate of the Mountain Glaciers in the Anthropocene' in May 2011. Three years later, a workshop entitled 'Sustainable Humanity, Sustainable Nature, Our Responsibility' was held in the Vatican City and this was followed by a summit on 'Protect the Earth, Dignify Humanity' in 2015.

Biodiversity is particularly high in the maritime ecosystems, which are put under pressure by climate change, because the oceans are warming and acidifying [*Orr et al.*, 2005]. Studies have shown that even if we hold the 2°C line, large fractions of coral ecosystems will face extinction [*Frieler et al.*, 2012]. Coral bleaching has already been observed in the Coral Triangle which is located near the equator where the Pacific Ocean meets the Indian Ocean. This region combines one third of the world's remaining coral reefs and is recognised as the reef community with the largest biodiversity. Another huge problem lies within the growing volume of plastic waste in the oceans. Plastic debris is considered highly stable, potentially lasting for hundreds to thousands of years. Due to the small size of pieces of debris (typically 1 cm in diameter or less), they can be ingested by various organisms ranging from small fish to large mammals [*Cózar et al.*, 2014]. This poses a considerable threat due to mechanical damage and the absorption of toxic chemicals through contaminants in plastic debris.

The world we live in is precious and diverse and offers great freedom. However, there are natural boundaries within which we should act while allowing equity between people and the environment today and between generations. This is the so-called 'safe operating space' of humanity [*Rockström et al.*, 2009]. Right now, we are about to cross many of those boundaries. This especially holds for climate change in general and biodiversity in particular. We have the privilege and the burden to live in a time span when we can, and must, make a decision about which direction we want to pursue. At the moment, humanity is on the way to running into a climatic disaster with drastic consequences. But there is still hope. We have the necessary scientific knowledge and the technical solutions at hand to set out on the right path. This will require a radical shift in most economic and social sectors. But in Nelson Mandela's words: 'Everything seems impossible until it's done'. The time to act is now. ■

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Fig. 1 Human CO2 emissions accumulated between 1751 and 2013. Data from CDIAC 2016 [*Andres et al*., 2016], bathymetry by NASA.

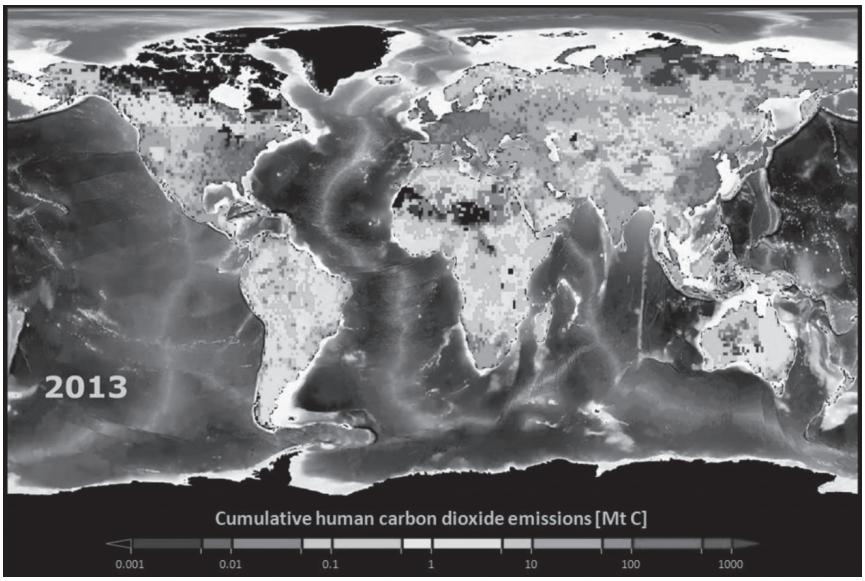


Fig. 2 Global mean temperature curves, reconstructed for the Holocene (A) and based on observations over recent decades (B). Left: RegEM version of global temperature reconstruction from proxy data of Marcott *et al.* [2013] (blue line) and instrumental HadCRU data (red line). Visualisation by Klaus Bittermann. Right: data from GISS Surface Temperature Analysis (GISTEMP).

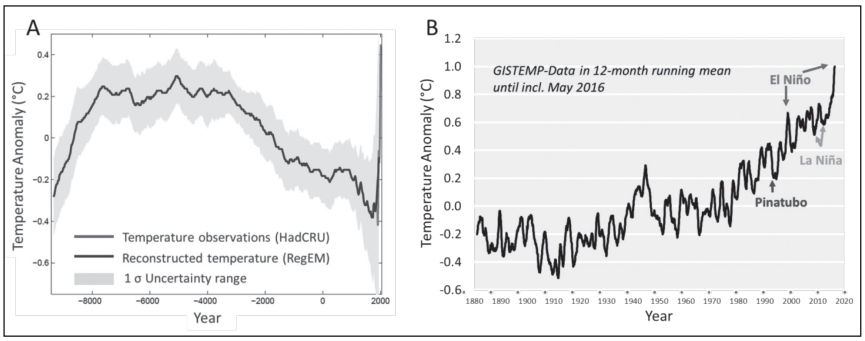
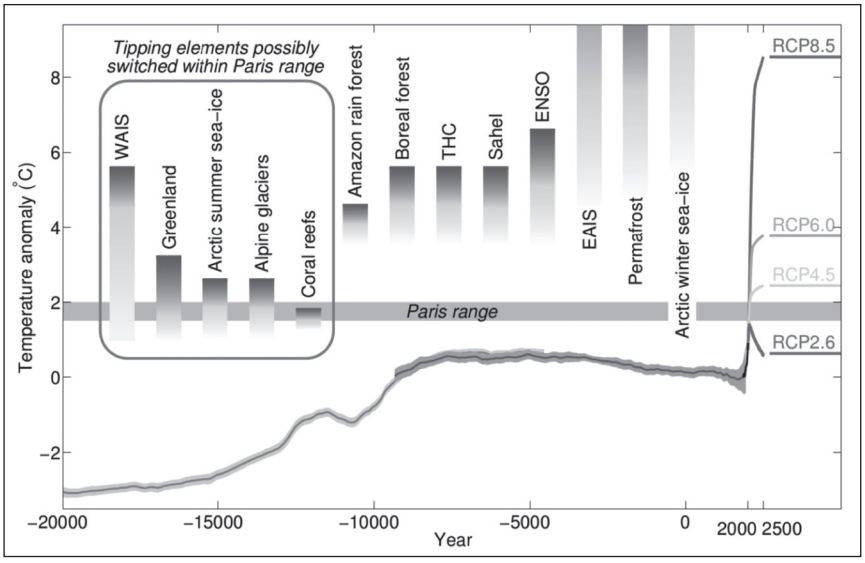


Fig. 3 Chart of tipping elements as in Schellnhuber *et al.* [2016]. The blue line at the bottom indicates the historical temperature curve and the coloured lines starting in year 2006 represent possible temperature developments under different IPCC scenarios (the red RCP8.5 line corresponds to the business-as-usual scenario). The yellowish bars indicate the probability for a specific tipping element to become unstable and switch into a new state. The shown tipping elements are (from left to right): West Antarctic Ice Sheet (WAIS), Greenland Ice Sheet, Arctic summer sea-ice extent, Alpine glaciers, Coral reefs, Amazon rain forest, Boreal forest, Thermohaline Ocean Circulation (THC), Sahel zone, El Niño-Southern Oscillation Index (ENSO), East Antarctic Ice Sheet (EAIS), Permafrost and Arctic winter sea-ice.



Pollution by Information or Technology

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The encyclical *Laudato Si'* of Pope Francis called the attention of society to the urgent need to think anew about the stewardship of the creation and about the negative effects that come from a bad use of resources, from pollution, and from environmental deterioration, which have an impact above all on the weakest strata of the population.

The Pope offers a concept of ecology 'which respects our unique place as human beings in this world and our relationship to our surroundings' (*LS*, n. 15), offering us a paradigm that is able to organise the fundamental relationships of a person with God, with himself or herself, with other human beings, and with the creation.

From this point of view, all of us who live on this earth have a grave responsibility towards the 'common home', where nobody can think of obtaining positive results by acting on their own and not taking into account that solutions should be looked for and applied in dialogue and in cooperation with other people. Indeed, 'interdependence obliges us to think of *one world with a common plan*' and to propose solutions 'from a global perspective, and not simply to defend the interests of a few countries' (*LS*, n. 164), with the need for effective forms and instruments of global governance (*LS*, n. 175).

To give an example of this, let us refer to the concepts of 'progress' and 'development'. What do they mean? How are they applied? What are the criteria that should guide them? They can be applied indiscriminately to the personal, social, political and economic spheres, but they have very different meanings and understandings. At times, in order to rid ourselves of all personal and collective responsibility, we present *technological progress* and *development in communications* as realities that are always, and everywhere, of a positive character, without taking into account different cultural contexts, structural limitations connected with geopolitics, and the risks and problems that can arise in an economy that has become increasingly globalised. Thus, both *technological progress* and *development in communications* manifest a growth that is out of control; that has limited planning, frail reference points and outlooks; and is directed towards goals that are not always transparent. In privileging, therefore, the potentialities and the benefits of technological progress and development in communications without taking into account short-term, medium-term and long-term consequences, one runs the risk of going down treacherous roads, neglecting the fact that the 'common home' hosts us today but should also welcome our children tomorrow. A belief appears to have come back in vogue that was typical of the era of the industrial revolution when progress was seen as something to be increased whatever the case because it was positive and a source of wellbeing for humanity. History, however, narrates to us the outcome of this way of thinking…

Technology and communications, therefore, have tended to develop with some failings as regards interconnections with the whole of the creation and with the integrity of the human person, his or her life, his or her relationships, his or her privacy, his or her time, and his or her silence. As a consequence, pollution by technology and pollution by communications are acquiring an increasing relevance in our cultural and social contexts because of the so-termed 'omnipresence of technology' and the 'storm of information flows', with their inevitable consequences for the human person,

a. Pollution by Technology

The general problem of electromagnetism in relation to life

'We have so radically modified our environment that we must now modify ourselves in order to survive in the new environment'. This acute observation of the American scientist Norbert Wiener makes us aware that over the last twenty years an unprecedented increase has taken place in the number and types of electromagnetic fields that are present in the environment. Cell phones and telecommunications equipment in general, radio, television, electrical appliances for the home, computers and laptops, industrial machinery, radar, biomedical equipment, and much else besides, have come to be a part of our lives; indeed they have become indispensable, at times simplifying and at times making more complex social dynamics and our way of living.

Quite beyond an anthropological judgement on the goodness and the risks of this phenomenon, its impact, its dizzy growth and the profound change that it has set in motion cannot be denied given that contemporary society would be paralysed without an electronic-technological apparatus that ranges from entertainment to communications and on as far as medicine, with the use of increasingly sophisticated machinery for diagnostic and therapeutic purposes.

In parallel with their rapid development, all of these forms of technology have generated new concerns. Increasingly often reference is made to the existence of possible risks associated with electromagnetic fields emitted by the machinery itself and above all by the sources correlated with them (for example the antenna of transmitters for radio and television, basic radio stations for cell systems, WiFi access points, ra-

dio bridges, etc.) which emit electromagnetic waves of various frequencies and intensities. In recent years, in addition, there has been a steady increase in sensitisation to, and concern about, the possibility that exposure to electromagnetic fields can have negative effects on health, and this has provoked a notable resonance at political, economic and scientific levels.

As regards the potential dangerousness of these systems, which because of their intrinsic nature employ active emitting apparatuses, today the debate is a very heated one. One may think of the controversies about the location in urban environments of basic radio stations of the GSM/UMTS/HSDPA/HSUPA systems or about the use of WiFi systems in indoor environments. We may refer to the discussions about the location, once again in urban contexts, of radio and TV antennas, or of communications systems in military contexts that are located in barracks. For years they have been sources of diatribes because of their presumed dangerousness, as have plants for the production of electric energy and electroducts, even though the subject is a less sensitive one compared to those that have been mentioned above.

Pope Francis points out to us, in an unequivocal way, the road that should be taken as regards the attention and respect that should be paid to people and to the environment in which they live: 'In the face of possible risks to the environment which may affect the common good now and in the future, decisions must be made "based on a comparison of the risks and benefits foreseen for the various possible alternatives'. This is especially the case when a project may lead to a greater use of natural resources, higher levels of emission or discharge, an increase of refuse, or significant changes to the landscape, the habitats of protected species or public spaces. Some projects, if insufficiently studied, can profoundly affect the quality of life of an area due to very different factors such as unforeseen noise pollution, the shrinking of visual horizons, the loss of cultural values, or the effects of nuclear energy use. The culture of consumerism, which prioritizes short-term gain and private interest, can make it easy to rubber-stamp authorizations or to conceal information' (*LS*, n. 184).

As regards the electro-medical equipment that makes use of X rays, an ascertained danger exists and thus a series of rigorous rules have been implemented regarding its correct and safe use, both for medical, nursing and technical personnel and for patients. Rules that are at times very severe exist for all those forms of equipment that use low frequency or radiofrequency static fields (for example magnetic resonance, high frequency electric scalpels, apparatuses for diathermy, defibrillators, etc.).

The range of frequency of all these systems that have been cited are very diverse. Today, differently from 'ionising radiation', reliable proof does not exist about the dangerousness of systems that can be placed on the electromagnetic spectrum of so-termed 'non-ionising radiation'. In the same way, however, there is no certainty that they are not dangerous. Scientific research is going through a period of intense activity and strong interest as regards this subject, above all in relation to the spectrum of radiofrequency and microwaves (principally the presence of systems of communications on the UHF 300MHz-3GHz band).

There exists, therefore, a limited certainty about their cancer-inducing effects and the emergence of other pathologies for human beings. Thus, on the one hand, there is a request for increasingly in-depth studies in order to ascertain the objective dangerousness of this large amount of technology for human life, and, on the other, we have witnessed a markedly growing use of the same technology. If pollution by technology (and especially electromagnetic technology) has emerged as a risk, it does not seem, however, to have generated suitable awareness about the need to move towards regulating its development at the level of companies and economics and at a personal and social level.

b. Pollution by Communications

This is a phenomenon to which we are all exposed and which places us in a condition of being submerged, literally, by an uncontrolled flow of information of a public/journalistic and personal/social nature. Here, while feeling that we are in the midst of a media storm, I would like to quote a text that offers another perspective that is surprising when we consider what is commonly thought about the mass media: 'It is not possible to establish today in a clear way what 'medial' is and what it is not; nor can we define when we enter a medial situation and when we leave it: we are, rather, immersed in systems and environments of relationships and exchanges, ready to use the different resources that such environments make available to us for the goals that are proposed to us or which we ourselves propose, and to take on roles and positions that correspond to what is involved in the use of such resources. The media are everywhere. We ourselves are media. And it is for this reason that the media no longer exist'.[1] Against this background, enriched by an unprecedented suggestion and one which from certain points of view is singular, we can continue our analysis, bearing in mind that we are not dealing with external objects and situations, observable as being something other than ourselves, but, rather, of realities that are interwoven with our daily experiences.

We may refer to the television, the radio, the Web etc., which follow lives and events 'live and online', moving from a cell phone to SMS, which are unforgiving and place us in the condition of being reachable everywhere. And then there are the social networks, Whatsapp, Twitter, Facebook, Skype, Instagram, etc., which make available to everyone and everywhere not only information but also a person and his or her own private life. We are invaded at every moment by an exorbitant quantity of information which, on the one hand, cannot be followed and filtered, and, on the other, in-

terrupts every situation and activity with a signal that messages have arrived. On this particularly delicate and sensitive subject, as well, Pope Francis offers us no doubts: 'Furthermore, when media and the digital world become omnipresent, their influence can stop people from learning how to live wisely, to think deeply and to love generously. In this context, the great sages of the past run the risk of going unheard amid the noise and distractions of an information overload. Efforts need to be made to help these media become sources of new cultural progress for humanity and not a threat to our deepest riches. True wisdom, as the fruit of self-examination, dialogue and generous encounter between persons, is not acquired by a mere accumulation of data which eventually leads to overload and confusion, a sort of mental pollution. Real relationships with others, with all the challenges they entail, now tend to be replaced by a type of internet communication which enables us to choose or eliminate relationships at whim, thus giving rise to a new type of contrived emotion which has more to do with devices and displays than with other people and with nature. Today's media do enable us to communicate and to share our knowledge and affections. Yet at times they also shield us from direct contact with the pain, the fears and the joys of others and the complexity of their personal experiences. For this reason, we should be concerned that, alongside the exciting possibilities offered by these media, a deep and melancholic dissatisfaction with interpersonal relations, or a harmful sense of isolation, can also arise' (*LS*, n. 47).

Thus pollution by communication can take place in every kind of human relationship, both in a direct personal relationship and in one that is channelled through analogic or digital means. Negative tendencies in communication have their origins in the limitations of people but also in fear of truth, in partisan interests, in selfishness and in avidity, in the thirst for power and domination, or in the deceitful attempt to establish a dialogue (in reality this is a monologue) where the other is forced to have the role of being the mere receiver of our information. Dialogue and encounter are thus reduced to a succession of monologues between people who do not listen to each other, who do not assess what the other person has to say, and who even ignore each other. On this point Primo Levi wrote: 'Each age has its fascism: its premonitory signs are noted wherever the concentration of power denies the citizen the possibility and the capacity to express and actuate his or her will. This is reached in many ways, not necessarily with the fear of police intimidation but also by denying or reforming information, polluting justice, paralysing schools, spreading in many subtle ways nostalgia for a world where order reigned supreme and where the security of the privileged few was based upon the forced labour and forced silence of many'.[2]

Moved by this warning as well, let us try to identify some elements that corrupt social dialogue in order to be prepared to address the challenges of the present moment. Below I present a list of forms or situations which emit noise, obstruct the arrival of a clear and transparent message, and deform its contents or impede its understanding:

– Bombardment with disconnected and heterogeneous messages (noise).

– Disorder in interventions (chaos).

– The addition of not pertinent or banal information (frivolity).

– Lies, half-truths, tendentious or partial information (deception).

– Pseudo-science.

– The discrediting and insulting of interlocutors.

– The exclusion of some of the directly involved participants.

Thus Pope Francis always invites us to engage in listening, to place ourselves in the outlook of the other, to move out of our narrow and reassuring point of view and shift towards that of other people. Purifying dialogue, understood as an encounter of persons, and practising it as a method or the construction of society, is a key by which to achieve 'the development of new convictions, attitudes and forms of life. A great cultural, spiritual and educational challenge stands before us, and it will demand that we set out on the long path of renewal' (*LS*, n. 202).

To achieve this goal we should have a good knowledge of the fundamental dynamisms of the dialogue proposed by Pope France, given that they are useful not only for the debates on environmental subjects but also for every kind of complex problem and subject. We need to engage in the practice of loyal and intellectually honest dialogue, which today is proposed as an inescapable methodology for the survival of humanity. This is a practice to be refined above all else with those people who do not think as we do, to be perfected with the good will of identifying the 'polluting' factors of the process of communication.

The encycical *Laudato si'* proposes dialogue as the first step of 'lines of approach an action' (chapter V), that is to say as an approach to be actuated and applied together with other people and to be pursued in decision-making processes in companies and organisations, in the Civil Service, in universities, and in civil society. We have to foster the development of correct and transparent decision-making processes in order to be able to 'discern' which business policies and initiatives can lead to 'genuine integral development' (*LS*, n. 185). We should also promote dialogue between the sciences in order to avoid the isolation of disciplines: between economics and politics in order to grow in joint responsibility; between the sciences and religions; and also between the believers of the various religions. Religions are called to develop 'dialogue among themselves for the sake of protecting nature, defending the poor, and building networks of respect and fraternity (*LS*, n. 201). 'An open and respectful dialogue is also needed between the various ecological movements' (*LS*, n. 201).

The way of dialogue requires patience, ascesis and generosity, remembering that 'realities are greater than ideas',[3] as we are reminded by Pope Francis as

he proposes to us the privileged methods for any dialogue that has to address complex problems in society (cf. *LS*, n. 183):

1. The subject should 'be carried out in a way which is *interdisciplinary, transparent and free* of all economic or political pressure'.

2. It must be connected with the analysis of *relevant data* about the impact and effects on the population.

3. One must take into account the *possible scenarios* and where possible anticipate, perhaps through preceding action, the need to deal with unwanted effects.

4. It is always necessary *to acquire the consensus of the various stakeholders* who can bring different options, perspectives and solutions.

5. In the debate, it is important to assign a *privileged* place to those people and groups that may experience the direct consequences of the action that one wants to take.

6. Participation requires that everyone is *adequately informed* about the various aspects of the project, about the potential risks, and about the possibilities. It is wise not to confine oneself to the initial decision about a programme: constant follow-up activity and monitoring should also be envisaged.

7. There is a need for *sincerity and truth* in scientific and political discussion and these should not be limited to seeing what is allowed or not allowed by law.

With the return of the human person to his or her dignity, to his or her singularity, and to his or her truth, one can overcome 'pollution by communication' because in the valuing of the person one finds the balance between 'how much', 'when' and 'where' information is useful and constructs man and society. Indeed, as Pope Francis reminds us: 'Emails, text messages, social networks and chats can also be fully human forms of communication. It is not technology which determines whether or not communication is authentic, but rather the human heart and our capacity to use wisely the means at our disposal. Social networks can facilitate relationships and promote the good of society, but they can also lead to further polarization and division between individuals and groups. The digital world is a public square, a meeting-place where we can either encourage or demean one another, engage in a meaningful discussion or unfair attacks. I pray that this Jubilee Year, lived in mercy, "may open us to even more fervent dialogue so that we might know and understand one another better; and that it may eliminate every form of closed-mindedness and disrespect, and drive out every form of violence and discrimination". The internet can help us to be better citizens. Access to digital networks entails a responsibility for our neighbour whom we do not see but who is nonetheless real and has a dignity which must be respected. The internet can be used wisely to build a society which is healthy and open to sharing (Message for the Fiftieth World Communications Day).

Notes

[1] R. Eugeni, *La condizione postmediale* (Brescia, 2015), p. 28.

[2] 'Un passato che credevamo non dovesse tornare più', in *Corriere della Sera*, 8 May 1974.

[3] *Evangelii gaudium*, n. 231.

Biological Innovation Starting with Research: Animal Experimentation and Genetically Modified Organisms

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This is certainly a special moment for thinking about scientific and technological progress which has had undoubted successes but which still involves challenges as we look into an uncertain future.

Pope Francis' encyclical *Laudato Si'*, which was issued in the spring of 2015, outlines a pathway which in my view allows a deep analysis and points in a clear way to a strategy that can contribute to accompanying a change which is by now ineluctable.

In addition to the specific chapter that the encyclical dedicates to 'biological innovation starting with research' specifically in the centre of the papal text on which I intend to dwell later, it seems to me to be important to emphasise certain passages that most help us in approaching the problems and possible solutions involved, remembering, here, that simple solutions cannot be applied to complex problems.

First of all I wish to quote the appeal of Pope Francis: 'The urgent challenge to protect our common home includes a concern to bring the whole human fam-

ily together to seek a sustainable and integral development, for we know that things can change'.

Here there is an important need for sincere and honest debates just as it is equally evident that after a period of irrational trust in progress and human capacities a part of society is entering a stage of greater awareness.

One can perceive an increased sensitivity to the environment and to caring for nature, and a sincere and pained concern about what is happening to our planet has developed. Here there is a need to invest much more in research given the continuation, or even the worsening, of unfairness at a planetary level. We are in the presence of a globalisation of trade and information, which is of a culturally advanced kind as well (as is the case with the scientific community), but incontestable diversities continue as regards access to knowledge, to food and to essential services, for example health-care services.

'The problem is that we still lack the culture needed to confront this crisis. We lack leadership capable of striking out on new paths'.

'There are too many special interests'.

'At the same time we can note the rise of a false or superficial ecology which bolsters complacency and a cheerful recklessness'.

On the one hand, some people support the myth of progress at any cost and affirm that ecological problems will be solved simply through new technological applications without ethical considerations; on the other hand, there are those people who argue that man, through any intervention of his, can constitute a threat and compromise the world's ecosystem, as a result of which it is advisable to prevent him from engaging in any kind of intervention. Between these two extremes an analysis should identify possible future scenarios because there is no one solution.

In this context, the scientific community has lost much of its authoritativeness and often its results are placed on the same level as opinions that are subjective and have no foundation, and which are even seen as more credible and selfless, although produced by individuals or groups that are ignorant when it comes to the complex and delicate subjects that are under discussion.

All of this involves a need for an unbiased analysis about the possibility of using differentiated models of development for vast areas of the planet and for specific groups of populations. To subject the whole of the globe to a single approach – from the point of view of innovation as well – means to penalise vast territories and populations. It means to kill development which is anyway sustainable solely because of goals that are the outcome of the assessments and interests, often of a contingent kind, of a part of the globe that has used, at times in an irresponsible way as well, technologies which, whatever the case, have allowed these populations to achieve a prosperity and a level of security that were never obtained by vast swathes of humanity in the past.

It would therefore be advisable, first of all, to revise our model of development of advanced countries so as to be able to offer virtuous journeys that still require a complex pathway in order to assure health, food and security to everyone.

For example, in the 1980s and 1990s Europe drew up, adopted and applied models for the food security of its own citizens that were very advanced given the dominant culture of that epoch, even in developed countries. Applying them to itself and demonstrating the success of its own scientific insights and assessments, it improved the level of prosperity and achieved objective goals in the quality and length of life.

Starting in the first decade of this century, this model became a global point of reference for the reorganisation of the legislation and the operational systems both of very advanced countries and of countries that have been powerfully emerging on the international scene.

This would be the moment to engage in the same journey in the field of animal products and the ethical relationship between man and animals.

The concept of 'one health' which has been developed by three international organisations, the World Health Organisation, the World Organisation for Animal Health and the Food and Agriculture Organisation of the United Nations, could be the point of departure for the adoption of innovative measures, of an unpopular character as well, for the current system of production.

I would like to observe that the majority of companies, and that includes Italian companies, which today boast of their quality and safety in terms of food products, making them an important vehicle for their penetration of international markets, were strongly against the HACCP control system based on a scientific method of research into critical points.

Similarly, we should now reflect on ethical quality and the relationship between man and animals in primary production such as stock raising. If the model that has been used hitherto has assured an availability of food that is practically unlimited and at a low cost for the populations of the so-termed Western countries, we have to ask ourselves whether today the moment has not come for a profound thinking anew about this subject.

Prohibiting the production of genetically modified vegetables but using such vegetables from other continents as foodstuffs for intensive stock raising means in the best of cases economically exploiting their own purported cultural supremacy. But it also means, in the worst of cases, blindly exploiting the resources of other populations to the detriment of a more balanced distribution of the goods of the planet.

It should, however, be observed, as Pope Francis has written, that 'Our capacity to reason, to develop arguments, to be inventive, to interpret reality and to create art, along with other not yet discovered capacities, are signs of a uniqueness which transcends the spheres of physics and biology'.

'Yet it would also be mistaken to view other living beings as

mere objects subjected to arbitrary human domination'.

'When nature is viewed solely as a source of profit and gain, this has serious consequences for society'.

In this area the following message is of determining importance: 'Here we can add yet another argument for rejecting every tyrannical and irresponsible domination of human beings over other creatures'. 'Each creature has its own purpose. None is superfluous'. 'No creature is self-sufficient'.

But when we affirm this we do not forget that there is also an infinite distance between man and animals. We do not acknowledge their proper and authentic place and we end up by unduly requiring from animals what by their very nature they cannot give us.

All of this does not mean placing all living beings on the same level and removing from man that special value that involves, at the same time, a tremendous responsibility.

Such an approach would end up by creating new imbalances in an attempt to flee from a reality that calls on us.

At times one perceives an obsession to deny that the human person has any kind of pre-eminence and a struggle for other species is carried on with an emphasis that is not used to defend the equal dignity of human beings.

Certainly it must concern us that other living beings are treated in an irresponsible way but we should be indignant above all else about the enormous inequalities that exist amongst us and about the fact that we continue to tolerate some people seeing themselves as more worthy than others.

We no longer realise that some people crawl along in a degrading misery without any real possibilities of improvement, whereas other people do not even know what to do with what they possess.

'Every act of cruelty towards any creature is "contrary to human dignity"'.

With respect to technological progress, two centuries of new insights and discoveries, in the field of medicine as well, demonstrate that if it is well directed scientific technology is able to produce things that are truly valuable.

'The modification of nature for useful purposes has distinguished the human family from the beginning; technology itself "expresses the inner tension that impels man gradually to overcome material limitations"'.

However we cannot ignore that these advances, nuclear energy, biotechnologies, information and communication technology, and knowledge about our own DNA, all offer us tremendous power and lead us to the idea of an infinite and unlimited growth.

This assumes a lie about the infinite availability of the goods of the planet which leads us to 'squeeze it dry', as the Supreme Pontiff writes, to its limits and beyond its limits.

This is a false assumption. One has to recognise that the products of technology are not neutral. The specialisation specific to technology implies a notable difficulty in achieving a view of the whole.

What is happening places us in front of an urgent need to proceed with a courageous cultural revolution.

In modernity a predominance of the anthropocentric approach has been established in an excessive way.

'This situation has led to a constant schizophrenia, wherein a technocracy which sees no intrinsic value in lesser beings coexists with the other extreme, which sees no special value in human beings'.

This involves the risk of a waning of 'our overall sense of responsibility'.

We cannot require from human beings a commitment to the world if we do not recognise and value at the same time their unique capacities for knowledge, will and responsibility.

'A misguided anthropocentrism leads to a misguided lifestyle'.

'While human intervention on plants and animals is permissible when it pertains to the necessities of human life…experimentation on animals is morally acceptable only "if it remains within reasonable limits [and] contributes to caring for or saving human lives"'.

Here it is observed that 'it is contrary to human dignity to cause animals to suffer or die needlessly'.

Italian legislation has been especially attentive in this field. The D. Lgs. 26/2014 of 4 March 2014, n. 6 'The Implementation of directive 2010/63/EU on the Protection of Animals Used for Scientific Purposes', established the principles and the good practices that should be used in pre-clinical studies where studies on animal models are envisaged.

The ethics of animal wellbeing lay down that for anybody who uses laboratory animals, the primary interest, which absolutely cannot be departed from, must be first the animal and then the experiment, and as regards the use of laboratory animals reference must be made to the famous 3 R established by Russel and Burch in their work of 1959 *The Principles of Humane Experimental Technique*, later enriched by two new Rs:

1R Refinement: improvement of the experimental conditions.

2R Reduction: reduction of the number of animals to be used but also the reduction of pain. In the past the question was whether animals suffered whereas now the question is how much animals suffer and whether one can reduce and eliminate their pain.

3R Replacement: where this is possible, replacement with alternative 'in vitro' techniques.

4R Responsibility: identifying a person who will have responsibility for the procedures (an appointed veterinary surgeon).

5R Rehabilitation (Rehoming): the rehabilitation and reintegration of animals which means that their elimination is not necessary.

All of this has the aim of finding a balance between the rights and the needs of animals and the needs of research and producing good science.

With respect to biotechnologies, the encyclical *Laudato Si'* takes up the balanced position of St. John Paul II who emphasised the benefits of scientific and technological progress but at the same time observed that 'we cannot interfere in one area of the ecosystem without paying due attention to the consequences of such interference in other areas'. He also

said that this should not give rise to 'indiscriminate genetic manipulation'.

It is not possible to apply a brake to human creativity and one cannot obstruct those who possess special gifts for scientific and technological development. At the same time one cannot but reconsider the objectives, the effects, the context and the limitations of such human activity, which is a form of power and brings with it great risks.

It is within this framework that any analysis of human intervention upon the plant and animal world should be located. Such intervention today involves genetic mutations produced by biotechnologies with have the aim of exploiting the opportunities that are present in material reality.

Pope Francis writes that: 'It is difficult to make a general judgement about genetic modification (GM), whether vegetable or animal, medical or agricultural, since these vary greatly among themselves and call for specific considerations'.

On the other hand, the risks should not always be attributed to technology itself but, rather, to an inadequate or excessive application. I remember the example of the railway that ran through the United States of America from East to West and to which were attributed responsibilities not as regards this means of transport but in terms of the use that was made of it by man during the colonisation of the Far West.

In reality, genetic mutations have been, and are, produced many times by nature herself. Not even those created by man are a modern phenomenon. The domestication of animals, the crossbreeding of species and other older and universally accepted practices can be given as examples of this.

Personally I would like to observe that traditional Mendelian genetics when searching for certain specific characteristics in animal species instead produced individuals that were strongly defective because characteristics were also produced which from the point of view of nature had a penalising effect.

It is advisable to remember that the beginning of scientific developments with transgenic cereals was the observation of bacteria that naturally and spontaneously produced a modification in a plant's genome. Another example is the microbiota of the human intestine which in having 150 times more genes that man conserves information that man does not possess, for example the production of vitamin B and vitamin K.

However it is evident that in nature these processes have a slow rhythm which cannot be compared to the speed imposed by current technological advance, even when such advance is based upon centuries-old developments.

Although we do not have definitive proof about the damage that transgenic cereals could cause to human beings, and in some regions their use has produced an economic growth that has helped to solve certain problems (here I may point to the nutritional and health-care aspects connected with the use of so-called 'golden rice'), significant difficulties are encountered which must not be minimised.

We may observe the concentration of productive land in the hands of the few, the progressive disappearance of small producers, a decrease in the diversity of production, and an expansion of oligopolies for the production of seeds and other products necessary to the cultivation of such cereals – this being a dependency that is aggravated if one considers the production of sterile seeds.

'Certainly, these issues require constant attention and a concern for their ethical implications. A broad, responsible scientific and social debate needs to take place, one capable of considering all the available information and of calling things by their name'.

At times complete information is not made available, a selection is made on the basis of self-interest, whether of a political, economic or ideological kind.

This makes it difficult to reach a balanced and prudent judgement which takes into account all the pertinent variables.

'This is a complex environmental issue; it calls for a comprehensive approach which would require, at the very least, greater efforts to finance various lines of independent, interdisciplinary research capable of shedding new light on the problem'.

On the other hand, the encyclical observes, it is worrying that some movements defend the integrity of the environment and rightly affirm the limitations that exist to scientific research whereas at times they do not apply these same principles to human life.

'Technology severed from ethics will not easily be able to limit its own power'.

Towards a Responsible Political Approach to the Perception, Assessment and Methods of Reducing Stress Caused by Environmental Factors

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Introduction

It is within the context of the fatal attacks that took place in Paris on Friday 13 November 2015 that I have to address here, before you, the questions and issues relating to contemporary stress.

Those criminal acts took place when I had finished the preparation of this paper of mine. However, when speaking about contemporary stress I cannot leave to one side this sinister drama which in the space of a few hours placed us in another age: that of terror and crime in the name of an idea which betrays the meaning of God. We are dealing here with behaviour that is based upon the psychological archaism of pagan religions which have done a very great deal of harm to man. This was remembered in a prophetic way by Benedict XVI in his speech in Regensberg on the subject of 'Faith, Reason and the University' (an address given on 12 September 2006) which was nonetheless the subject of derision by some people. During the course of his address the Supreme Pontiff drew attention to the relationship between faith and violence.

What did the Pope Emeritus say? 'Violence is incompatible with the nature of God and the nature of the soul… Whoever would lead someone to faith needs the ability to speak well and to reason properly, without violence and threats… To convince a reasonable soul, one does not need a strong arm, or weapons of any kind, or any other means of threatening a person with death… God is not pleased by blood'.

Why do those who kill in the name of God manipulate the religious experience in order to justify their violence? The answer lies in the logic that was explained by Benedict XVI: because the experience of faith has become disassociated from reason. The dislocation of one or the other runs the risk of provoking delirium. The very exercise of human reason forms of a part of the exploration of faith. Christ is a word given by God that calls on reason and intelligence to make divine truth more apparent.

One does not kill in the name of God because in Christ and through his cross, God ended the complex of Cain which is based upon jealousy and rivalry in order to obtain what the other possesses. This is a true original sin which involves denying the existence of the other in order to impose one's own existence. This is anthropological madness.

But today's world also wants to make itself extraneous to the religious dimension of existence in order to limit it to a question of private belief in order to deny in a better way the right to religion (its social and institutional dimensions), neglecting the fact that reason realises the existence of faith. For this reason the Church, strengthened by her experience of rationality, often invites people to engage in dialogue and to embrace the reason of things.

We were struck by the reality of mass crimes perpetrated in Paris by fanatics who wanted to impose their ideas about God on us with assault and kamikaze weapons. If this 'god' needs the blood of men to force them to believe in him, then he carries within himself his own negation because he is, solely and above all else, an expression of the paranoid psychosis of those who want to be his propagandists.

In the name of their Almighty Ego and their narcissistic sufficiency, they become insensitive to all human empathy. This relatively autonomous process, which is linked to a system of religious ideas that is at the service of terror, is spreading at an international level and violently attacks what remains of Western culture, which is very often betrayed by numerous political decisions that have weakened the central loom of society. As a consequence, we witness the development of various mental insecurities which express this destabilisation.

Here we are going beyond the stress that is the subject of this paper and we enter the fear and dismay caused by crimes committed against young people and adults who still had a many years to live and to enjoy their lives. Let us be careful, therefore, because a climate of terror can be established which is expressed in a loss of trust, a sense of insecurity, and a fear of being at the mercy of demented acts. Political leaders and society must ask themselves about this deleterious need to discredit the cultural origins of Western societies and draw away from their roots. We must, therefore, free ourselves from a feeling of guilt as regards our identity which is, indeed, the authentic social pathology of Western politics.

More in general we can move away from these crimes only by understanding that we have allowed this disaster and a slowing down of the processes of civilisation, with a weakening of our central loom, beginning with that of schools which, at times, are lost in imposed culture and manipulated pedagogy. These events force us to

become better, to once again centre ourselves on the meaning and the modalities of instruction, and to know how to resist spiritually, drawing inspiration from the word of God.

Following the terrible events that cruelly afflicted France and struck the whole world, we must emphasise the dignity with which the French knew how to face up to this tragedy. Most of their testimonies expressed solidarity and a refusal to allow themselves to be carried away by hatred, by anger and by vendetta. They chose peace and encouraged others to stand upright, with a living memory of the victims, in order to go on living in open hope, affirming at the same time that life is stronger than death, even though life will continue to take place in with difficulties and with a certain stress. But we know that life is stronger than death, that love is stronger than hatred, and that hope is stronger than defeatism, in the light of the Resurrection of Christ.

Let us now come to the problems raised by environmental stress in order to address the subject which I have been asked to analyse here.

Stress has become the characteristic of the personality of the men of today. Numerous people suffer from it; we should not be surprised by this given that we know about everything that they have to do during the day. Excessive work which is at times accompanied by a lack of money, to which is added the concerns of married, family and personal life, and short-term relationships which do nothing else but accentuate their malaise. They try to reduce tension through rest, recreation, sport, relaxation and time spent with their families and their friends. When these activities are not enough, stress is also treated through the prescription of certain medical products of a psychotropic character, whereas other people use drugs or alcohol to calm this kind of anxiety.

The origins of stress are to be found in many factors. They are related both to personal (genetic, neuro-physiological and psychological) factors and to social conditions and influences. Thus professional illnesses, social instability, and the multiplication of physical and mental illnesses are often linked to a social environment which afflicts the individual and which excessively stimulates both individuals and populations, that is to say they are traumatised and made insecure.

That form of social psychiatry which studies these facts understood some time ago the importance of the conditioning effects of the social environment on the balance of the mental lives of individuals. The appearance of new forms of social organisation, of forms of communication on internet, of new rhythms of work productivity, of the deregulation of a large number of norms, that is to say the lack of credibility of civil law which is constantly modified and at times in an unfair way, or in some cases the fact that justice is increasingly a matter of the opinion of a judge ('the justice of opinion' in particular in matters relating to inheritance and family questions) in taking into account applicable law, are all phenomena that often leave people without a reliable system of regulation. It is as though each individual thought that he or she had to regulate the social system himself or herself and saw social inefficiencies as a personal failure. In other terms, in destroying the central fabric, society creates objective conditions for the development of various disorders of human ecology, as Pope Francis emphasises in his encyclical *Laudato si'* (which was published in June 2015).

1. Capacity and Frailty in the Presence of Stress

Resistance to stress is connected with the personal capacities of each individual and above all with an ability to deal in one's mental life with the various stimulations that come from the life of impulses and the mental representations that derive from that life. But this life of impulses is at times so disturbing that some people crush it by increasing actions that are of no use or, in opposite fashion, in being afraid of their desires and thus inhibiting them, they affirm that they do not know what to desire. In the contemporary context, personalities are more fragile and contemporary upbringing forges individuals who are not very structured and have blurred outlines. These are defined as 'liquid personalities' and at times they are uncertain personalities because of a lack of cultural roots. They are invited to express the first thoughts and attractions that come to the fore rather than to elaborate them.

I say all this to observe that the source of stress is often within people. An individual can be afraid of what happens within him or her. In order to describe this state, some authors have spoken about 'impulse traumatism' (Blos, Kestemberg) which crystallises around obsession about a fear of expressing one's own desires. The individual is afraid of being overwhelmed and of not having the resources to face up to the pressure of his or her impulses. The individual is stressed when he or she feels attacked from within by the excitement of his or her own impulses: a nocturnal dream can trouble him or her for the whole day in the same way as he or her runs the risk of being troubled by painful events. An accident, an aggression or a strong professional, family or sentimental opposition, can provoke a mental shock (trauma). In the same way, the pressure of impulses of a sexual, relational or imaginary nature can trouble or destabilise an individual. In any of these cases, the trauma maintains the same structure: a flow of excitement and the urgent work of the mental apparatus in order to connect and prepare the elaboration of all these stimuli into higher functions. Otherwise, the risk that is run is that of witnessing emotional shocks in reality in the form of 'acting out'. The whole of the problem lies in an examination of the ways that people have of regulating and offloading things, in particular when they are young. It is during this part of his or her history that an individual learns to regulate his or her own internal tensions (stress) or, in opposite fashion, to crush them through relational processes. Repetitive compulsions can be used in an attempt to keep the contents of the trauma under control, without actually being able to do this: through drugs and alcohol to the point of an eth-

ylic coma; attributing to other people one's own feelings; dragging other people into what the individual himself or herself feels without being able to control this; making other people live what he or she has himself or herself experienced (sexual curiosity, shocks, oral maltreatment, sexual attacks); and looking at pornography sites which lead to sexual practices that do not allow an elaboration of the life of impulses

As regards the identity crises of young people between the age of twenty and thirty, (crises understood as a mutation), the work involving the integration of excitement through impulses is experienced as a reaction to an internal danger. The individual acts to neutralise this threat through behaviour that he or she adjudges to be necessary and satisfying in an interaction between the ego and the external world.

This work arises from a positive dynamic because the individual continuously negotiates what remains of his or her primitive demands in order to compare them with reality and the environment (cf. partial impulses). The post-adolescent can thus clarify and refine his or her affective choices and find ways of life that are recognised as belonging to him or her. His or her personality is thus more able to inscribe itself into a historical perspective, advancing its elaboration. The individual in this way finds the instruments by which to stabilise himself or herself within a *life narrative*. The return to primary impulses is often a source of anxiety, of 'being depressed', and of a loss of internal unity.

2. The Social Origins of Stress

Suffering at the workplace is without doubt one of the first observations that professionals of mental health make in their clinical practice. Often at the root of an increase in mental pathologies we encounter the obligations of organisation at work. To hard work is added the times of transport in urban contexts, as well as professional worries. Just faced with the idea of having to go back to work again on Monday, some people are already nervous on the previous Sunday afternoon.

In liberalism, the purely managerial vision of work creates a deleterious environment in a company and in individual psychologies. The change that has taken place in what these functions are called terminologically within a company is particularly significant. In some countries, where reference was made to the 'boss' or 'staff director', now the title 'director of human resources' is used. The members of the staff of a company have thus become one of the resources connected with productivity and the purpose of the company itself. They are principally seen as numbers and 'Excel tables'. This shift in language and categories indicates that the human part of a company is no longer seen as such but, rather, it is viewed as one of the material elements that are available according to the needs of the moment. This is an orientation that does not take into account the relationship with time, the ability of each person to have to function 'just in time', and the obligation to be immediate because of the increase in daily e-mails which have to be dealt with instantly. A person only has to be absent for one day for him or her to have to deal, according to his or her position, with a notable number of messages. Human psychology has to be as rapid as a computer because this machine has become a new yardstick whereas at one time this followed the rhythm of the seasons, of the day and of the night. We have moved from long and sequenced time to shorter and more immediate time.

Recriminations regarding the workplace are many in number. For example, reference is only made to the polyvalence of tasks and not to their objectives and results. In addition, work in open spaces is arduous because concentration is more difficult for people than is the case with separate offices. A constant movement of people has to be endured, as well as telephone conversations or conversations between one place and another, not to speak of the stupidity of sending an e-mail to the person sitting next to one rather than speaking to him or her directly. It was believed that these open spaces would have facilitated relationships and the exchange of information, but the opposite occurred. One must reconsider the architecture of offices in line with the human scale and not as the halls of a station. People also complain about individualised assessment taking place every year in terms of results obtained and argue that this serves little purpose; about the burdensome character of meetings which are often ineffective; about disputes and conflicts between people, especially between women; about people who do not know how to keep to their own roles; about the problem of information that is not communicated; about the absence of conciliation and co-operation; about a lack of trust in authority; about the multiplication of different kinds of suffering and defence strategies; about personal lives that are overly exposed when people feel that they are obliged to talk about their personal and at times intimate lives at the workplace; about moral and sexual seduction and harassment; about the role of so-called 'narcissistic perverse' personalities who poison relationships, this being all the more the case when such people hold power.

Their behaviour often is not understood by most people who do not realise that they are being manipulated by the charm of the member of a team or by those who exercise authority. They say one thing and also the opposite. They want to be near everybody while they take advantage of them to neutralise those who disturb what they are doing. They employ generous words about the meaning of the individual but at the same time devalue the meaning of the law with the pretext that understanding the other is better than judicial action. They exhort people to take on their responsibilities and at the same time make those who work with them lose credibility in public. They use binary language and appreciate asocial forms of behaviour with the pretext that they are freeing themselves from norms and morality, discrediting those who invoke the meaning of things. We could complete the list of this psychological profile which is extremely dangerous. In a world that is relatively deregulated, at the

present time in most institutions it is this type of personality who obtains power and who passes his or her time destroying other people in order to raise his or her own image alone. We encounter this profile even in religious Congregations. It is a profile that drives other people mad and they, afflicted by suffering, often resort to psychological support when they have to deal with this kind of person who is endowed at the same time with a paranoid or maniacal character. His or her letters and speeches are so confused that time and lucidity are needed to realise that they are manipulated but, at time, some people do not want to accept the evidence. France, therefore, passed a lay that punishes moral harassment which takes different forms when practised by a perverse narcissist. A relationship with this kind of character is often a source of stress.

But one should also consider other origins of stress. The principal factors can be summarised in the following way:

Burnout. This is a professional pathology linked to overwork and being worn out by work. There are various symptoms and they are manifested in three ways: physiological symptoms (sleep disturbance, chronic fatigue, insomnia, widespread chronic pains); mental and affective symptoms (hypersensitivity, depression, lack of concentration, a negative self-image, etc.); and, lastly, behavioural symptoms (a significant reduction in productivity, an increase and misuse of toxic substances such as alcohol or drugs, irritability, aggressiveness, impulsiveness, and folding in one oneself).

*Bore-out***.** This is a syndrome linked to professional boredom and to a lack of responsibility in one's job and one's life. Most of the time a person is capable of exercising responsibilities but does not know how to appreciate himself to herself in his or her environment. His or her colleagues and the heads of the company pass him or her by, as do associations, without noticing his or her talents and predispositions, and to such an extent that he or she ends up by becoming resigned and retreating. Does one have to remember that every head should know how to discover talents that are ignored? Otherwise we run the risk of engaging in a form of personal and social waste.

A loss linked to a separation often involves a relative disinvestment from reality in those people who are marked by the death of a loved one, by a dismissal or a by a divorce. In their lives a climate of stress is installed that at times leads them to lose the possibility of thinking and acting. One cannot emphasise enough that all of these factors, and in particular divorce, create a feeling of insecurity and lack of confidence in oneself and in other people. Resentments, and even a cynical approach, can advance and colour life in a negative way.

A loss of control over one's own existence through the sudden emergence of an illness, the difficulties of one's children who have become teenagers, or family and marital problems, often constitute a form of trauma that calls into question the balance of the person obtained up to that point. Life becomes stressing because it is troubling and has a horizon that seems uncertain, indeed even fragmented.

We could lengthen the list with other possible cases. I will limit myself to saying that the stress that is provoked fosters physical and psychological disturbances which are often presented during clinical consultations, with, at a physical level: neck and shoulder pains; headaches; tiredness; a decrease in appetite; insomnia; and hypertension; and, at a psychological level, anxiety; depression; problems relating to attention and concentration; and apathy, that is to say not wanting to do anything.

Most of these existential difficulties often have affective and sensorial repercussions with the feeling that life is being lived 'less well'. In clinical consultations we (I am speaking here for professionals of mental health) must pay very special attention to the quality of the intimate lives of our patients and in particular to what relates to the expression of their sexual lives within a conjugal context. A distancing from these intimate encounters, which should be experienced at least twice a week, is not a good indicator of the balance of the couple. There is the risk, in some men in particular, of resort to practices that end up by weighing on their self-esteem. Resort to adultery, to prostitution, to pornographic sites and to masturbation are often the expression of a difficulty and a suffering in the couple when the spouses have difficulty in engaging in the sexual act. But these forms of behaviour can also be related to a personal development that did not facilitate the affective and sexual maturation of the individual involved.

Another source of stress is also the limitless use of the services offered by internet. I am thinking in particular about constant information on networks which spread in an instantaneous and permanent way the smallest event that takes place on the other side of the planet. And even if what is happening is known, journalists keep the general public on tenterhooks wanting to know what could or should take place. Events, therefore, are constructed or reconstructed according to the worries of journalists or of what they believe to be the expectations of the general public. We witnessed this recently with the Synod of Bishops on the Family when there were journalists who directed their attention to subjects that did not relate to the synod with the consequent creation, notwithstanding everything, of expectations that were not justified. This system of information, which can be beneficial when it is practised according to rules, becomes delirious and intellectually troubling when the population learns about a subject that is manipulated for commercial reasons. The newspaper has to be sold! I would like to repeat the point: a form of journalistic practice exists which is stressing for the population in terms of public health since it extrapolates and overestimates a fact or invents answers when journalists do not know about the subject or do not know how to deal with it. Unfortunately, this also takes place in the religious field.

Social events also have their charge of anxiety when they are over reported in the mass media, gene rating a sense of powerlessness and impunity. Thus it was that in France, with the attacks of January 2015, reactions involving

anxiety and sleep disturbance led to an increase of 18% in the sales of anti-anxiety pharmaceuticals in only four days. In these circumstances, it is normal to develop reactions of anxiety when we are faced with events that are so violent. However, it is not appropriate to systematically 'psychiatrise' anxiety which, and I would like to repeat the point, is understandable when people are so destabilised by barbarities. But in medicalising this situation it is as though people are seen as sick and not up to the situation because they are afraid, because they weep and because they hesitate about leaving their homes. Even worse, when they have mental disorders which have to be treated. In these situations we must not neglect the importance of speaking about what has been experienced, thereby allowing people to steadily free themselves from their stress thanks to their use of speech. Today this is still the best medicine there is.

Even before these dramatic events, France was one of the first countries in Europe as regards levels of the consumption of psychotropic drugs. As early as May 2014, the National Agency for the Safety of Medical Products estimated that one French person in every three made use of this type of product, and acknowledged that these medical products are prescribed too often and for too long a period of time. This consumption reveals the state of existential malaise that a large number of people experience. For this reason, some years ago I wrote a book entitled (in French) 'No to the Depressive Society' (Flammarion).

Stressed people suffer because of their personal and family problems and because of pathologies linked to their jobs. Studies show that 60% of the causes are environmental whereas 40% are caused by the mental life of the individual involved.[2] Repeated and continuous stress can be transformed into burn-out. In France the *Bulletin de veille sanitaire* declared, for example, that 500,000 people suffer from professional pathologies and 30,000 people suffer from burn-out. This analysis is without doubt an understated one given that it takes into account only people who turn to a medical doctor in order to be treated. We should add that suicide in professional contexts is a new phenomenon which is on the increase and it constitutes a message to the company. It reveals that the company is a setting for relational suffering, submission and the loss of self-esteem.

3. How Can Environmental Stress be Reduced?

In his encyclical *Laudato si*, Pope Francis invites us to promote an integral vision of human ecology. It is not sufficient to protect our 'common home', to use the phrase of the Holy Father. We should also know how to protect and promote human life. As he states at n. 225: 'An integral ecology includes taking time to recover a serene harmony with creation, reflecting on our lifestyle and our ideals, and contemplating the Creator who lives among us and surrounds us, whose presence "must not be contrived but found, uncovered"' (*Evangelii gaudium*, n. 71).

Stress is a symptom of a deep insecurity within a person and the social environment. Insecurity is a source of malaise, of a loss of confidence in oneself and in other people, and of a loss of the sense of life.

Political leaders should not forget that it is their task to predict and organise all the conditions that are needed to assure the security of families, of work, of housing, of medical care and treatment and cultural and educational transmission to the young generations. These are all sovereign tasks which are at times forgotten with the present-day temptation to destabilise the social body through legislation that is opposed to the meaning of marriage and the family and to create systems of coercion to protect certain customs, thereby creating inequality amongst the citizens.

In other terms, civil laws exist which create social illnesses, conflicts and resentments that infuse into citizens a sense of peace and trust. Moreover, the instability of civil law which regularly modifies the rules of society and above all the fundamental parameters of reference of the social body in matters relating to the couple, the family and filiation, creates deep uncertainty about what is right and just. This is the fragility of the democratic power of Western societies, as de Tocqueville pointed out, which, in not having any natural and transcendent foundation (in the Aristotelian and Thomist sense of the term), gets lost in debates about what is legitimate and illegitimate and then becomes reduced to choices about 'values' which, in themselves, are of no interest. These societies have distanced themselves from their origins and their cultural points of reference to the point that relationships are confused and exploited. 'Only men who have roots in a land can love and believe and construct. Others only destroy'.[3] Political leaders and work policies foster the breakdown of social ties and a feeling of powerlessness and an attempt is made to counter this though the exaltation of 'values'. These are often anti-values which prepare the ground for the instabilities and the conflicts of tomorrow. For this reason, if the world is changing because of the effect of science with its deep questions, it is not pertinent to state that we must modify the concepts of moral thought in the name of individual freedom. By way of a provocation, we could say that it is not the world that changes but we ourselves who, under the influence of various ideologies, modify our relationship with reality. The more that the common good disappears from the horizon of Western countries, the more the governments of this cultural region, if not international organisations, legislate on questions relating to customs. This is a useless and dangerous pathway whose effects we see in a society that has lost the meaning of human life which, instead, must be respected from the beginning of its existence until its end. This is an approach which has consequences for professional, social and family life.

How, therefore, can we contribute to creating greater security in society in order to reduce stress which, over recent years, has become notably worse? I would like to make a number of observations in the form of operational criteria for better political action.

1. Most of the countries afflicted by unemployment are interest-

ed only in employment in order to fight, rightly, against a lack of work, or in financial compensations to fight against professional suffering, while undoubtedly we should be interested in the way in which work is organised. It is precisely these conditions of work which create, at times, a deleterious environment. Let it be made clear that they are a matter of material conditions, beginning with the 'open space' approach which we must have the courage to call into question in order to achieve a more human arrangement of space at the workplace, but in addition the noise and the equipment are not always suited to the work that is performed there. We are also talking about hierarchical relationships which, according to the case involved, create syndromes in people of *professional exhaustion* because of maltreatment in professional relationships. Often the most hit are personalities who apply themselves well to their work activity and wish to do well, because of the fact, that is to say, that they are perfectionists. This professional malaise has an incubation period of five to eight years and is manifested suddenly one day following one word too many from a manager or a boss. It is in this way that we have a balance in human ecology not being respected which goes against a harmony thanks to which it is possible to achieve what each person has to do.

Another kind of relationship arises amongst people where trust, respect and esteem from above have to be the key words to be thought about anew. These are the problems that policies should address, whereas, instead, there are people who turn them against themselves, thinking that they express their personal failure. This is far from being true given that we know that there are personalities who run the risk of internalising social malfunctioning and attributing it to themselves. Policies reflect only the physical character of companies without understanding that this overload involves methods of production and tense relationships which weaken people and in the long term devitalise the companies themselves.

2. We live in a universe where a sense of solidarity continues to become increasingly less evident, giving way to an immediate and factual solidarity which, therefore, is not structural in character. Each person on his or her own is a norm which is imposed in a sort of struggle against other people. Liberalism without norms thereby creates a kind of egocentric and autocentric relationship in which the individual who has the best performance must impose himself or herself and neglect other people, rather than placing his or her performance at the service of the group. In this context, there is the risk that fear, loneliness and low self-esteem will become installed and that these will lead on to resignation, in a climate that creates conditions for suicide committed by the most fragile and least structured personalities. And this is true both in professional and family contexts and in the social field.

The solution to these problems necessarily passes by way of a system of cooperation between people and this requires spaces of expression, deliberations and training in relationships in the professional context. Professional training should be completely reviewed in those settings where at the present time in order to create, so to speak, solidarity in a service of a company, survival work placements are organised on the model of games for teenagers which, although for this age band they are useful in relating to reality, to one's own attitudes and one's own fears, for adults they should be organised in a different way. The point is to be initiated into relationships between adults, into the social and institutional dimension, and into the various ways of engaging in dialogue with people in situations that are different from ours. This allows everyone to understand themselves better, to understand other people better, and to know how to keep to their own roles. Lastly, the annual assessment conversations envisaged by the law in some countries should be revised. They are like school examinations with a system of notes, whereas in some countries there is talk of abolishing school notes for children and teenagers. Instead, as regards these age bands, they are necessary to achieving a proper assessment.

In short, when these principles are applied to professional and family contexts, a climate of trust and pleasure in working and being together are developed, notwithstanding the difficulties that are linked to the special characteristics of each individual.

3. Knowing how to re-establish trust in authority in all contexts is indispensable. A great principle has to be applied: never speak badly about, humiliate or insult those people with whom one works or lives. This is the best way by which to lose their trust completely, especially when they feel in this way undervalued. A way of managing personnel is still in force according to which it is thought that in humiliating those with whom one works and one's family relatives they are in this way stimulated to advance, whereas, instead, totally the opposite takes place. They undervalue themselves and can no longer apply themselves and motivate themselves to think and act as the boss of a company, a parent, an educator or a teacher.

Thus it is that ways of acting kill and involve a loss of self-esteem. It is not in this way that conviviality and trust between the members of a given society can develop. The role of a head, of a parent and of an educator lies in knowing how to coordinate intelligences, to foster cooperation, and to distribute tasks in which people will excel.

In the world of work, which is so burdensome for many people, it is important to pay attention to the stability of the personnel in order to maintain a memory of work and relationships with other people. We must discover the political strength of cooperation between people, in particular in settings where political leaders entrusted with the organisation of society lose themselves in legal manipulations, in ideological errors and in the debasement of customs which undo society. In this way they close down any possible deliberation about questions concerning the common good. Instead, everything should be done in order to open relationships between people inside a company, rather than limiting things to a childish clash of a class struggle between bosses and workers.

Social cooperation, based upon fair social rules and objective norms, must be able to impose itself on its own as a benefit

that leads to circumscribing the tensions through their oral expression. This is the best way by which to avoid closing oneself up in them.

Conclusion

The origins of stress can lie in biological realities such as a lack of physical exercise, a badly balanced diet, biological changes according to age or even biochemical imbalances in the body. The impact of endocrinal agitators but also the consequences of contraception until pregnancy (cf. an increase in sterility), and biological waste connected with contraceptives and antibiotics used on human beings and nature, are equally phenomena that remain to be studied, quite beyond any ideology.

The origins of stress can equally be attributed to social pressures connected with changes in a person's daily life (illness, the death of other people, unemployment), or to pressures to conform to certain rules in the professional sphere which are not those that a person would have chosen for himself or herself, and to objectives which it is difficult to achieve at a professional level, or also to lack of support in one's own environment. Lastly, the origins of stress can be the consequence of one's own psychological organisation or the manifestations of problems during childhood that have still not been solved, or to having to face up to situations that remind a person of the traumas of his or her past, or to not knowing how to interpret relationships that other people have with him or her, or to not being able to overcome certain situations because one does not have a rational approach to solve the problems of daily life. In other terms, conditions of contemporary life sorely put to the test the mental lives of people because these lives are subjected to too many demands which, at times, go beyond people's capacities, leading to professional exhaustion and to an alteration in self-confidence. These are all phenomena that we find in burn out, which is a phenomenon that afflicts every professional context, and even the clergy.

One can develop various mental attitudes to deal with stress: cultivating a sense of Christian hope, finding pleasure in life, adopting positive attitudes and thoughts, and increasing one's self-esteem, all help to reduce stress in a notable way. Lastly, life hygiene plays a considerable role in providing protection: regular physical activity; a quality diet; maintaining sleep, etc. And then we should not forget the positive effects of relaxation exercises or the daily practice of meditation on the word of God and prayer.

Stress is always a factor of insecurity. For this reason, it is indispensable to create personal and social conditions that will help in trying to free oneself from it. The former depend on the mental life of an individual. It is possible to act upon these by addressing the problem through speaking about it, that is to say by obtaining help through psychotherapy. The latter are connected with the environment in which a person lives and we can act upon these politically but also in the light of Christian faith in order to make relationships and contexts increasingly human. But we have to have to go further than this because insecurity can also be the expression of spiritual anxiety.

The encyclical of Pope Francis *Laudato si*, basing itself on the encyclical *Caritas in veritate* of Benedict XVI, says 'no' to the exploitation of the person and observes that we see man starting from the unity of the person of Christ in his human nature and in his divine nature. Man, in his subsistence, is defined in a relationship within the Holy Trinity. One should also see man as the unity of a subsistence, or person, or of a substance, or nature. If this subsistence is a relationship, then man is no longer a being of an accidental relationship but, rather, he is a subsistent relationship. Thus, his relationships within social ties cannot be treated solely in a functional and instrumental way to the detriment of any human ecology. He is not a pawn, an object to be used and thrown away in line with the costs of production of a company and the risks of affective relationships: he is the principal dimension of the social apparatus and, in the name of the relationship which participates in his definition, he must be respected from his conception until the end of his existence.

In recent years, the tendency of our societies has been to reconstitute pagan depictions of life which always end up by fostering a return to barbarities through the destruction involved in the social death of a person, abortion or euthanasia, but also through the inhumanity of the murder of innocents for political reasons. For this reason, Western societies have to protect their central framework and their symbols rather than discredit them, and discover those Christian roots that have allowed them to refine their sense of human ecology.

The solutions by which to regulate the stress that is inherent in existence lie in a wish to affirm oneself in hope, in truth and in trust so that each person in a family, in social life and at work feels respected.

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Notes

[1] Patrick Légeron, *Le stress au travail* (Éditions Odile Jacob).

[2] Dostoevsky, *The Devils.*

FRIDAY 20 NOVEMBER

Waves of Heat and Cold with an Acute Impact on Frail Individuals (the Elderly, Children, the Immunosuppressed and Individuals with Debilitating Pathologies)

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By the term '*salus*' is meant both 'health' and 'salvation'. In the *Old Testament* 'salvation' translates various terms which refer to liberation from the most different kinds of evil, both material and spiritual. There are those who are saved from evil (in a material and spiritual sense) if God and His laws are respected; if the fruits of His creative Love are respected, that is to say the human being and the environment – the common home, as Pope Francis calls it.

As regards welcome, reference is made to the act of receiving a person, which cannot be separated from the way in which it takes place, so as to create the foundations and the conditions for this to take place in a dignified way and with love. This concept, as the recent encyclical *Laudato si'* clearly illuminates, goes beyond man and concerns the whole of the creation.

Every human being, and thus every child of God, at the moment of birth (that is to say when he or she receives the 'Gift of Life' which God gave to all of us) is received into an environment: first the womb of his or her mother, then that of Mother Earth. Respect for human life (and thus for God Himself) cannot exist if we do not strive to make these environments suitable and worthy, appropriate and rich in love: a welcome that should accompany us during the course of our entire lives.

The subject that has been given to me in substantial terms revolves around two aspects: 1) that connected with climate change, to which reference is increasingly made, and which amongst other things involves an increase in waves of heat and cold; and 2) that connected with the consequences for health and in particular the health of so-called frail individuals.

With respect to the first part, yesterday we listened to the paper of Prof. Schellnhuber, a great expert on the subject and the director of PIK, the Institute of Research on the Impact of the Climate of Potsdam in Germany. For this reason, I will confine myself to emphasising only briefly some aspects of the question from an aetiological point of view.

Indeed, I am a medical doctor and for this reason I have always been fascinated by research into the causes that bring about the emergence of pathologies and situations which are harmful to health. I will dwell for the most part on the aspect of so-called frail individuals. In this case, as well, however, I will seek to explain why one arrives at a state of weakness or frailty which is often acquired with the passing of time and only in part connected to advancing old age.

1. Waves of Heat and Cold

Man is the most recent factor to influence the environment and has been so for a relatively short period of time. His influence began with the development of agriculture and the consequent deforestation of woods to convert them into cultivable land and pastures, to the point of arriving at today's large emissions of greenhouse gas: CO2 from industries and transport and methane from intensive animal raising and rice fields. According to the theory of 'global warming', man through his emissions of greenhouse gas (above all CO2 and methane) is responsible for a large part of the period of warming which the earth is going through today.

The causes of climate change generated by man

The principal sources of gas that produces the greenhouse effect and are generated by man are, therefore, the following: the burning of fossil fuels (coal, oil and gas) in the production of energy, in transport, in industry and in the home (CO2); agriculture (CH4) and changes to soil use such as deforestation (less absorption of carbon dioxide) and nitrates in fertilisers; gasses used in refrigeration and industrial processes; intensive animal raising (CH4; the digestive systems of pasture animals); the discharge of waste (CH4); and the use of fluoride gases by industry.

The negative consequences of what is happening are many in number and of great relevance

Climate change is changing our economies, our health and the societies in which we live. Scientists warn that if we do not slow down this change sufficiently, the consequences will be dramatic. If the planet earth were to warm up even more: sea levels would tend to rise because water expands when its temperature increases and the oceans absorb less heat from the earth; sea levels would rise because of the effect of the melting of the polar caps and sea ice; cities on coasts would be submerged; places where usually a great deal of rain and snow falls could become warmer and drier; lakes and rivers could dry up; there would be longer and more frequent periods of drought which would make agricultural cultivation more difficult; there would be less availability of water for drinking and washing but also for agriculture and the food industry; many plant and animal species would become extinct; and hurricanes, tornados and other storms would provoke changes in temperature and the evaporation of water would be more intense.

In bare terms, having a greater awareness of this problem and thus moving rapidly towards putting concrete solutions into practice is inescapable and urgently necessary.

Solutions to climate change (reduction of the greenhouse effect)

To prevent the accumulation of greenhouse gasses in the atmosphere we have to implement 'low-carbon' or 'carbon-neutral' policies. This is why we have to aim at *renewable resources*. Decarbonisation is the key to stopping *climate change*.

What families, companies and institutions have still not understood is that one can link economic growth to protection of the environment. In order to maintain a certain level of prosperity, of both an economic and an environmental kind, one should aim at sustainable innovations.

The principles that should animate those who have decision-making power at a political level, and guide those who engage in business, must absolutely be based on sustainability understood in the sense of actions that must not harm the environment; use materials that are compatible with the health of man; and produce the least toxic possible waste and waste that is recyclable, if this is possible.

Modern science tells us that this is absolutely possible and thus must be achieved as soon as possible for the good of man and the planet.

2. The Impact on Frail Individuals (the Elderly, Children, the Immunosuppressed and Individuals with Debilitating Pathologies)

About ten years ago, I encountered clinical environmental medicine and I immediately fell in love with it. Clinical environmental medicine is that branch of medicine which deals with the harmful effects on man caused by anthropogenic modifications to the environment. It is to this framework that what I have just said about climate change fully belongs. This takes place through channels such as water, earth, air and radiations. This is exactly what has been happening with greater intensity and gravity and has increased exponentially over the last thirty to forty years. It is also what Pope Francis addressed in his encyclical *Laudato Si'* and to such an extent that the first chapter is entitled 'What is Happening to Our Common Home'.

Pope Francis' thought and attention is concentrated in particular on frail individuals such as, for example, the elderly, children, the immunosuppressed and individuals with debilitating pathologies.

In this case, as well, as a medical doctor, I am obliged to try to understand whence this frailty comes and what causes it. Whether one is dealing with something that is inherited, and which is thus difficult to modify because it is related to our genetic inheritance, or whether it is something that we have acquired during the course of our lives and which we can thus overcome, if we manage to understand the dynamics that have brought it about. As Pope Francis reminds us in his encyclical: 'Man is an open system, in constant interchange with the environment' and it is specifically here that we must look for the causes of our frailty. To understand this crucial passage in a better way, I will once again refer to the title of this international conference which speaks about '*salus*'. In this case, I want to emphasise its meaning in the sense of health and I will offer to you a new definition of this term which in my view allows us to have a better understanding of the dynamics that lead to this loss of health and which suggests to us, therefore, new more modern and more effective strategies to maintain (prevention) or restore (treatment) our state of health.

Health

The greatest philosophers, scientists and physicians have always asked themselves what the meaning of 'health' is, providing the most varied definitions of it, in an attempt to establish when a person is 'well' or not. At times, however, to explain very deep and detailed concepts, the best thing is to attempt to simplify. Mathematics in this case can come to our aid. In my view the concept of 'health' can be expressed through a simple mathematical formula through a fraction, where the numerator is the capacity for compensation possessed by every organism, and the denominator is the disturbance factors (environmental factors, stressing elements of various origins, with which the organism itself is constantly in contact).

$$\text{Health} = \frac{\text{Capacity for Compensation}}{\text{Disturbance Factors}}$$

If we wanted to examine this mathematical expression in a better way and see it from a broader perspective, I would even say with a philosophical/theological approach, we would realise how in the numerator (the upper part of the fraction) we find all those elements that help us to foster and conserve health. We are dealing here with what we have received as a gift from God and which allows us to be in good health every day: the immunity system, the enzyme defence and de-intoxication system, and the effluents which allow us to eliminate everything from the organism that is injurious to it. In the denominator (the lower part of the fraction), instead, we find what causes illness. To understand things correctly, these are components that are 'created' by man and placed in increasing quantities in the environment and in nature when respect for, awareness of, and love for nature herself disappears. Amongst these may be identified, for example, environmental pollutants such as insecticides, pesticides, defoliants, solvents, plastics, heavy metals, phthalates, biphenyls, moulds, nanoparticles, genetically modified organisms, electrosmog, and many others. It has by now been amply demonstrated that Parkinson's disease, for example, is connected with heavy metals and pesticides, and that male infertility has a correlation with poisoning by endocrine disruptors such as phthalates.

Here as well the interpretation could be as follows: God has given us everything that is needed to be in good health. Man has free will to conserve these gifts and treat them with care and with love so as to live in good health for as a long as possible. Or he can damage himself (living a dissolute life) and the environment in which he lives (this has been taking place in an increasingly notable way over the last decades), inexorably moving towards illness.

In carrying out his professional activity, a medical doctor cannot depart from awareness that the environment plays a role of great relevance in bringing about pathologies, especially those of a chronic and degenerative character. When we formulate a diagnosis we must not be satisfied with 'always blaming' 'age and stress'. We should always think of the causes and joint causes that come from the environment.

The role of medical doctors and health-care workers

In the light of the new awareness that comes from the encyclical *Laudato Si'*, medical doctors and health-care workers should perform their work (their mission), in the sense of prevention and cure, through work directed towards 'reinforcing' what we find in the numerator and reduce to the utmost the so-called 'disturbance factors', all of which are closely connected with the deterioration of the environment.

The fundamental element from which to start is awareness of what has been said hitherto in this paper. A medical doctor must know that very many pathologies, and in particular chronic illnesses and functional disorders, have as their principal cause (or as a joint cause) a factor of an environmental origin. These should be explored and demonstrated (today we have available laboratory analyses that are internationally recognised by which to proceed to a monitoring of the environment and a bio-monitoring in that sense).

Clinical environmental medicine is a new branch of medicine. This is a modern discipline (the central role of the environment as a determining cause of very many pathologies) and a transversal one as well (every medical specialisation is connected with it).

Helping through information and training

Some years ago in Europe the EUROPAEM (www.europaem.eu) was founded. This is the European Academy of Environmental Medicine whose principal aim is to train medical doctors in the light of new knowledge about the environment and health, and to inform citizens in a correct and modern way so that they can achieve real primary prevention through respect for their own persons and the environment in which they live. EUROPAEM in recent years has trained many medical doctors in Germany, Luxembourg, Italy and Spain.

The wonderful encyclical of Pope Francis cannot be not listened to. Above all else, after allowing it to enter us, we must move on to action.

St. James reminds us: 'what does it benefit you, my brethren, if one of you says he has faith but not works? Can that faith perhaps save him?' The encyclical ends with the signature of the Pope – Franciscus, that is to say Francis (Francesco in Italian). I wanted to link these two last letters (co) so as to have them as a compass for our action, to know how, and in what direction, we should move on to the operational stage. And for this I have found fifteen words (which in Italian begin with co) that must be our travelling companions: 1. awareness; 2. knowledge; 3) conscience; 4. communication; 5. consistency; 6. constancy; 7. cooperation; 8. coordination; 9. collegiality; 10. participation; 11. constructiveness; 12. communion; 13. conversion; 14. courage.

We must go on this journey uniting our forces. The message of Pope Francis applies to us all; nobody can draw back. We must deepen our commitment to achieving our common objective of 'stewarding the common home': parents, teachers, scientists, medical doctors, politicians, legislators, administrators, lawyers, judges, businessmen, journalists, priests…

Martin Luther King said: 'maybe you are not responsible for the situation in which you find yourselves, but you will be if you do nothing to change it!' And Albert Einstein said: 'Those who say it is impossible should not disturb you when doing it'.

I will end this paper by referring to what Pope Francis said on 22 November 2013 in his homily given in Santa Marta: 'The first

temple of God is our body which must be respected'. 'The temple is the place where we Christians go to pray, but above all it is the place where one goes to worship the Lord'. 'Side by side with the temple understood as a place for worship, from which Jesus drove out the moneylenders who through their trade failed to respect God, there is another temple and another sacredness to consider in the life of faith: the body of each one of us which should be equally respected'.

Those who do not respect the creation (the temple) lack respect for man and lack respect for God. We must not allow this and Pope Francis tells us forcefully how to do this! Now it is just a matter of acting! And if someone has scruples or fears… 'do not be afraid'.

The Impact of Endocrine Disruptors on Health

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Definition of Endocrine Disruptors

The availability of information about the sequence of the human genome, the development of platforms for a rapid analysis of the entire genome, and genetic association studies have enabled us to explore the heterogeneous nature of chronic illnesses, of a hidden kind as well, such as cardiovascular disorders, cancer, diabetes, obesity, disorders of the reproductive system, psychiatric pathologies, and others. This information in general identifies important polymorphisms of single nucleotides (SNPs) which contribute to the risk of illness even if environmental elements clearly constitute important risk factors and this to the extent that gene-environment interactions have acquired increasing importance in establishing the risks of a pathology. In this sense, the environment can be roughly defined by this vast gamut of non-genetic variables that include, amongst others, nutrition, stress, medical products and exposure to chemical disruptors. With a term that was coined in the year 1991 on the occasion of a conference that took place in the United States of America at the Wingspread Conference Center in Racine, Wisconsin, entitled 'Chemically Induced Alterations in Sexual Development: the Wildlife/Human Connection', the endocrine disruptor chemicals (hereafter in this paper 'EDCs') were defined as 'substances present in the environment in food in consumer products that interfere with the biosynthesis, metabolism and hormonal action, leading to changes in the physiological control of the neuro-endocrinal, thyroid and male and female reproductive systems, to the development and genesis of breast and prostrate cancer, and to metabolic and cardiovascular homeostasis'. At least 80,000 chemical substances used in international trade exist and every year 1,000-2,000 are introduced for the first time, as a result of which the agencies established for the protection of the environment are not able to assess their safety completely. In 2012, furthermore, the World Health Organisation pointed to 800 xenobiotic substances. These are natural or synthetic molecules which can found within an organism but which are not produced by it and which are potentially able to interfere with or disrupt the working of the endocrine system. One should make clear that the mechanisms by which these chemical products can induce toxicity vary and that the toxicity that is mediated by an alteration in the endocrine system forms one small part of all the known mechanisms of toxicity.

The Characteristics and Mechanisms of Action of Endocrine Disruptors

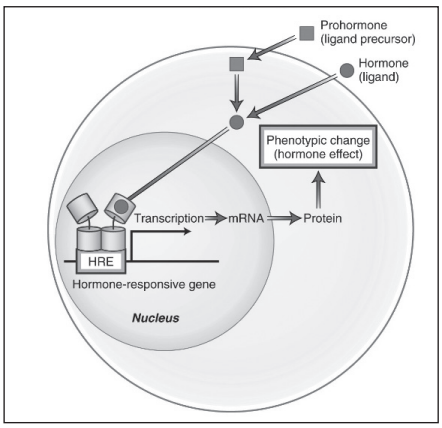
EDCs have many different chemical structures: some of them are highly soluble in water whereas others are lipophilic and therefore able to interact with a vast series of nuclear receptors. In addition, in many disruptors their chemical structure does not predict their biological actions, as in the case of Bisphenol A, a diphenol compound that is able to interact with the oestrogen receptors but only to a lesser extent with the androgen and thyroid hormone receptors.

For these reasons, the efforts that the scientific community concerned with endrocrine studies and toxicology has engaged in order to identify the properties of EDCs and define endocrine risks, assessing the correlations between

research carried out *in vitro* and *in vivo* on animal models and observations on humans, must have as their goal prevention and be directed towards providing secure information to legislative bodies for the protection of individuals and populations. The tables that follow involve a selection of the most common endocrine disruptors as regards human populations and their potential effects.

Disruptors	Source of contamination	Effects
Lead	Degradation of lead-based paints and contaminated dust	Brain development and IQ. Multiple effects on the endocrine system
Mercury	Food for marine species. Atmospheric mercury of industrial origins	Brain and memory development. Effects on the thyroid and other endocrine tissues
Perfluorate compounds (PFCs)* *They persist and accumulate in the environment and have a long biological half-life in humans	Stain-removers for clothes, furniture and food packaging. Boxes and containers for fast-food. Anti-fire foams, stain-removers, paints for wood, roofs and floors.	Multiple mechanisms of action. In particular, pathologies of the thyroid and participation in the genesis of neoplasms.
Polybromide biphenyl ethers (PBDEs)* *They persist and accumulate in the environment and have a long biological half-life in humans.	Flame retardants in polyurethane, furniture, plastics, telephone equipment. Dust in renovated environments.	Multiple mechanisms of action. In particular, interaction with oestrogen, androgen and thyroid receptors.
Polychlorinated biphenyls (PCBs)* *They persist and bio-accumulate in the environment	Prohibited since 1970, they are still used in dielectric fluids, wood treatments, and inks.	Interacts with the oestrogen signal, associated with hormone dependent cancer and early puberty
Diphenyl dychloride, ethylene dychloride (DDE)	Metabolite of the insecticide DTT widely used with a long environmental biological half-life	Interacts with the oestrogen signal, associated with hormone dependent cancer and early puberty
Bisphenol A (BPA)	Tin coverings, epoxy resins, plastic containers	Oestrogen, androgen, and thyroid receptors. Linked to chronic pathologies
Triclosan	Anti-microbe soaps, clothes, crockery, cosmetics	Thyroid function
Parabens (esters of para-hydroxybenzoic acid)	Preservatives for many consumer products, paint, lipstick, perfumes, shaving cream, sun creams	Disruption of oestrogen activity
Phthlates	Widespread as products for personal hygiene etc., plastics in PVC, insect repellents, floors	Interaction with the androgen and thyroid functions. Associated with loss of masculinisation and a reduced number of spermatozoa
Perchlorates	Widely present in foods, fruit and vegetables, beer, wine and other food products	They block the uptake of iodine and reduce levels of the thyroid hormone

The chemical substances that interfere with the organs of the endocrine system can therefore act at the level of any one of the events that regulate hormonal action, from the synthesis processes, the transport, and the release of the hormone to the catabolic mechanisms that break it down and eliminate it. In addition, the disruptors can directly influence hormonal biological activity, and thus its function as a receptor.



The results of basic research and clinical and epidemiological observations identify a potential influence of EDCs on the reception mechanisms of the hormone signal. The receptors (see graph) can be roughly divided into membrane receptors and nuclear receptors. The membrane receptors link peptidic and small molecules that cannot pass through the plasmatic membrane whereas the nuclear receptors link small liposoluble molecules that are spread and are transported through the membrane within the cell. In both cases the link of the ligand molecule to its receptor site activates a 'cascade' cell response that involves numerous signal molecules and ends with the binding of specific sequences of DNA which is followed by the activation of the processes of gene transcription. The mechanisms by which the EDCs act include, therefore, the oestrogenic and androgenic signals; the thyroid receptors; the PP-AR (peroxisome proliferator-activated receptor); and retinoic acid. In addition, the EDCs influence the steroid-genetic enzyme activity and the central neuro-endocrinal mechanisms. In this context, the concepts of homeostasis and compensation deserve major attention. The term 'homeostasis' refers to the properties of a dynamic system of maintaining an internal constancy. The term 'compensation' refers to when a system that is in a state of homeostatic balance is disrupted and various elements within the system are activated or inhibited in order to allow the return of the balance.

These facts are especially important when one considers the potential adverse effects of the exposure of a foetus to low doses of EDCs compared to what happens in adults. Indeed, the development of a foetus, because of the lower capacities at the level of compensation, is a moment when the disruption of the hormonal systems can create irreversible damage. Considering, in addition, that the endogenous hormones display non-linear dose-response characteristics, one may expect that environmental pollutants can interact with the hormonal system and display non-linear responses. Exposure to endrocrine disruptors is bio-monitored above all in relation to programmes of exposure to industrial chemical products and reports are regularly up-dated in the site for the Centre for the Control and Prevention of Pathologies (CDC) *http://www.cdc.gov/exposurereport* which was recently updated in February 2015.

A certain number of points have been demonstrated to be of fundamental importance in the full understanding of the mechanisms of action and the consequences of exposure to EDCs. It is important to take into account the length of exposure (the exposure of an adult to an EDC can have consequences that are very different to what happens in the case of exposure of a foetus or a neonate); the latency of exposure; the importance of the mixtures and therefore the possibility that a number of components, if present, can have a greater or synergic disruptive effect; and the non-genomic dose-response dynamic by which even infinitesimal doses of an EDC can act on the receptors that mediate rapid cellular responses that are different from traditional ones: the transgenerational and epigenetic effects that can be transmitted not only because of mutations in the DNA sequence but also, and instead, through a modulation of factors that regulate the expression of genes, for example DNA methylation and histonic acetylation. The principal pathways of exposure to EDCS are through the skin (cosmetics, deodorants, body creams, perfumes and shampoo); the accumulation of lipolytic disruptors, the transfer from the mother to the foetus; inhalation; oral exposure; and the transfer of lipolytic EDCs from the mother to the neonate through breast feeding. For example, organophosphate pesticides are responsible for about 200,000 deaths every year in developed countries and high exposure to them linked to acute adverse effects has a modality of management that is completely different from chronic long-term exposure where symptoms and systems of treatment are relatively clear.

In the same way, acute brain toxicity caused by exposure to lead has been known since ancient times and it has always been believed that a high exposure was able to produce damaging effects. But from 1924 onwards when tetraethyl lead began to be used as an additive to petrol many deaths in workers in contact with this lead derivative were registered and many of them developed neurological symptoms. Despite this fact, tetraethyl lead was approved as an additive for petrol in 1926 and this began the point of departure for the management of the problem of endocrine disruptors: the triangle between the evidence to come out of research, the interests of the chemical-industrial world, and legislative authorities. The independent research of Herb Needleman demonstrated an interesting relationship between the intellectual quotient of children and their level of exposure to lead. This research emphasised the need to identify the precise level of exposure, given that lead continues in the bone tissue for about thirty years, although the presence of this metal in blood is limited to only thirty days. Despite this important discovery, lead was removed from petrol only in the year 1974: not because of the correlated risk of illness but because of the potential damage it

could do to the catalytic converters of automobiles. After its removal it was demonstrated in 1984 that the levels of lead in blood of the Western population had been reduced by about 74%. This is a paradigmatic example of how the influence of a chemical disruptor on health was not taken into consideration because of industrial interests.

The same observation could be made about polychlorinated biphenyls (PCBs) which were used for various industrial applications, in electric supports for wood panels, creating skin pathologies (chloracne) and grave liver damage in workers who were most in contact with this chemical disruptor. Clinical reports had pointed to this damage as early as the year 1899 but the product was prohibited only in 1979.

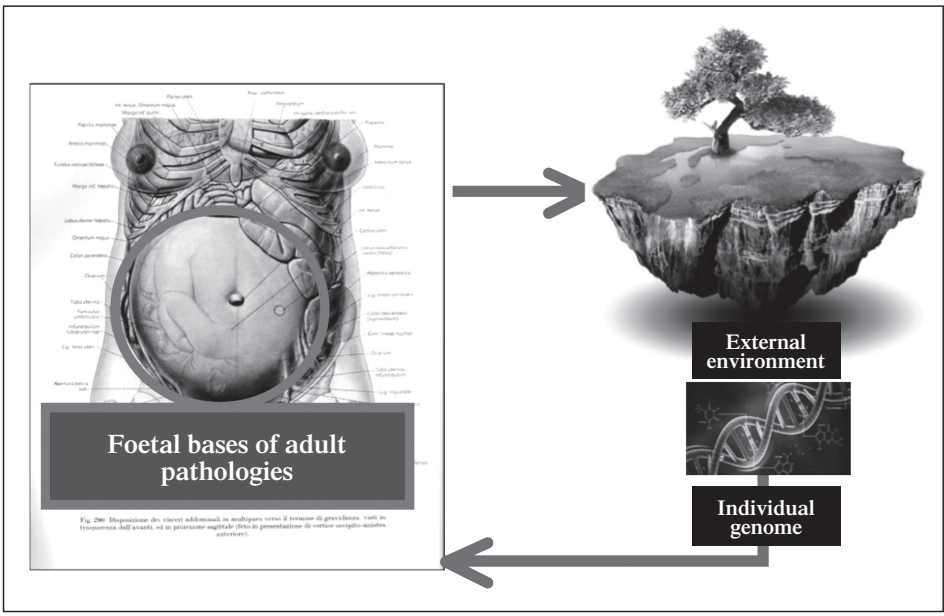
A similar observation can be made about diethylstilbestrol (DES), a powerful substance with an oestrogenic action able to provoke miscarriage and vaginal adenocarcinoma in women exposed to it, with consequences for daughters as well who have a greater risk of womb fibromiomatosis, endometriosis, breast cancer, recurrent miscarriage, premature birth and malformations of the reproductive tract.

Multidisciplinary information is thus necessary and in particular information of this kind which is useful in understanding and defining the effects of chemical disruptors that do not remain in the body for a long time. This interdisciplinary work starts from the evidence of basic research directed towards exploring toxicity in models of cell culture and in animal models, and on to epidemiological studies in man that are able to demonstrate which chemical substances can modify the physiology of enzyme systems, and of metabolic and catabolic pathways, using various process of transport and accumulation.

Important Aspects of the Effects of Chemical Disruptors on Health

Some points are 'key aspects' in the understanding of the mechanisms of action of chemical disruptors in relation to health:

Age at exposure. The exposure of a adult to an EDC can have very different consequences to the case of the exposure of a foetus or a growing child. Even infinitely low levels of exposure to EDCs (and at any level of exposure) can generate endocrine or reproductive anomalies in the embryo, in particular if the exposure takes place during a critical period of the 'window of susceptibility' to endocrine disruptors which, for example, in a male foetus takes place in particular between the first week and the fifteenth week of the life of the foetus.



In a developing organism, low doses of EDCs can have even more powerful effects than those correlated to exposure to high doses. To describe the 'foetal bases of adult pathologies' one has to reflect on the observation that the development of an organism is influenced both by the intrauterine environment and by the external environment that interacts with the individual genome, causing the propensity of an individual to develop pathologies or dysfunctions during the course of life.

The period of latency of the exposure. The bases of pathologies in adults that originate during the development period are obviously correlated with the interval between the time of exposure and the manifestation of a disorder. In other words, the consequences of exposure during development can be not immediately manifest during the first stages of life but, rather, they can be manifested during the course of adulthood or even in old age.

Genetic variability. The effects depend on the variability of gene expression, creating a background that requires studies on high numbers of individuals using a genomic and statistical approach. This produces an individual background that requires an in-depth genomic and statistical survey on a grand scale.

The importance of mixtures. If individuals and populations are exposed to various EDCs it is also possible that in the presence of an environment with a low concentration of disruptors additive effects will be created which are even more difficult to detect and assess, even with the help of sophisticated and sensitive methods of dosage. For that matter, the effects can be the result of multiple micro-insults during the course of a person's life.

Transgenerational and epigenetic effects. The effects can be manifested after a long period of latency and also be transmitted from one generation to another.

Recent evidence has demonstrated that the genomic pathway is not an exclusive transmission mechanism of the actions induced by the EDCs, which can

exercise their effects also through non-genomic transmission mechanisms. This means that the effects of the EDCs can be transmitted both through mutations of the DNA sequences and through the modulation of factors that regulate gene expression such as, for example, the methylation of DNA and histonic acetylation. The epigenetic effects depend on the environment: medical products, stress, socio-economic status, infections, and microbioma.

The principal pathways of exposure in man. The principal pathways of exposure to EDCs include through the skin (cosmetics, deodorants, creams, shampoo and perfumes); through inhalation (in particular polycyclic aromatic hydrocarbons such as benzopiren, polybrominated biphenyl ethers, and plastics and heavy metals); through oral exposure (contaminants in food, plastics, pesticides and fungicides); and, lastly, through the transfer of lipophilic products from mother to foetus and their accumulation at the level of the mammary glands where they can be transmitted through breast feeding.

The Endocrine System: the Effects of Disruptors on the Incidence of Pathologies

The causal correlation between exposure to endocrine disruptors and risk of illness in man can be difficult to understand because of a lack of information about the sources of exposure and the difficulties in measuring all the possible exposures. To this is added limitations in the statistical analyses that establish the effects of a mix of disruptors. This increase in the incidence and prevalence of illnesses in a human population can, after a certain fashion, provide detailed information that is able to establish a causal relationship in particular as regards neoplasms, neuro-behavioural damage (attention disorders and autism), dysmetabolic disorders, and damage to the reproductive system which includes variations in the timing of puberty and anomalies in the development of the male reproductive phenotype which have an impact on fertility.

Obesity. This is a complex endocrinal pathology that is caused by a deep interaction between the individual genome and the environment which has undergone a dramatic increase in incidence over the last thirty years, in particular in children and adolescents. Hormones such as oestrogens, androgens, glucocorticoids, insulin and thyroids play an important role in the control of the physiology of the adipose cell, from embryogenesis and the moment of development, interfering in the metabolism, in the control of the balance between hunger and being sated and thus of the energy balance. Studies that employ animal models and 'in vitro' cell lines indicate that exposure to certain disruptors, in particular during the crucial stages of development, can involve an interaction between the environment and the genome that is able to create a predisposition to the development of obesity. Disruptors that are defined as 'obesiogenes', such as tributyltin, phthalates, perfluorooctanoic acid, flavones, polychlorinated biphenyls, bisphenol A, and polybrominated biphenyl ethers can act at the level of one or more specific sites and alter the endocrinal mechanisms that regulate the adipose tissue and the function of the hypothalamus that establishes the request for nutrients, inducing alterations in sensitivity to insulin and the lipidic metabolism. For example, tributiltine and some organostannic compounds behave as powerful agonists which are highly selective of PPAR-γ (proliferator of peroxisomes) and isoforms of RXR (nuclear receptors for retinoids), activating them and allowing a broad variety of lipophilic hormones, fatty acids and their metobolites to modulate the differentiation and the volume of the adipose cell. Thus obesiogene disruptors through a correlation between activation of nuclear receptors, epigenetic actions, hormonal regulation and pathways of the metabolic signal, vary the metabolic set-points and increase the risk of obesity.

Diabetes. In parallel with obesity, since the 1990s we have witnessed a dramatic increase in diabetes in young people, a condition that was rather rare until a few decades ago. Some disruptors, such as phthalates, bisphenol A, arsenic, and organochlorinated pesticides and metabolites of DDT, have been linked to a higher incidence of diabetes in epidemiological studies. One mechanism by which chemical disruptors can act fostering the emergence of diabetes type 2 is tissue inflammation, a reduction in the secretion of adiponectin, a compromising of the control of the secretion of insulin by the adipose cells, and an alteration in the working of the liver and the thyroid.

The reproductive apparatus. This was the first endocrine system on which studies about the potential toxicity of environmental chemical disruptors focused. As regards *male reproduction*, one of the most important arguments was offered by Skakkenbaek in 2001 with his definition of 'the testicular dysgenesis syndrome (TDS)'. This syndrome associates some clinical conditions such as a low quality of seminal liquid, testicular cancer, cryptorchidism and hypospadias, positing a single pathogenetic entity identified in defects of androgenic action during the development of the foetus. Epidemiological studies demonstrate that each of the symptoms of TDS have increased in their incidence and prevalence and this suggests the joint participation of an environmental factor and invokes those environmental disruptors that have an anti-androgen function such as phthalates, bisphenol A and some pesticides. Studies carried out in animal models indicate that males exposed to the environmental influence of disruptors with an oestrogenic or anti-androgenic action develop hypospadias, cryptorchidism and oligozoospermia. Since the 1990s, growing evidence has linked the reduction in the number and quality of spermatozoa, and thus in male infertility, that has been recorded over the last fifty years to environmental stressors which include endocrine disruptors. The decline in the number of spermatozoa in men has been described since the

year 1992 and the studies confirming this have demonstrated that the influence of genes and the environment has led to this decline, with the idea that EDCs are the principal agents responsible for this where they interfere with the androgenic receptor: for example pesticides, polybrominated biphenyl ethers and phthalates. These last can also reduce the levels of circulating androgens and have been seen to be responsible, through experimental evidence collected with animal models, for the reduced ano-genital distance marker of the foetal level of testosterone.

Experiments on animal models have also identified other 'endocrine disruptors' as being responsible for the reduction in the number of spermatozoa and male fertility, such as BPA, vinclozoline and dioxin. One should bear in mind the role of the level of circulating androgens and their adequate biological effect, which are the agents that are principally responsible for the normal differentiation and growth of the external male genitals. In particular during the window of susceptibility, an abnormal development can cause *hypospadias* which is a defect of the ventral position of the urethra on the prepuce which is expressed in various progressive levels of severity and with an incidence that has increased over recent decades. This defect for that matter is characteristic of the syndrome of testicular dysgenesis (TDS), which is linked as we have seen to environmental influences, and of the syndrome of partial sensitivity to androgens (PAIS). Even though a direct correlation between these syndromes and exposure to EDCs has not yet been demonstrated, it is possible to posit that a mixture of disruptors may be involved in the development of these clinical situations. Like hypospadias, *cryptorchidism* is expressed clinically in various levels of severity which go from a palpable testicle not completely positioned in the scrotal sack to a testicle that remains in the abdomen. This pathology is especially frequent in Denmark and England and it seems that endocrine disruptors in this case act by modifying the relationship between oestrogens and androgens or behaving like the agonists or antagonists of these hormones (see table).

Table: endocrine disruptors and the male reproductive apparatus: experimental effects and their translation to a clinical condition.

Disruptors	Effects	Translation to clinical condition	Possible mechanisms
Vinclozoline	Hypospadias, cryptorchidism, delayed puberty, pathologies of the prostrate		Epigenetic, modified methylation of DNA in germinal cells
DES	Hypospadias, cryptorchidism, micropenis, increased susceptibility to tumours	Hypospadias, cryptorchidism, micropenis, cysts of the epididymis	Increased Erα expression in the epididymis. Reduction InsL3
DDT	Hypofertility	Cryptorchidism	
DDE		Cryptorchidism	
Phthalates	Reduced ano-genital distance, cryptorchidism, oligospermia	Reduced ano-genital distance, and leydigian function, hypospadias	Reduced synthesis of testosterone
PCBs	Diminished spermatogenesis, delayed puberty	Reduced length of the penis, delayed sexual maturation, reduced fertility, cancer of the testicle	
BPA	Increase in the volume of the prostrate, aberrant development of the prostrate and urethra, testicle cancer, increase in the ano-genital distance	Cryptorchidism	Increased ERα expression in the hypothalamus, increased expression of AR in the prostrate

As regards *female reproduction*, the most important example of the potential effects of chemical disruptors is represented by the evidence on the injurious actions of diethylstilbesterol (DES). However one should point out a lack of data that link the actions of EDCs with the increased incidence of early menarche, irregularities in the menstrual cycle, endometriosis, uterine fibrosis and the polycystic ovary syndrome (PCOS). The effects of cigarette smoke are important and can have an impact on the ovary reserve and thus bring forward the age of menopause. In experiments on animals BPA is able to alter the expression and pulsatility of the GnRH with a modified regulation of the receptors at the level of the hypophysary and alterations in the secreting activity of the gonadotrope cell which produces FSH and LH. More in general, BPA can produce various effects on the functioning of the ovaries according to the age when exposure takes place, given that it is able to interfere in the foetal ovary with ovogenic mechanisms, provoking meiotic damage which is expressed in intergenerational terms. In the murine model, during the reproductive stage BPA is able to strengthen the phenomena of follicular atresia and luteal regressions and influence the aromatase enzyme activity, reducing the secretion of oestrogen hormones. BPA, in addition, can reduce steroidgenetic thecal activity. Pesticides such as dichlorodiphenyldichloroethane and MTX in animal models can provoke alterations in the steroidogenesis, modifying the secretion of progesterone and interacting with the oestrogenic receptor provoking its hypermethylation.

An interesting subject that correlates EDCs to the reproductive system is the theories about the bringing forward of the time of menarche. Over recent decades we have witnessed an evident bringing forward of the time of puberty which has been attributed to the different quality of nutrition, with the involvement of new scientific evidence on the role of leptin in the mechanism of activation of the hypothalamic pulse and the influence of visual inputs, fostered by greater ease of access to images and information. However, the fact that in some regions the average age of the onset of puberty is roundabout ten years indicates that environmental factors can influence the onset of puberty and can be involved in the processes that foster early puberty. Given the role of sexual steroids, disruptors such as lead, styrene, methoxychlorate, phthalates and BPA, acting on the oestrogenic receptor, can accelerate the process of the development of puberty in women (see table).

Table: endocrine disruptors and the female reproductive apparatus: experimental effects and translation to a clinical condition.

EDC	Effects	Translation to clinical condition	Possible mechanisms
Vinclozolin	Multisistemic disorders that include a greater predisposition to neoplasms		Modified methylation of the DNA in germinal cells, reduced ERα expression in the uterus
DDT/DDE	Sexual precocity in immature rats	Early puberty. Hypofertility in daughters of exposed women <15	Neuroendocrinal effects through ER and Akt
2,2-bis (4-hydroxiphenylpropan)	Inhibition of the development of the mammary ducts, reduced weight of the vagina, endometrial response, early puberty	Early interruption of pregnancy (reduced sulfotransferase inactivation of estradiol?)	Apoptosis inhibition in the breast. ++ PR expression. Non-genomic expressions
PCBs	During the foetal and postnatal stages neuroendocrinal effects and behaviour variations in two generations		Actions in oestrogen steroid receptors and neurotransmitters
Dioxin	Altered mammary development and increased susceptibility to breast cancer		Inhibition of cycloxigenasis2 through the aryl hydrocarbon receptor
Phthalates	Early puberty and ovulation disorders	Premature thelarche	

Another aspect is *endometriosis*, an oestrogenic-dependent disorder with an aetiology that is not completely clear. This is characterised by the dissemination of endometrial cells in the pelvic area outside their physiological anatomical localisation. The close connection between endometriosis and endocrine disruptors is demonstrated by the evidence that dioxin creates endometriosis in primates by a mechanism that, however, is not known.

As regards the appearance of *tumours*, it has been demonstrated that the oestrogenic and androgenic receptors play a role in the genesis of endocrine-related carcinomas. Cancer of the breast, of the endometrium, of the ovary, of the testicle, of the prostrate and of the thyroid, is increasing its incidence in Western countries and recently in Asian countries as well. Previously in this paper I referred to the influence on children of the taking of DES and the effects of oestrogenic replacement therapy on the incidence of breast cancer. Other EDCs which influence the proliferation of the cells of the mammary gland are polyaromatic hydrocarbons (PAHs), a class of chemical products that have genotoxic/mutagenic properties as well as endocrine properties. This has also been demonstrated *in vivo* in animal models, for example BPA, dioxin, PFOA, vincolozoline, PBDE, and atrazine. Some phytooestrogens, such as genistein, which is present in soya, according to the dosage and the time it is used can have a protective role as regards agents that are able to induce mammary cancer or it can interfere and inhibit the protective effect of tamoxifen. The application of this information to man, however, has provided not very consistent information which indicates that an important factor in increased susceptibility is the time of latency.

Lastly, the *influence on the working of the thyroid*. The thyroid hormones have important actions during embryogenesis and later in adulthood and various endocrine disruptors can interfere with, and influence, their action. A typical example of this is perchlorate which can reduce the uptake of iodine and in the case of low levels of iodine in the diet can interfere with the functioning of the thyroid. Some EDCs can interfere with the transport of (plasmatic and intracellular) proteins and with the nuclear receptors for the thyroid hormones, producing effects of hyper- or hypothyroidism. Some observations must be made about the impact that thyroid hormones have on neuro-behavioural effects and the increased incidence and prevalence of neuro-behavioural disorders, contributing, in addition, in adults to the fostering of the development of cardiovascular pathologies, metabolic syndrome and obesity.

Epigenetics and Transgenerational Effects

This aspect of the subject deserves an in-depth analysis. Parents pass on their genetic inheritance, which is defined as the 'genome', and thus also their phenotype features, to their own children, but the gene expression can be influenced by environmental factors. This involves differences in exposure to EDCs during development or adult life. The ability of endocrine disruptors to modify normal hormonal control during the stage of development of a person is probably the most important subject to be addressed as regards the difficulty that exists in identifying damage and its consequences during adulthood. During the initial stage of development of the embryo a single cell, the fertilised ovule, divides, multiplies and is differentiated into many cell types and tissues and in the end becomes a person. Seen from this point of view, development is a process of a permanent turning on and off of different combinations of genes which allow the cell to be differentiated in an individual tissue. In this sense, *epigenetics* intervenes by defining those phenotype changes (and thus genic expression) of tissues that are not strictly dependent on the gene sequences. The EDCs can also influence the epigenomic mechanisms in the period when the tissues are formed, in particular in the womb and during the first stages of post-natal life. Endocrine disruptors have also been demonstrated to have transgenerational effects as a result of their ability to influence the epigenetic processes. This evidence comes from observing that vinclozoline, a pesticide endowed with anti-androgenic properties administered to mice during the embryo period of testicular development, was able to block the development of the gonads and transmit this effect to subsequent generations through germinal cells. This effect was then also demonstrated in the case of other endocrine disruptors.

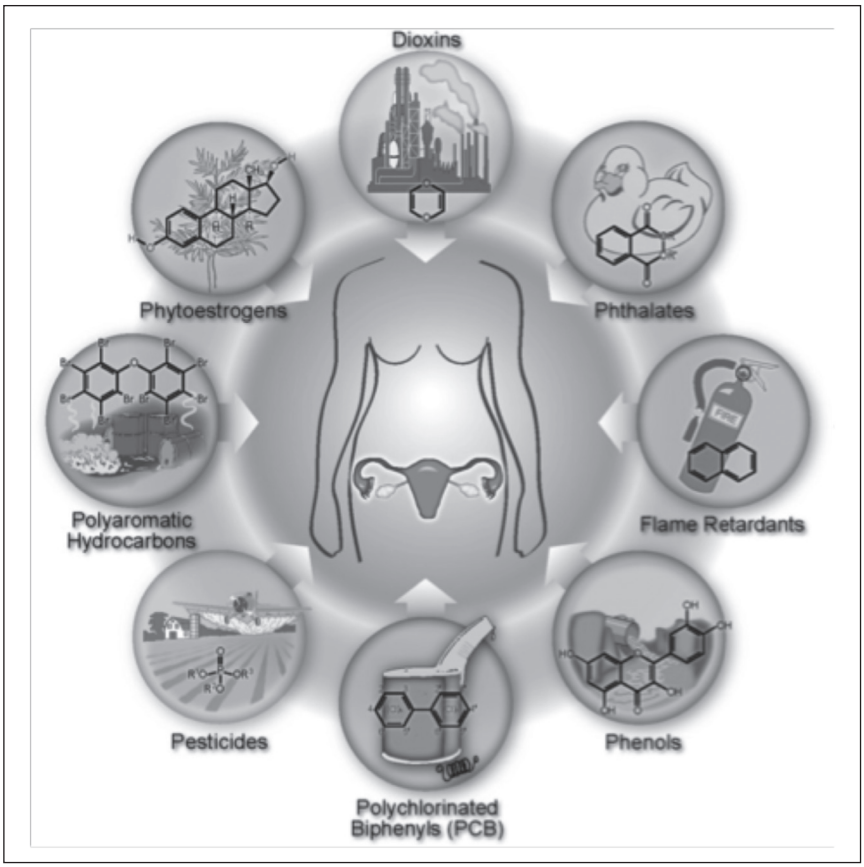
Defending Oneself: Can one Reduce Exposure to Endocrine Disruptors?

It is certainly possible to implement some preventive measures: eliminate pesticides, herbicides and insecticides (use organic products); wash non-biological fruit and vegetables well; organise a biological diet – this can eliminate the chemical contaminants that are distributed above all in fruit and vegetables; use organic products for personal hygiene (shampoo, protective creams, products for the body); teach children to wash their hands often; avoid buying food in tins or wrapped in plastic; remove food from plastic wrapping as soon as possible; use glass to cook in an oven; read the labels on food, on cosmetics for intimate hygiene and on products for cleaning the home very carefully; install water filters; and avoid children chewing toys that are made out of soft plastic.

Conclusions

It is important to be aware of the fact that the human population is chronically exposed to an ample quantity of industrial chemical products and that many of these are circulating in our blood. Considering the ample quantity of chemical products, the majority of epidemiological studies may not be able to demonstrate a caus-

al relationship between exposure and the emergence and development of an illness. They may only be able to prove that they are able to produce adverse effects on health by interfering in the action of hormones.



The Italian Ministry of Health, the Endocrine Society and the scientific societies of the medicine of reproduction such as the Royal Society of Obstetricians and Gynaecologists, have produced documents and created centres for data gathering that warn the parts of the population that are at risk (in particular pregnant women). The general message is that medical doctors, in a capillary way, must play the role of providing information to their patients about how to avoid exposure to toxic agents, I would like, therefore, to end my paper by quoting Pope Francis who in his encyclical *Laudato si*', at number 166, acknowledges and stimulates the never sufficient work of the authorities who are involved in the defence of health: 'Worldwide, the ecological movement has made significant advances, thanks also to the efforts of many organizations of civil society. It is impossible here to mention them all, or to review the history of their contributions. But thanks to their efforts, environmental questions have increasingly found a place on public agendas and encouraged more far-sighted approaches….' ■

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Ethics and Legislation on the Environment at an International Level

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1. Introduction

Over the last thirty years, the ecological crisis has grown steadily worse. The strategies to brake the demographic explosion ('the earth is exploding' commented Giovanni Sartori), deforestation and desertification; the loss of biodiversity (the irreversible loss of a growing number of plant and animal species); climate change, which is the result of the emission of greenhouse gases, above all carbon dioxide which is produced by the burning of fossil fuels (coal, gas and oil); acid rain, which returns to us the emissions of sulphur and nitrogen from industrial plants; the reduction of the ozone layer in the two hemispheres, the North and the South, which has been caused principally chlorofluorocarbons (a product used in the manufacturing of refrigerators, air conditioners, industrial foams…); and the pollution of water, have not succeeded.

This set of very worrying factors compels us to reconsider the relationship between man and nature and to establish the bases for an eco-ethical analysis that is coherent from the rational point of view and plausible at the present time. Indeed, it is not sufficient for it to be coherent from a logical point of view because it must also be plausible, that is to say it is something that must be achievable. This necessarily implies our own examination of our lifestyle, in order to see whether this lifestyle of production and consumption is compatible with a transformation in the way we understand the relationship between man and nature.

Throughout the history of Western thought, ethics has always asked itself about the relationship between man and other men, the society of human beings and human institutions. In general, the question that has been lacking in the traditional ethical approach is that relating to the relationship between human beings and the environment where this last is understood in a purely physical sense. To see the environment as something that is subject to a moral consideration assumes an important change in the way of understanding things and thus to move from man as the lord and master of the world to man as the beneficiary of the world, or, to employ the words of Aldo Leopold, to understand man as a member of the bioethical community of the planet. In this sense, to refer to eco-ethics means to refer to ethics that are new on the panorama of Western philosophy.

It is specifically Aldo Leopold who is seen in various monographs as the father of eco-ethics or what he calls 'earth ethics'.[1] In his approach, earth ethics broadens the boundary of the community to include in it the soil, water, plants and animals, that is to say the earth in general. One is dealing here with ethics that change the role of *homo sapiens* from being the conqueror of the earth to being a simple member and citizen of Mother Earth.

My purpose in this paper of mine is to engage in a panoramic study of the various forms of eco-ethics which can be observed at the present time.[2] On the international scene we can identify various positions which in schematic fashion we can sub-divide as follows: the anthropocentric position, namely the discourse about future generations; the pathocentric position; the biocentric position; the physiocentric position; and the theological position. Naturally enough, each of these outlooks includes positions that are relatively different from one another but I have categorised them in this way in order to be able to offer a view of the whole in a way that is comprehensible.

2. The Anthropocentric Position

This approach is based upon Greek and modern reference points. According to this theory, a human being has a sublime value and an ontological, ethical and juridical status that is greater than any other natural entity. Protagoras expressed this view in a famous phrase: 'Man is the measure of all things'.[3] During the modern epoch the greatest exponents of this philosophical position have been Descartes, Bacon, Locke and Kant. In addition, within this position we should also place positivist philosophy and Marxism.

This anthropocentric approach to the relationship between man and nature is expressed in a very clear way in the philosophy of John Locke. Nature and the earth are clearly devalued inasmuch as they provide only raw material and only just have a value in themselves. Work, in the view of Locke, was an activity that was essential to transform the world into a space that could be lived in. For this reason, this English philosopher defended *homo faber* because he was a producer of possessions.

Strictly correlated with the dualism of Descartes, the positivist vision of the world then came into existence. The scientific objecti-

fication of nature led to its technological exploitation. Faith in indefinite progress took the place of faith in Providence. The experimental sciences offered increasingly sophisticated instruments by which to implement the Cartesian programme of man as lord and master of nature. Nature was no longer seen as an organic unity but became, instead, a space for the will to power of man, a mere terrain for exploitation.

Equally illustrative is the way in which Marxism understood the relationship between man and nature. The young Marx in his *Frühschriften* proposed not only the liberation of man but also the liberation of nature. Communism was to be the naturalisation of man and the humanisation of nature, the final solving of the antagonism between man and nature. In the view of the young Marx, society is the union achieved by man with nature, the true resurrection of nature, naturalism achieved by man and humanism achieved by nature.

Anthropocentrism has two different interpretations. In the view of *strong anthropocentrism*, the individual is the only important thing in the world and as a consequence the rest (nature, first of all, but also human communities, cultures and institutions) has only an instrumental value. However, there is also a w*eak anthropocentrism* according to which human beings occupy the central space in the world and this is the foundation that justifies all their decisions.

Hence it is recognised that human beings can establish a limit and direct their preferences and, at the same time, establish duties towards objects that are not human. In this way, what characterises weak anthropocentrism is establishing that all the preferences that are felt by human beings are not necessarily licit. From this point of view, they would be licit if they were part of a rationally adopted view of the world.

3. Future Generation Ethics

One has to locate future generation ethics, which over recent years has provoked notable interest, on the panorama of eco-ethics. In this outlook, one must not consider only the value of human life in the present – one should also consider its value in the future. This obliges us to adopt measures in order to assure that this future can exist.

In this approach, the rights of future generations, which are understood as third generation rights, are defended. These rights do not derive from the individualistic tradition of first generation rights or from the socialist tradition of second generation rights: they come from a general concern about the future of human life and the continuity of the human species.

Hans Jonas, who in part can be located in this approach, justifies future generation rights in the following terms: 'We live in an apocalyptic situation, that is to say we are faced with imminent universal catastrophe if we allow things to take the direction they are currently following. Here an observation has to be made, although it is more than known about. The danger comes from the excessive proportions of technical-industrial civilisation'.[4]

The following imperatives can be deduced from this observation: 'An imperative that is suited to the new type of action of humans and acting subjects could have the following forms: "act so that the consequences of your action are compatible with the permanence of authentic human life on earth", or, in a negative way: "act so that the consequences of your action do not destroy the possible future of the indefinite survival of humanity on earth", or in a positive away: "include in your current choices the future integrity of man as the object of your will"'.[5]

Hans Jonas belongs to this approach, although starting from the formula of his famous ethics of responsibility. Jonas inverts the utilitarian postulate regarding the justification of the ethics of our responsibility towards future generations. Whereas utilitarianism argues that the first thing must be the maximisation of wellbeing (pleasure, utility) and avoiding suffering, in order to justify a human life that is worthy of being lived, Jonas starts from the principle that the first duty concerns the existence of mankind, and it is from this that there come obligations designed to create the conditions that allow the defence of the essence of humanity.

One of the most important theoreticians of future generation ethics is Professor Giuliano Pontara (born 1932). This author has studied in a meticulous way the symptoms of the ecological crisis in order to justify in a sensible way the need for future generation ethics. He argues that energy sources run the risk of running out and there is also a risk of an impoverishment or even an ending of fossil and nuclear resources which could have negative consequences on a vast scale at various levels for those who populate the planet in two or three hundred years' time. He also recognises that fossil and nuclear fuels are highly polluting and produce notably grave ills.

A further factor that can cause grave difficulties for future generations, in the view of Pontara, is the process of growing pollution and the steady impoverishment of fresh water reserves. The process of contamination of deep water supplies can be especially grave for future generations; this can take place after the arrival of salt water provoked by an increase in sea levels because of the greenhouse effect or, as has already been pointed out, by contamination by nuclear waste that is deposited deep in the subsoil. Once set in motion, this process can be irreversible or can only be stopped at a high cost.

Other threats for future generations, in the view of Pontara, are those connected with the processes of desertification and the pollution of cultivable lands caused by various factors: soil erosion, population pressure, abandonment, inadequate systems of drainage and irrigation, the use of pesticides and chemical fertilisers… Amongst the various possibilities open to us today to exercise an influence at a general level on future generations, reference should be made to those that have

appeared following the development of biomedical science, biotechnology and genetic engineering. All of these have opened up the road to eugenics, that is to say planning the existence of human beings who are endowed with a specific character and no other, with the consequent possibility of influencing the creation of future generations. The key question that poses itself is: should we have an influence? And if the answer is in the affirmative, how should this be done?

4. The Pathocentric Position

The pathocentric position is based upon a utilitarian doctrine expounded by Jeremy Bentham in his *Introduction to the Principles of the Morality of Legislation* in which are formulated the moral obligations of human beings towards those animals that are able to experience suffering. In these arguments he uses the moral criterion of the capacity to feel pain or pleasure of animals. The central imperative of this position can be summed up in the following maxims: 'Do not cause pain to anybody (including animals); help everyone, as far as this is possible'.

This approach, which at the present time is one of the bases of the philosophy of Peter Singer, adopts a very critical attitude towards the *illusion* that the human condition has more ontological, ethical and juridical value. Singer defends a bioethical community which places all those being that can feel pain, both men and animals, on the same level. This, naturally enough, does not include all animals but, rather, a larger set than that taken into consideration starting with classical anthropocentrism.

It is starting with this approach that the rights of animals are defended.[6] Some important writers of the contemporary world, such as Peter Singer, P. Cohn, R. L. Clark and J. Ferrater Mora, have stressed the need to respect animal rights, and in particular the rights of animals that suffer. From the right to wellbeing and a happy life of animals are deduced prescriptive propositions of a moral character that affect human beings and their decisions. Respect for the good lives of others and the need to avoid doing wrong and suffering act as a basis for the environmental ethics of compassion which generate decisions and moral rules.

Peter Singer establishes the boundary of sensitivity, that is to say the capacity to suffer or to experience pleasure or happiness, following the text of Jeremy Bentham, as the only boundary of our concerns for the interests of others. The principal obstacle to support this proposition, in the view of this author, comes from what he himself calls the species prejudice which leads to greater weight being attributed to the interests of one's own species than those of extraneous species.

5. The Biocentric Position

In this analysis the value of 'life' is seen as a criterion of morality. This criterion requires obligations and duties from human beings as regards their species and their relationship with other species and living organisms of every type, whether they are capable or not of suffering. According to this approach, life is at the centre of the universe and it is what has to be conserved and defended in all of its multiple forms. Every life possesses a moral relevance, without there being any discrimination in this sense between species.

The central maxim of biocentrism, which has decidedly oriental roots, can be expressed in the following way: I am life that wants to live amidst life that wants to live. This approach is based upon a biological egalitarianism or ontological uniformism. All living beings have the same value because all of them have in common the fact of sharing in life. In this approach there is neither an ontological hierarchy no a scale of beings because of other criteria or attributes.

It is within this position that we should place the current of *deep ecology*. The term 'deep ecology' appeared in a famous paper given by the Norwegian philosopher Arne Naess in Bucharest in 1972 who contrasted it with 'shallow ecology'. This vision of the relationship between man and nature starts with a pantheism along the lines of Spinoza which re-sacralises nature and is connected with Buddhism and Taoism, and thus condemns monotheistic thought with its dualism and looting of nature. Its position is also called *egolatry* and has involved two very serious problems: the problem of ontological egalitarianism and the problem of the compatibility between this way of thinking and the lifestyle of industrialised societies.

Sheppard believes that monotheism breaks the sacred ties between man and the earth and leads to capitalism, to fascism and to imperialism, establishing a hierarchy between man and the earth, given that what is worst, in his view, is that men are considered individually and collectively as being more valuable that species that are in danger of extinction. In this vision of the world, the individual is dissolved in nature.

The three pillars of *deep ecology* are: biocentrism or biocentric equality, whereby all species have the same right to develop according to their natures; self-fulfilment through an identification of the individual with all other beings and with the biotic community as such; and the spiritual character of the whole of nature, which is seen as immanent divinity and which constitutes the ultimate foundation of biological equality.

6. The Physiocentric Position

In the physiocentric position, it is not life that is the centre but nature (*fisis*) and nature is made up both of beings who have life and of inanimate beings. These arguments are placed at a holistic or totalitarian level. In them we here sounding out the Stoic imperative: respect nature! Moral duty is in nature because nature is the bearer of values in itself, values which, once they have been discovered and recognised as such, form the basis of the duties and

obligations of human beings towards the environment.

Here duty derives from being, without taking into account the well-known naturalistic lie which, as we know, involves deducing moral prescriptive propositions starting with natural or biological facts. Nature appears as a reality endowed with subjectivity and life as intrinsic values. It not only has a value in terms of its utility, as is highlighted in the ethical work of Kant, but also has value in terms of its dignity. Human beings are a part of this valuable nature and share in its destiny and fate.

8. The Theological Position

The theological argument is constructed starting with certain religious reference points. From the theological point of view, the world is defined in essential terms as *creatio Dei*. To believe in the creation does not mean to believe in simple initial push at the beginning of history. It means believing in a permanent action. God created the world and He maintains it; the work of the creation remains a work of love and of generosity. To believe in the Creator means to say 'yes' to the whole of reality and to accept it as a gift.

When discussing this outlook we should mention the contributions of Hans Küng and Leonardo Boff. The famous theologian Hans Küng developed a project of global ethics that naturally has applications in the field of eco-ethics.[7] In recent years this professor of dogmatic theology has concentrated a large part of his intellectual efforts on the conceptual elaboration of ethics of an international range starting with the various moral standards of the great religions. These efforts found concrete expression, in part, in the *Declaration for World Ethics. Parliament of World Religions*.

In it the following observation is made: 'The world is dying. This dying is so impending and pervasive that we feel compelled to indicate the forms in which it is expressed so as to be able make clear the depth of our concerns, Peace escapes us – the planet is being destroyed – neighbours live in fear – women and men are foreigners to one another – children are dying. All of this is horrible'.[8]

The diagnosis or point of departure outlined by Küng in his book *A Project for World Ethics* is even more terrible. 'Every minute', he affirms, 'the countries of the world spend a little less than two million dollars on weapons, every hour 1,500 children die because of malnutrition, every day a species of animal becomes extinct, every week a growing number of people, more than at any other historical epoch, are put in prison, tortured, murdered or forced to emigrate, or are oppressed in various ways by repressive regimes. Every month the international economic system adds about 8 million dollars to the debt of the poorest countries of the world, every year an area of tropical forest is chopped down of a size that is a little less than Korea'.[9]

Küng starts with the idea that it is possible to find common values in the great religious traditions and as a consequence it is licit to imagine the construction of world ethics based upon dialogue between the various religions that coexist in the world. In the *Declaration*, which expresses a part of his thought, the starting point is the idea of interdependence. On this idea is based the thesis of eco-responsibility: 'We declare that all of us depend on each other. Each one of us depends on the wellbeing of the totality. Thus we must have respect for the community of living beings, of men, of animals and of plants, and attend to safeguarding the earth, the air, water, and the soil'.[10]

In this *Declaration* a request is made for a change in mentality, a transformation of hearts in order to change the world in which we find ourselves and transform society: 'The earth', it is stated in this document, 'cannot be transformed to good effect if the consciousness of individuals does not change first. We promise to broaden our capacity for perception, disciplining our spirit with meditation, prayer or positive thought. Without risk and without a readiness to engage in sacrifice there cannot be a radical change in our situation. We thus commit ourselves to these world ethics, to mutual understanding and forms of life that are socially open, promote peace and respect nature'.[11]

As regards eco-ethics of a theological impress, one should emphasise the contribution of the theologian Leonardo Boff and his Franciscan approach.[12] This Brazilian theologian calls for a new theology of the creation in order to face up to the ecological crisis in which we are immersed. Following the conceptual schemata of liberation theology, Boff invokes a liberation of the earth as well as a liberation of man.

Faithful to the Franciscan outlook, Boff sees in the creation the great house of God, the expression of beauty, of unity, of truth and of the goodness of the Creator in each one of the creatures that make up the world. He understands the world as a sacrament, as a symbolic expression of the presence of God, as 'a great sacrament, a mirror in which God is reflected'. The creation, as it is called in the Book of Genesis, is understood as something that is very good and very beautiful.

Leonardo Boff understands sin as an inadequate relationship between men and nature. In his point of view, one has to overcome the pessimistic vision of the world. God is not loneliness but, rather, community, a communion of people in a state of love. This is an idea of God that is deeply ecological, from which springs Christian dogmatics. It also refers to the idea of the cosmic Christ, in what is near to the concept of Christ of Teilhard de Chardin. It also invokes panentheism in opposition to pantheism. It is one thing to say that God identifies with the world but another to say that God is manifested in the world but is not the world.

Even though Boff invokes a unity of meaning in the creation and cosmic brotherhood amongst all the entities that go to make it up, a unique role and place of human beings in the creation is highlighted. One cannot accuse Boff of ontological egalitarianism because he sees the human being as the last to appear.

9. Conclusion

In simple terms, the various analytical approaches of eco-ethics presented in this paper can be grouped together as follows: biologistic ecosophies that deny not only the legitimacy of strong anthropocentrism but also those of weak anthropocentrism; humanistic ecosophies, according to which a recognition of the centrality of the human being does not imply reducing everything else to a mere instrument by which a weak anthropocentrism is established; and technocratic ecosophies, according to which strong anthropocentrism, which is characteristic of modernity, is the only criterion for human behaviour and thus a valid criterion fore solving ecological problems that may arise.

Notes

1 Aldo Leopold, *L'etica della Terra* (1946) (Los Libros de la Catarata, Madrid, 2000).

[2] This is not the first time that i have addressed this subject: F. Torralba, 'El paradigma ecològico', in P. Codinachs (ed.), *Ecologia i ètica mundial* (PAM, Barcelona, 1996).

[3] Platone, *Cratilo* 385e-386a, *Teeto* 152a.

[4] H. Jonas, *Il principio responsabilità* (Herder, Barcelona, 1995), p. 233.

[5] *Ibid*., p. 40.

[6] *Cf.* J. Ramón Lacadena (Ed.), *Los derechos de los animales*, Universidad Pontificia de Comillas, Desclée de Brouwer, Bilbao, 2002.

[7] *Cf.* H. Küng, *Progetto per un'etica mondiale*, (Trotta, Madrid, 1992); '*A la búsqueda de un "ethos" básico universal de las grandes religiones*', in Concilium 228 (1990), pp. 165-334.

[8] H. Küng and K. J. Kunschel (eds.), *Per un'etica mondiale,* (Trotta, Madrid, 1994), p. 15.

[9] H. Küng, *Per un'etica mondiale* (Trotta, Madrid, 1991), p. 17.

[10] H. Küng, *Dichiarazione per un'etica mondiale*, p. 16.

[11] *Ibid*, p. 37.

[12] *Cf.* L. Boff, *Experiencia religiosa y ecología* (Centro Evangelio y Liberación, Madrid, 1992); *La ecología como nuevo espacio de lo sagrado*, in F. Mires *et al.*, *Ecología solidaria* (Trotta, Madrid, 1996); *Ecologia: grido della Terra, grido dei poveri* (Trotta, Madrid, 1997).

ROUND TABLE

Pathways of Dialogue to Safeguard the Life of Man and the Creation

1. The Challenges of World Summits

H.E. MR. DENIS FONTES DE SOUZA PINTO
Extraordinary and Plenipotentiary Ambassador of Brazil to the Holy See

Good morning everyone, dear Ambassador Mancini, the chairman of this round table, my colleagues the ambassadors Giordan, McCarthy and Zanga, ladies and gentlemen,

First of all, I would like to express how much I feel honoured to have been invited to be one of the speakers at this important international conference which, like so many other events organised by the Holy See, grants us an opportunity to express points of view and to explore the debate about some of the priority subjects to be found on the international agenda. As a background to my paper, I suggest that we bear in mind the concept, formulated by Pope Francis in the encyclical *Laudato Si'*, that human beings and the environment cannot be separated and the wellbeing of both must be at the centre of the policies that are discussed at international forums.

An analysis of the challenges of international conference requires, first of all, some observations on multilateralism, both as regards the crucial role that it plays in solving conflicts in the most varied spheres of human relations and the limitations that often frustrate it because of the impossibility of assuring peaceful coexistence between nations.

I would like to begin this paper of mine by pointing to certain basic postulates of international relations, such as the concepts of anarchy and order. Anarchy, which some theoreticians prefer to call simply a 'lack of order', derives from the inexistence of a government or authority that is supranational and has a capacity to impose its will. This does not mean, however, the dominance of chaos. Nonetheless, an anarchic society, that is to say one in which the state actors coexist in conditions of political equality, excludes neither order nor the existence of rules of conduct agreed upon by these actors and which assure minimal conditions of coexistence.

On the other hand, whereas coexistence between legally equal sovereignties transforms conflict into a fact that is inherent in the anarchic structure of the international system, there is no doubt that common interests between States exist and that these form the basis of the organisation of a system of rules that is shared everyone.

The 1920s, the 1930s and the 1940s, with the rise of totalitarian regimes in Europe and the great war that followed this development, were periods when the anarchy of the international system was not limited to the mere absence of hierarchy. It was, rather, marked by massive competition and the wish to eliminate adversaries. From the ruins of the Second World War, however, multilateralism emerged reinforced, taking substantial form in the Charter of the United Nations and imbued with the task of conjoining the general concerns of mankind with the special interests of the victorious powers. Multilateralism is a legitimate instrument of States once the situation arises where even the most powerful of them are not able to obtain security and maintain their own prosperity by acting in an isolated way or unilaterally.

During the subsequent decades, multilateralism broadened both because of the deepening of its institutionalisation and because of the diversity of the contents addressed in its norms. International organisations established themselves as mediators in the solving of questions of interest for States on the condition that they received an explicit mandate from those States to do so. Their influential role in the establishment of the international agenda, however, has tended to reflect the dominance of their members who had a greater capacity to formulate and spread their ideas and to propagate their interests. This asymmetry of power has been one of the principal reasons why powers have been able to block multilateral decision-making processes when they have had an interest in doing so and they have thus compromised the efficiency and the utility of multilateral institutions themselves.

It is important to emphasise, in addition to this asymmetry of power, that international organisations have been, obviously enough, subject to the slowness that is inherent in large bureaucratic structures. This makes

them not suited to addressing questions that require urgency, a case of this being the current migration crisis in Europe and the situation of Christians who are the victims of persecution in the Middle East.

The truth is, unfortunately, that *non-action* is held to be a possible and acceptable result of a process of multilateral negotiation, above all when the parties do not reach a consensus on the need to act or on the most suitable way of acting. However, whereas a situation like this may be considered to be acceptable in the field of negotiations between States, it is not such for the populations that are involved. In these cases, the *legitimacy of procedure* – which is assured by the representativeness of States and by the rule of consensus – is specifically the factor that contributes to the loss of *legitimacy of performance*, which is the outcome of inaction and an incapacity to achieve a real solution to problems.

I will open here a parenthesis in order to highlight the interesting paradox of legitimacy and efficiency which can be easily observed in the behaviour of international organisations and in the way in which major summits are conducted. Whereas meetings such as those of the G7 are effective because of their relative informality and lack of bureaucratisation, international organisations, given that they exclude the vast majority of the members of the international community, lack representativeness and thus legitimacy as well. At the same time, the same factors that bestow legitimacy on the United Nations in addressing subjects of international interest, reduce the capacity of the UN to implement collective decisions and make their implementation obligatory.

This scenario seems to demonstrate that the ability to manage some of the principal contemporary challenges in an efficient way may require that a step forward is taken beyond the original roots of multilateralism, recognising the need for greater agility, flexibility, adaptability and a capacity to foresee events and act beforehand.

Another reason behind the inability of international conferences to find and implement solutions to the problems that weigh upon humanity is the weakening of global governance. This development is the consequence of a failure to update their structures to the changes that have taken place on the international scene. Since the creation of the United Nations and other structured organisations to address the questions of seventy years ago, the number of States has increased fourfold, globalisation has grown in a dramatic way, and we have witnessed the proliferation of various kinds of threats to national security and world peace. This has led the community of nations to a situation that involved the interdependence of nations that are unequal. At the same time, the distribution of power amongst the States of the world, which is very different to what obtained in the year 1945, has caused a lack of adaptation as regards the division of power of the decision-making organs of multilateral institutions and the division of power in the real world.

In real terms, the multiple actors of international life are today interdependent in areas that are very different from each other, for example the financial market, infectious diseases, climate change, terrorism, food production, and environmental resources. In the specific case of the environment, the subject which most interests us here, I would like to set out a short analysis of its emergence on the international agenda, its regulation in the field of multilateral forms, and the growing awareness on the part of States of its transnational character and its close relationship with development.

The Stockholm Conference in 1972 had as one of its practical results the establishment of a series of principles – the Declaration of Stockholm – and an Action Plan that served as a basis for the domestic policies and measures of States to help the environment. Nonetheless, the decisions that were adopted by the summit of 1972 also had the merit of establishing an axis of international action for the conservation of the environment through the negotiation of bilateral, regional and global international agreements not reduced to the internal spheres of States.

The Rio Conference of 1992 strengthened multilateral regulation in this area in the wake of two events that had major political repercussions: the publication in 1987 of the report of the Brundtland Commission, 'The Future of us All', which disseminated the concept of sustainable development, and the negotiations of the years 1972-1992 of various conventions that brought environmental questions to the fore, such as, amongst others, the convention on maritime law, the treaty on the Antarctic, the convention of Vienna for the protection of the ozone layer, and the protocol of Montreal on substances that threaten the ozone layer.

From that moment onwards it has been clear that natural resources are a part of the world's shared heritage which is at the disposition of the whole of humanity and that its management does not come within the range of canons that govern other resources of a economic kind whose protection and regulation require the role of the state. However, we should be careful about the fallacious argument on the basis of which these environmental goods, given their relevance for humanity, and despite the fact that they belong to the sphere of national jurisdiction, legitimate external interferences whose implementation should be assured by institutions of a universal range. This approach is contested by developing countries and here it is appropriate to refer to paragraph 38 of the encyclical *Laudato Si'*": 'A delicate balance has to be maintained when speaking about these places, for we cannot overlook the huge global economic interests which, under the guise of protecting them, can undermine the sovereignty of individual nations. In fact, there are "proposals to internationalize the Amazon, which only serve the economic interests of transnational corporations".

With respect to international regulation, despite the incorporation of norms about the environment into the internal juridical

systems of member States, international conferences have not managed to alter the approach of national or local administrations to environmental questions which are still seen as external questions whose incorporation into medium or long-term planning still awaits a more incisive approach on the part of governments.

There is still a deficit at the level of the implementation of multilateral agreements on the environment which is the result, in part, of different interpretations and applications of the rules by the various actors. The depth of the changes recommended by the agreements depends on alterations in the relationships between States, and, above all, on an overcoming of the asymmetries that prevail as regards rich and developing countries. This differential is reflected in the level of carrying out of the obligations agreed upon, when the positive results are confined, as is often the case, to those countries which have the technical ad financial resources available to pursue them without altering the canons of consumption in their own societies.

If we look backwards to the great conferences of the 1990s – on the environment, human rights, population, social development, etc. – we see the existence of an abyss between what was approved on paper and what has been really achieved. In a process of remorseless globalisation, commitments undertaken at a planetary level can become innocuous because of the action of those who want to maintain the *status quo* simply because this is lucrative for them.

Given these conditions one should pose the following question: how should we act to obtain concrete and long-lasting results marked by the principles of multilateralism and international law?

Some *impasses* of the contemporary world makes us think that there may be a failure of multilateralism or at the least of a lack of effectiveness in forums which still reflect previous configurations of power that have been superseded. Let us take as an example the self-proclaimed 'Islamic State', a terrorist organisation, which is without any legitimacy in the eyes of the international community but in relation to which the most powerful nations of the world do not manage to come to a consensus as to the right way in which it should be combated.

Situations such as this, which constitute a grave threat to the security of the world, point to the need for an urgent reform of the institutions that determine the processes and the practices followed by international conferences where subjects of international interest are discussed. This reform, for that matter, was defended vehemently by the Holy Father in his address to the assembly of the United Nations. The differences that exist as regards the respective power of States prevents there being a clear sense of participation by all members in the decisions that are adopted, and this in its turn makes it difficult to achieve a translation of multilateralism into concrete policies at national, regional and global levels that aim at the promotion of wellbeing and prosperity. Without continuous reform at a structural and procedural level, deficits in terms of the performance and legitimacy of international organisations will tend to build up and to generate a crisis of confidence in the multilateral system.

For that matter, courage is needed to engage in a reform of the United Nations that reflects the contemporary world scene which, indeed, is drastically different from that of the Second World War. This reform is needed in order to avoid a bureaucratisation of structures that no longer meet their original intentions.

In addition, one should make the observation that the intense multilateral activity of recent decades has allowed subjects such as those of the environment and human rights to permeate the contemporary agenda however much the globalised economy sees the promotion of social equality and sustainable development as anti-economic matters. In this context, the role of the Catholic Church is indispensable in emphasising the responsibilities of world leadership as regards the wellbeing of man on the earth. Awareness on the part of the inhabitants of the 'common home' of the existence of problems that concern everyone and which cannot be left to future generations draws us near to a solution because periods of major awareness are periods when it is possible to achieve the political will that is needed to overcome them. ■

2. Health Problems in Urban Areas

H.E. MR. KENNETH FRANCIS HACKETT
Extraordinary and Plenipotentiary Ambassador of the United States of America to the Holy See

Good morning your Eminences, Excellencies, and distinguished guests.

It is an honor to be here today for the 30th international conference of the Pontifical Council for Health Care Workers. I want to thank His Excellency Msgr. Zygmunt Zimowski for inviting me to speak.

As His Excellency has said, this conference topic was inspired by Pope Francis' encyclical, *Laudato Si'*, in which the Pope calls on us to consider our human family's relationship with the environment. He also challenges us to think about how we can better serve the "whole of Creation."

As we have already heard, there are many challenges in today's world related to global health Even with all of our medical advances:

– millions die of non-communicable disease every year,

– millions of children under the age of 5 die of diarrheal disease

– almost 1 in 10 adults has diabetes, and

– every day, about 800 women die due to complications of pregnancy and childbirth.[1]

Pope Francis calls us to protect the dignity of the human person and especially focus on those who are most disadvantaged as we look toward solutions for these problems. In my remarks today, I want to highlight some of the struggles that the poor in urban areas face. We know health issues often disproportionately affect this population.

In my career before becoming U.S. Ambassador to the Holy See, I witnessed first-hand and worked to address some of these challenges in health in urban areas. From Manila, to Nairobi, to Port au Prince, and in many other cities across the world, parts of slum areas are located immediately next to posh neighborhoods. Urban slums without clean water, sanitation, waste disposal, and without safety pose serious health concerns.

Today, just over half of the world's population lives in cities.[2] In fact, the World Health Organization estimates that by 2030, 6 out of every 10 people will be urban residents – and by 2050, 7 out of 10 people will live in a city.[3]

Studying the issue of urban health will become increasingly important as this population grows. While the local situations in cities across the world vary in context, there are some common urban health and social challenges: "overcrowding; air pollution; rising levels of risk factors like tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol; road traffic injuries; inadequate infrastructure, transport facilities and solid waste management systems, and insufficient access to health facilities in slum areas."[4]

The poor form a large part of the natural and migration growth in urban populations. More than one billion people – one third of the world's urban population – live in overcrowded and life-threatening conditions in urban slums and informal settlements.[5]

These slums exacerbate the challenges of being poor as residents face higher crime rates, underperforming schools, and substandard housing options[6] – all resulting in poor health outcomes.

The World Health Organization describes many cities as being confronted by what it calls a "triple threat": infectious diseases; non-communicable diseases; and violence and crime.[7]

In urban areas, infectious diseases are exacerbated by poor living conditions. Substandard housing is a major public health issue associated with a range of health conditions including respiratory infections, asthma, lead poisoning, injuries, poor nutrition, and mental disorders. Studies have found the lack of affordable housing "has been linked to inadequate nutrition, especially among children. Relatively expensive housing may force low-income tenants to use more of their resources to obtain shelter, leaving less for other necessities such as food... Temporary housing for homeless children often lacks cooking facilities, leading to poor nutrition."[8]

Al Jazeera ran a program last March highlighting the fact that in New York City alone there are over 60,000 people in homeless shelters and about 40% are children.[9]

We know malnutrition and undernutrition negatively affect child development at every stage.

Non-communicable diseases fuelled by unhealthy diets, physical inactivity, and harmful use of tobacco and alcohol are a second major threat to the health of the urban poor.[10]

A Harvard Medical School publication noted some of the barriers to good health are "limited access to safe sidewalks, exercise facilities, and grocery stores with affordable produce."[11]

All of which are true for the urban poor, as many low-income urban residents live in neighborhoods that are without the facilities or resources needed for proper medical care or physical activity; while some neighborhoods are simply too dangerous for outdoor activities.

A third threat to urban health are accidents, injuries, road accidents, violence and crime.[12]

Another challenge we face in the United States is that incarceration policies disproportionately affect urban communities, especially minority groups. A New York Academy of Medicine publication on the impact of the correctional system on urban health found: In the United States, an African-American man has a great-

er than 1 in 4 chance of going to prison in his lifetime, a Hispanic man has a 1 in 6 chance, and a white man has a 1 in 23 chance of serving time. Several health conditions, such as substance abuse and mental illness, are overrepresented in correctional systems. Correctional systems also indirectly impact health by influencing economic opportunities, political participation, and family structure.[13]

In the end, we must remember that urban poverty and poor health aren't just economic issues. They are the result of social, political, and environmental factors, and addressing them will require holistic approaches that take these into account.

An Interim Report by the Millennium Development Goals (MDG) Task Force poignantly underlined: "Much of urban poverty is not because of distance from infrastructure and services but from exclusion. They are excluded from the attributes of urban life that remain a monopoly of a privileged minority – political voice, secure good-quality housing, safety and the rule of law, good education, health services, decent transport, adequate incomes, access to goods and services, credit – in short, the attributes of full citizenship."[14]

The Holy Father often calls on us to remember and reach out to the excluded, those on the periphery. Responding to the problem of urban health and other global health issues will require the "culture of encounter" Pope Francis emphasizes – an encounter that shows compassion and mercy as well as activism toward social justice.

We thank you, Msgr. Zimowski, for the important work your council is doing and for hosting this conference to raise awareness about important global health issues. It was my pleasure and an honor to be a part of this invaluable discussion. ■

Notes

[1] World Health Organization "10 facts on the state of global health" http://www.who.int/features/factfiles/global_burden/facts/en/index5.html

[2] "World's population increasingly urban with more than half living in urban areas"; first paragaph https://www.un.org/development/desa/en/news/population/world-urbanization-prospects.html

[3] "Why urban health matters"; page 12 http://www.who.int/world-health-day/2010/media/whd2010background.pdf

[4] "Why urban health matters"; page 10 http://www.who.int/world-health-day/2010/media/whd2010background.pdf

[5] "Why urban health matters"; page 11 http://www.who.int/world-health-day/2010/media/whd2010background.pdf

[6] Addressing Urban Poverty in America Must Remain a Priority; under concentrated poverty https://www.americanprogress.org/issues/poverty/news/2013/06/05/65268/addressing-urban-poverty-in-america-must-remain-a-priority/

[7] "Why urban health matters"; page 13 http://www.who.int/world-health-day/2010/media/whd2010background.pdf

[8] Housing and Health: Time Again for Public Health Action; page 758-759 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447157/

[9] Aljazeera,"Fault Lines: NYC's Homelessness crisis has reached historic proportions" 27-03-2015

[10] "Why urban health matters"; page 13 http://www.who.int/world-health-day/2010/media/whd2010background.pdf

[11] "Cities can learn lessons about diabetes from rural areas" http://www.health.harvard.edu/blog/cities-can-learn-lessons-about-diabetes-from-rural-areas-201306196405

[12] "Why urban health matters"; page 13 http://www.who.int/world-health-day/2010/media/whd2010background.pdf

[13] "Jails, prisons, and the health of urban populations: A review of the impact of the correctional system on community health"; page 215 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3456366/

[14] Urban Poverty: An Urgent Public Health Issue; page 1. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1891652/pdf/11524_2007_Article_9191.pdf

3. Transparency and Dialogue to Predict the Environmental Impact of Business Initiatives and Development Projects

H.E. MR. CLAUDE GIORDAN
Extraordinary and Plenipotentiary Ambassador of the Principality of Monaco to the Holy See

I am very honoured to take the floor at this assembly to speak about 'Transparency and Dialogue to Predict the Environmental Impact of Business Initiatives and Development Projects'.

As you know, this subject appears in these terms (number 182 and thereafter) in the encyclical *Laudato si'* of Pope Francis and more precisely amongst the 'Lines of Approach and Action'. This demonstrates the importance of this subject. This topic is placed amongst the principles that animate the encyclical and their practical application in the contemporary world.

1. Before sharing my reflections with you, I would like to clarify the context. The initiatives and the projects that are addressed in this paper come from decisions taken by companies (both large and small) or by States or public institutions. These are always important decisions, otherwise their impact on the environment would be limited. For the purposes of simplicity, I will refer to them employing the phrase 'investment decisions'.

In both cases (companies or a State or public institution), those who decide expect a positive outcome: an increase in the profits of the company or its growth (for example the creation of a new factory, the development of a new production process); and an increase in the infrastructure of the country in order to foster its development (for example the construction of a damn or a motorway).

At first sight, the results that are expected are different from one another: one is 'private' and intended to enrich those who have taken the decision; the other is 'public' and intended to improve the framework offered by a public institution to economic actors.

When, however, one is dealing with their impact on the environment, the investment decisions have to be subjected to the same requirements. This is because in both cases a wrong decision can have dramatic consequences.

2. Transparency and dialogue are principles that must be implemented through effective procedures so that they do not remain just good resolutions or smoke screens. These principles must accompany every decision that has an impact on the environment, starting with the basic idea that is in the minds of those who take the decision, and for the whole of the period of implementation.

Given that prevention is better than cure, I will concentrate my reflections on the implementation of a procedure prior to the authorisation of an investment decision by the relevant authorities.

Essentially, nobody doubts that an impartial and in-depth procedure for a preventive assessment of the effects of an investment decision on the environment is indispensable.

Fostering a policy that satisfies in the long term the common good of society – in this case the protection of the environment – for a long time has been a part of the teaching of the Church (at least since the time of St. Thomas Aquinas) and of political thought (at last since Aristotle).

I believe that the phases of this stage are as follows:

a. The relevant public authority has the task of authorising the investment or project and organising, according to laws or regulations, the juridical sphere in which this stage will develop, assuring respect for those laws and regulations and following the implementation of the requirements that exist according to juridical procedures.

b. In this sphere, the need for independent scientific expertise is fundamental inasmuch as knowledge in the field of the protection of the environment is highly specialised.

c. The participation of the local populations is equally well accepted since they are the first to be affected by the environmental deterioration that surrounds them which, for that matter, they know very well.

It is the symbiosis of these three elements, none of which can be neglected or omitted, that will produce the best result.

3. So where do the difficulties that we perceive in the implementation of the principles that are apparently accepted by everyone actually come from?

To return to the examples that have been cited (the construction of a factory or important infrastructures), these difficulties seem to me to come, amongst other things, from:

a. In addition to potential greed, the concern of a company to maximise its benefits in the shortest time possible. We may think of the poorest countries of the world: social and political instability, like the weakness of institutions, constitutes a stimulus for those who decide to obtain the greatest profit possible from their investment and in the shortest time possible in order to minimise the risks or increase their profits.

b. The intention of a government or a public administration to engage in a prestige operation that satisfies the megalomania of its leaders, from the wish to dominate their populations who are impressed by this kind of 'grandeur', or by the trust placed exclusively in technical panning which is adjudged to be more effective because it is more rational. We should stress that the 'god of power' is as dangerous as the 'god of money' and that in general it kills more.

At times, there are darker reasons behind investment decisions or which accompany them. In reality, these decisions can also foster mechanisms of corruption. In every case the cynical consequences of these forms of behaviour are evident.

An attempt is made to carry out the project in the quickest and 'easiest' way possible, and to discard by every means (absence of the right rules, defects in application, corruption which can be a goal or an obligation) the planning stage of dialogue and transparency.

Given that people are not stupid, the information stage and the subsequent debate run the risk of bringing out well-founded protests and thus of delaying and modifying – indeed compromising – the implementation of the investment decision.

What, therefore, are the guarantees that should be adopted to implement this stage, to implement it in effective conditions and thereby achieve the goal of a 'reasonable administration' of that common possession – our environment?

Certainly one could rely, first of all, on those 'natural' mechanisms that increase the prudence of investors:

1. A company that is managed normally assures its own prosperity in a lasting way, placing it within a prospect of long-term growth. This means that in a normal institutional context as well it envisages a regular increase in its benefits and assures – where it works – good relationships with the public authorities and the local population. In addition, at least in industrialised countries, a company is increasingly sensitive to its own image (at a local and international level). This image would be darkened by dubious or violent practices which can no longer be dissimulated even in the poorest countries of the world – the brand would be endangered.

2. With the exception of special cases, a State or a public institution must take the opinion

of the citizen into account, unless it wants to risk an electoral defeat (where elections are actually held) or a revolt whose suppression could have, even for an authoritarian regime, a high cost both domestically and abroad. The rapid, local and international circulation, of information – through the mass media or the new social networks – has changed many things. A criminal action cannot be easily concealed. On the contrary: its dissemination can rapidly go 'viral' and bring about in the mass media and thus in public opinion as well a sanction that is even more rapid and painful than that meted out by tribunals.

4. However, it would be a mistake not to encourage trust in these 'natural mechanisms'. First of all the contexts are not the same everywhere. In less industrialised countries, control over public opinion is easier, citizens are listened to much less, and those who 'launch warning cries' are less protected.

An investment decision, to a certain extent, can also ignore the 'natural mechanisms' that I have cited. For that matter, it is in these countries that civil society is not strong enough to hide the organisations which can gain access to the mass media and mobilise public opinion.

An economy based upon the search for profit, despite all the advantages in terms of general efficacy and progress, does not guarantee that those who decide refuse to seize – above all in the poorest countries of the world – opportunities that are rapidly transformed into temptations. It is therefore better to look for other guarantees.

I would like to emphasise immediately that the observations that now follow are not confined to the less developed countries. These guarantees seem to me to be the following:

1. Good laws which envisage the implementation and the functioning of the stage prior to dialogue and transparency are certainly indispensable. Actual respect for them is even more indispensable. This means the importance of a public administration (the term here is used in a broad sense, referring to policies and civil servants) which is of high quality, independent and honest and which works within an institutional framework that assures control over it by the citizens. If this is implicit, it is superfluous to say that 'countries without a state' are countries where the populations are the most threatened. But once again this need for honesty must always be verified, in industrialised countries as well.

2. However, even in the presence of 'good laws' which are widely respected other guarantees are needed to ascertain their application and make transparency and dialogue respected. I want to speak about a 'social conscience' that is widespread and interested in the common good of society. This 'conscience' must be created and then maintained in order to constitute 'education'.

a. The education of managers and citizens in the protection of the environment

One is not dealing here only with 'scientific' education in the protection of the environment which requires precise and up-to-date expertise which all citizens – even managers – cannot possess, not even in the most advanced countries. One is dealing, instead, with a more general education than the application of a well understood principle of paying attention.

The encyclical *Laudato si'* gives a reasonable and therefore *potentially* effective definition of this: 'If objective information suggests that serious and irreversible damage may result, a project should be halted or modified, even in the absence of indisputable proof' (n. 186).

It is the possibility that such damage will occur that should be taken into consideration in a precise way by those people who possess the necessary scientific knowledge at the moment of the stage of transparency and dialogue. These experts thus have a major social responsibility.

This is not a matter of blocking investment decisions and more generally the useful advances of society but, rather, of assessing and then locating an investment decision in the context of the protection of our environment and the populations that live in it.

It should also be made clear that the same need applies to other fields, such as, for example, the field off public health care.

b. Education in citizenship and solidarity (without which the education that I mentioned previously cannot be sufficient as regards the goal that one wants to achieve)

From childhood one should spread the feeling that each one of us is responsible for what happens in society, which, indeed, is made up of all of us, and that we must thus act as free citizens, keen to work for the common good, of which protection of the environment forms a part.

This means defending both 'the freedom of the ancients' – which is participation in the administration of society – and the 'freedom of the moderns', which is the defence of human rights against those powers or decisions that do not respect them.

It also means supporting the idea that decisions taken freely must not damage other citizens or neglect their opinions.

Solidarity must therefore march hand in hand with freedom. As Thucydides said in the fourth century BC: we are not 'useless citizens'.

5. It is certainly the case that when there are depressing realities the risk of becoming discouraged exists. But as a good 'Mediterranean' I would like to reconcile 'the pessimism of intelligence' with the 'optimism of will'.

1. First of all, expressing the right principles is indispensable. It is not ingenuous, as might be thought. The ideas and the information that enter public debate no longer exit from it, and today, in the information society, this is even less the case than in the past. This was the position of the Holy See at the Conference of Helsinki of 1975, a conference that opened up the road to the reunification of Europe which has gradually be-

come our 'common home'. The ingenuous people were those who despised the strength of correct ideas and only relied upon the power of oppression. The Holy See spoke to very many people and not only to Catholics and Christians but to all men and women of good will.

2. Discouragement comes from the gap that we often observe between principles and their implementation, which, indeed, is often difficult. It is for this reason that the emphasis placed in the encyclical on 'small steps', daily actions, seems to me to be especially realistic. Between the 'dream' of 'everything' that generally produces the result of 'nothing', there is something that is at the same time an achievement and a pathway – specifically these 'little steps'. They have, first and foremost, a value in themselves; they really improve the lives of people and are immediately visible to their beneficiaries. They comfort and give courage to those people who fight for human rights, demonstrating that if one wants, one can. After a certain fashion, the movement is validated by its advance. Gradually, these small steps contribute to a change in mentality and reach a critical mass, changing the perception of political action but not by reducing it to decisions taken 'from above' by an elite that bases its own power only on technical competence – which for that matters remains indispensable – or on a stratagem or brute force – which must never prevail. Lastly, they show to the citizens, 'at the grass roots', that they have the right to offer their own vision of investment decisions: positive results are certainly expected in their daily lives (greater prosperity of companies which can create jobs in a liberal economy, or an improvement in infrastructures and public services). But they also want to belong to more long-term prospects based upon a search for the common good and assurances that they and their children will have secure lives.

The stage of transparency and dialogue, when it is conducted well, rightly forms a part of those 'small steps' that increase the 'social conscience', involving citizens and also allowing, where this is appropriate, an improvement in investment decisions.

6. I will move towards the end of my paper by citing an idea of a man who is seen as one of the fathers of political science – Montesquieu. According to the terminology of the epoch, Montesquieu differentiated regimes according to their 'nature' and their 'principle. Thus tyranny had arbitrary power as its 'nature' and its principle was the fear in which citizens lived. The 'nature' of monarchy was inequality and its 'principle' was honour which, in his view, was the constituent value of nobility and limited the possible excesses off the monarch. Government by the many was the 'nature' of democracy and 'virtue' was its principle – at the time of Montesquieu this meant attachment to the public good. If its principle is not alive, the regime degenerates and changes its nature, getting worse.

Why should we not use these concepts to answer the question that the Holy Father places at the centre of *Laudato si'*? Let us remember his words: 'What kind of world do we want to leave to those who come after us, to children who are now growing up?' (n. 160).

What would be the 'nature' and the 'principle' of this society which we have to construct in order to administer common possessions in a reasonable way?

Given its nature, nothing could take the place of government made up of the citizens as a whole, and under their control, according to the principle that all men have equal rights.

But we know that in a republic as well the right principles must be established and assured so that fundamental human rights are respected and the common good is assured in the best way possible.

These 'principles' could be responsibility, concern for the common good and solidarity, which in definitive terms are at the centre of the stage of transparency and dialogue.

4. The Dialogue between Politics and Economics for Human Fullness

H.E. MR. JOHN ANTHONY GERARD MCCARTHY
Extraordinary and Plenipotentiary Ambassador of Australia to the Holy See

These brief remarks are a simple and challenging reminder to all those involved with international affairs, whether in government, ecclesial or NGO roles, that all of us are about to participate in a worldwide dialogue involving politics and economics which makes any theoretical discussion of Aristotle's *Politics* or Adam Smith's *World of Nations* decidedly academic. The context is the UN Sustainable Development Goals 2015 (SDGs), adopted on 25 September last and to which all 193 members of the UN expressed their consent.

These SDGs set out in 17 goals and 169 targets a magnificent vision of world development for the next fifteen years to 2030 [1]. As recently as last Monday, the G20 leaders' communique in Antalya, Turkey, stated: *2015 is a crucial year for sustainable development and we remain committed to ensuring our actions contribute to inclusive and sustainable growth, including in low income developing countries. The 2030 agenda, including the Sustainable Development Goals, and the Addis Ababa action agenda, sets a transformative, universal and ambitious framework for global development efforts. We are strongly committed to implementing its outcomes to ensure that no one is left behind in our efforts to eradicate poverty and build an inclusive and sustainable future for all.* [2]

The response of various economic commentators is to point out certain economic facts and calculations. Meeting the SDGs would cost USD 2-3 trillion per year of public and private money over fifteen years. That is approximately 15% of annual global savings or 4% of GDP. Presently the longstanding promise of western governments is to provide 0.7% of GDP in aid, but only approximately one third of that amount is in actual fact transferred in aid. Support for the SDGs therefore requires developed countries to increase their aid allocations, in various forms, by vast amounts, for the next decade and a half.

The Addis Ababa conference in July 2015 on financing the SDGs has been criticised by economists and NGOs as providing no additional finance for the new SDGs. A further group of economists have estimated that foreign aid available to 2030 is USD 2.5 trillion for the fifteen years. They believe that only by concentrating on a limited number of goals and targets, would this money be well spent. They argue that distributing the aid funds across all 169 targets equally would not meet any of the goals, as none would have essential priority. In the SDG declaration, the various goals and targets are described as "integrated and indivisible."

The issue starts to resolve itself in this way: leaders and their advisers, from both donor and developing countries, know or suspect that their countries would not be able to work on, or even evaluate, 169 different targets over fifteen years. Each country's leaders will eventually choose what priority will be given to which goals and targets.

The drafters of the SDGs in part seem to have anticipated these choices. Built into the SDGs are a series of international forums for the discussion and monitoring of key aspects of the goals and their development. The peak body is a major political forum of the UN Economic and Social Council (ECOS), which will meet at four-yearly intervals and which will seek to manage the progress of the SDGs through a large range of committees reporting to them. That forum and associated forums in years to come will see a continuous interchange, most likely to be very often irritable, between political vision and action and financial and economic factors. This dialogue will be amongst the most important ongoing international exchanges in our time and hopefully will advance our world to greater human flourishing, international peace and environmental stability. All of us may well contribute at various levels to the SDG narrative as it evolves in the years leading to 2030.

The SDGs were adopted by the UN General Assembly in the same session that welcomed Pope Francis to the United Nations. The Pope made two significant references to the SDGs and to their purpose. He urged all international bodies and nations to act on the SDGs and not rest content "with a bureaucratic exercise of drawing up long lists of good proposals." [3] The Pope also urged the UN and its member countries that an objective of the SDGs is "to enable these real men and women to escape from extreme poverty, we must allow them to be dignified agents of their own destiny." [4]

It is an important post script for me to draw the attention of everyone here to SDG 8.7 – *the eradication of modern slavery and human trafficking and of all forced labour*. This has been an important part of my work as Ambassador to the Holy See. It is gratifying that there is widespread recognition of the central role of Pope Francis and the Holy See in having this fundamental clause included in the SDGs. ■

Notes

[1] SDGs – Paragraphs 3 & 28: In contrast Paragraph 14.
[2] G20 Leaders Communique – Paragraph 19.
[3] Pope Francis – Speech to the United Nations – 25th September 2015.
[4] *Ibidem.*

5. Africa and Business: a Proposal for Development that Respects the Life of Man and the Environment

H.E. MR. ANTOINE ZANGA
Extraordinary and Plenipotentiary Ambassador of Cameroon to the Holy See

The paper that I will give today to this international conference organised by the Pontifical Council for Health Care Workers is divided into the three following sections: a. understanding the phenomenon of 'business' and its component parts in Africa: between an absolute search for capital and an ongoing search for profit; b. the impact of business on man and nature in Africa; and c. an approach of proposals and some lines of thought to improve and reconcile the world of business with a form of development that respects human beings and nature.

For decades, the development of Africa has been an almost permanent and invisible priority question at national and international meetings and conferences. Onto socio-political domestic endemic disorders connected at times with the special features of the continent's history, have been grafted crises linked to the advent of the new world economic order whose creed is based upon economic globalisation and its consequences: the internationalisation of financial exchange and flows, the establishment abroad of companies, and the globalisation of the economy. In order to catch up as regards delays at the level of development plans, analyses of various kinds have placed emphasis on the need for this continent to become attached to the international context of economic openness and to stress the entrepreneurial world of 'business'.

Already weakened by the burden of its own past, by its internal convulsions and by new threats to security, Africa now has to face up to the dichotomy which opposes business, the environment and development. Before entering an approach involving projects that respect human life and the environment, it is important to understand the phenomenon and its field of application in the continent of Africa.

a. Understanding the Phenomenon of 'Business' and its Component Parts in Africa: Between an Absolute Search for Capital and an Ongoing Search for Profit

A better understanding of 'business', an English term that refers both to commercial activity and to financial activity, is of use in establishing a logical typology; indeed its expressions at times resemble a sea snake – difficult to grasp and to localise. Thus in Africa two types of business oppose each other: conventional business and illicit business.

Conventional business is governed by effective norms, by national and international laws and regulations, in the case of States, and by large companies and multinational corporations. As a result, traceability is possible and involvement in the socio-economic development of the continent has been demonstrated. This undoubtedly offers concrete opportunities of work, to the extent that it attracts short-, medium- and long-term investments. However, one should also emphasise that its impact on the environment is certainly relevant given that it takes advantage of the application of new technologies which are the outcome of the industrial and agricultural revolution. The objectives of profitability and profit often hold sway over considerations of an ecological character which are well known from the outset. In addition, dependence on business and politics in Africa is at the origin of the proliferation of armed conflicts and, by extension, of the proliferation and the alienation of human rights.

Side by side with conventional business, inappropriate flows of business have evolved which derive from the capacity of human beings to transform into a philosophical doctrine, or even into a religious creed, economic considerations which scorn human rights. This kind of business, which works in the shadows, has an exponential capacity for mutation which make its identification and traceability a difficult and complex matter.

However, even making clear that this list is not a complete one, one can discern the following different categories: the business of raw materials; the business of faith; the business of war; the business of xenophobia; the business of death; the business of fauna and flora; the drug business, and so forth.

In concrete terms, it is clear that Africa today is a place from which things come from (threatened species, human trafficking, raw materials…) and a place to which things go (counterfeit medical products, toxic waste…), as well as being a place where things are transited (cocaine, heroine…) and connected with the globalised illegal flows of the criminal economy. Far from diminishing with the economic expansion of the continent, this business of illegality is at one and the same time also a threat to governance and an obstacle to development. Concern for the environment is the last of the concerns of the parties involved and therefore the overall

impact of this kind of business on the deterioration of the environment is rather significant, even though it is not quantifiable.

b. The Impact of Business on Man and Nature in Africa

In general, the threats that business poses to the environment and to human rights in the continent of Africa can be direct or indirect in nature. The direct threats are as follows:

– Global warming caused by the greenhouse effect, the result of an increase in heat waves, a raising of sea levels because of a thermic dilation of the oceans, an increase in rainfall in areas which already have a great deal and vice versa, and a lack of rainfall in areas which already have a shortage of rainfall.

– The pollution and the thinning of the ozone layer[1] which automatically leads to an increase in exposure to ultraviolet rays because of the high concentration of chlorofluorocarbons in the atmosphere, provoking a large number of problems such as illnesses of the skin.

– The massive destruction of tropical forests and thus the disappearance and the scarcity of certain species, both animal and vegetable. This means a loss of biodiversity and variety in the world of living things. According to the specialists, human activity has brought about an extinction rate of species that is ten times higher than the natural rate.

– The deterioration of the arid zones which could increase the problems connected with hunger, the spread of diseases, the risks of flooding and the lack of water.

– The proliferation of armed conflicts, with their corollary of displaced persons and refugees.

The indirect threats are connected in particular with the effects or the consequences of pollution for agriculture and human health. Indeed, the pollution of the atmosphere caused by the discharge of substances that come from polluting economic activity involve an evaporation of the water contained in the pores of the soil. This process leads to a drying up of the land. This drying up of the land in its turn provokes an increase in the concentration of salt and sodium in the soil, that is to say it leads to the terrain becoming saline.

All of this obstructs the growth of plants and as a consequence reduces the harvests and the productivity of the agricultural sector. At the same time, this pollution is the cause of acid rain.[2] Acid rain is formed when the sulphur and nitrogen oxides are associated with humidity in the air to free sulphuric acid and nitric acid which are then transported very far from their source, before falling to the ground in rain. The consequences for agriculture are, therefore, enormous. Acid rain provokes a stratification of non-uniform foliage; the leaves that grow are few in number and are unable to achieve photosynthesis. The root systems are also afflicted and these are ruined. As a result they not able to suck up nutrients and support the plants when there are strong winds.

As regards the effects of pollution on human health, one can observe that exposure to chemical contamination in foodstuffs, to domestic atmospheric pollution, to dangerous waste and to ionising radiation, is the cause of many illnesses in the world and in particular in the continent of Africa. Many of these illnesses can emerge because of environmental crime.

More than is the case in other continents of the world, Africa endures to the full the violence of the impact of business on nature and on man. The continent of Africa thus feels that it is referred to in the following statement of Pope Francis in the introduction to his encyclical *Laudato Si*': 'The ecological crisis is a dramatic consequence of unchecked human activity'. The Holy Father then declares that the commercial imbalances between the countries of the North of the world and those of the South of the world have created an authentic 'ecological debt' which is connected with a disproportionate use of natural resources by some nations, with 'warming caused by huge consumption on the part of some rich countries [which] has repercussions on the poorest areas of the world, especially Africa', and with environmental deterioration caused by certain multinational corporations in poor countries, etc.

An analysis of the phenomenon of the continent of Africa demonstrates in the final analysis that attention paid by the world of business to the environment is minimal if not indeed irrelevant, and this despite the existence of doctrines, regulations and concrete activity by States in this field. Africa needs development and can achieve it, amongst other pathways, through that of business.

But how can Africa achieve this in its contemporary situation of frailty? Hence the need to formulate proposals to move out of this negative situation, although still respecting human rights and nature, which is a gift of God, using the approach of the 'global ecology' advocated by *Laudato Si'*.

c. An Approach of Proposals and some Lines of Thought to Improve and Reconcile the World of Business with a Form of Development that Respects Human Beings and Nature

For a decade, we have witnessed a massive flow of investments into the continent and this has been sustained by the fact that increasingly, and in parallel with its cyclical problems and problems connected with armed conflicts, Africa has become a pole of economic attraction of great importance.[3]

Over a period of ten years it has achieved, against every forecast, a growth rate of 5.5%. But given that this growth has not been accompanied by adequate development, African countries have been setting in motion an increasing number of reforms for the world of business. They think that they will thereby find a vital and sustainable balance between a more efficient and fairer economy and social equity and protection of the environment, integrating in a transversal way the principle of governance and democracy. They have underwritten directives for

sustainable development[4] which allow development, man and nature to be reconciled. It is here that we must return to 'endogenism' which is something that unites traditions, cultures and modernity.

Given the nature of the disastrous consequences of the model of economic development of the countries of the North of the world with its point of view of being, power and having, Africa believes that development must be seen as a long-term endogenous and cumulative process, involving advances in productivity and the reduction of inequalities, with an integration of human and environmental costs. It thus offers the following guidelines for action:

– The providers of funds should look with especial attention at projects that involve the mobilisation of renewable natural resources (water and air as energy sources, land and vegetal and animal biological resources for alimentation, heating, clothes or housing).

– At the outset, a total control must be applied as regards the application at a practical level of the international rules and norms that are in force. Special emphasis must be laid when the process is implemented on transparency of the juridical and political instruments: a legislative and regulatory approach, the allocation of quotas, access permits and licences for activity – in short regulation and collective actions at different levels of decision-making, and in particular national but also international ones.

– The development of a rational business of the common goods produced by nature, creating productive jobs, alleviating poverty and reducing inequalities.

– An effort should be made to develop and encourage an approach to business with Africa that is human and takes its cultural and traditional dimensions into account.

– An attempt should be made to encourage a mutual-help approach to skills and knowledge in order to end the experimental policies which at times are imposed on the countries of Africa.

– There should be a fostering of the establishment of mechanisms for safety and transparency in the African economic context in order to move out of the realm of the informal.

– An effort should be made to introduce a certain rationality in the practice of debates about economic business with Africa because one is not dealing with ending in a definitive way business relationships with Africa but, rather, of doing business in a different way so that the rewards of productivity are obtained without mortifying conditions of work and nature as well.

– Development projects should be financed that privilege an improvement in research into the environment, education in relation to the environment and the fight against poverty.

Consideration of, transparency in relation to, and absolute respect for international rules as regards labour relations and human rights, as well as protection of the environment, would avoid the three 'classic' negative forms of behaviour that have been produced hitherto, namely:

– 'Free riding': why make an effort if there is no acknowledgement of the efforts that are made?

– The 'prisoner's dilemma': when the partners in a game do not trust each other or do not have enough information about the strategies of the other players, there is the risk that the decisions that they take individually are generally not optimal.

– 'Herd behaviour': faced with an important problem, no player takes the initiative to solve that problem and seeks to go round the obstacles.

Notes

[1] The ozone layer is a thin layer of stratospheric gas in which the concentration of ozone (03) is at its maximum, thereby protecting the earth's surface against the ultraviolet rays of the sun. It is at an altitude of between twenty and thirty kilometres. It is extremely fragile because of the low concentration of ozone (03).

[2] The principal sources of acidity in the atmosphere are the growing quantities of sulphur dioxide (SO2) and nitrogen dioxide (NO2) which are released into it through the burning of fossil fuels such as oil, coal or natural gas.

[3] See Guy Gwet, *70 chronique de guerre économique, 7 ans de veille et d'intelligence* (Books on Demand, Paris, 2015).

[4] According to the Bruntland Report which was drawn up and published by the international committee on the environment and development of the UN in 1987, and had the title 'Our Common Future', sustainable development is a form of development that allows the meeting of the needs of the current generation without compromising the capacity of future generations to meet their own needs. Its principles are the following : local, national and international solidarity and solidarity towards future generations; responsibility, consistency in behaviour and conduct, openness to cultural diversity and the fight against forms of discrimination; active participation of every individual in the commitment of everyone ; and the application of the principle of precaution.

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The Ethical and Social Responsibility of Companies Towards Integral Ecology

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1. Introduction

History does not proceed in a linear fashion and what we are experiencing at the present time is truly a 'special' historical period: 23% of world output since the birth of Christ until today has been produced since the year 2000, and 28% of the 'history of humanity' (if by history is meant the total number of years lived by all the human beings who have been on the earth), again from the birth of Christ to today, has been lived over the last hundred years. In almost all the OECD countries, the period 1970-2011 witnessed a spectacular increase in life expectancy of about ten years. Humanity appears to be on a launch pad, but the risk that all of this is transformed into a Tower of Babel that is about to collapse is high if we do not manage to accompany the irreversibility of technological progress with an advance in our capacity to manage these advances within a context of social and environmental sustainability and integral human development.

The phenomenon of globalisation and that of the fourth industrial revolution make a new implementation of principles and values, in the light of a *res novae* of a world that is in rapid transformation, both urgent and necessary. It is this throng of innovations and transformations that leads us to reflect so as to draw up and explore the insights and founding principles that Pope Francis condensed into his exhortation *Evangelii Gaudium* and his encyclical *Laudato si'*. The Supreme Pontiff has sought to shake consciences in the face of the scandal of a humanity which, while it has increasing potentialities, has not yet managed to defeat some structural wounds that humiliate the dignity of the person. He has called people's attention above all to not acting on the erroneous belief that the 'magnificent progressive outcomes' of markets and finance can, almost in a deterministic way, lead us to a better future. The economy does not have an auto-pilot and the thesis of Adam Smith of an invisible hand that reconciles the sum of individual egoisms into a common good is valid in conditions that are so implausible that in practical terms they have never existed. Competition itself, which does indeed bring benefits to consumers, is not in the least the natural outcome of the interaction of market forces – it is achievable only thanks to going against the trend of an oligarchical concentration of the relevant authorities.

The working of the economic system is characterised by immense potentialities and by rebalancing mechanisms that are not, however, automatic. They function if they are activated by the right intentions and by suitable levels of spiritual, physical, human and social 'capital'. The great global historical contradiction has been the dizzy growth in prosperity in some areas of the world but not in others which, indeed, have remained cut out and on the margins. Globalisation has generated this contradiction and transformed the misery of the last into a threat to the prosperity of the first. With the transformation of markets from being local to being global, and with the possibility of transferring, almost instantaneously, 'weightless commodities' (sounds, data, images, money) from one place to another on the planet, the billion people who live beneath the threshold of extreme poverty in reality compete, with their low labour costs, with the workers of countries that are used to living with much higher wages and better forms of protection, thereby steadily eroding those wages and those forms of protection. High-income countries, therefore, can no longer save themselves on their own – people are threatened by relocation and the erosion of the national productive fabric. This is why working for the last and acting to promote their dignity is today no longer only a heroic choice of missionaries but also a need and an urgent need for everyone to defend the rights and the forms of protection that have been achieved. Globalisation has the positive aspect of making us increasingly interdependent, bringing together in a single destiny the rich, the emergent and the poor of the planet.

Well, it is against this background that the observations that follow in this paper should be read – observations relating to the task that the 'business community' in particular has to perform if one wants to move towards an authentic integral ecology. The guide that I choose for this is *Laudato si'*, a magisterial document of an epochal importance that is destined to construct, for many years into the future, an inescapable bridge of reference for the ecological question, for both believers and non-believers.

2. The Human Environment and the Natural Environment are Deteriorating Together

The great theme of this encyclical is well rendered by its sub-title: 'On Care for the Common Home'. Integral ecology is the key point of the whole text. Specifically because the world is an ecosystem, one cannot act on one of its parts without the other parts feeling the consequences of this. This is the meaning of the statement: 'We are faced not with two separate crises, one environmental and the other social, but rather with one complex crisis which is both social and environmental' (*LS*, n. 139). Ecology

and the economy have the same root –*oikos* – which refers to the common home inhabited both by man and by nature. But ever since the anthropocene – a term coined by the Nobel prize winner for geology Paul Crutzen in the 1960s – began, that is to say starting with the first industrial revolution of the second part of the eighteenth century, the society of human beings, with growing intensity, has 'ejected' nature. The resources of nature have been savagely impoverished without any concern for their capacity to reproduce or the negative external outcomes that productive activity generates. Of a grave character, in this process of exploitation, was the responsibility of 'official' economic science which never wanted – unless until very recently – to take into account in its growth models the ecological dimension. In addition, the economic mainstream made an array of unaware scholars and ingenuous managers believe that the goal of the maximising of short-term profit was the necessary pre-condition to be set to ensure constant progress. This was the legitimation – not certainly the justification – of the vice of short-termism which was also one of the factors that unleashed the financial crisis of the years 2007-2008.

Well, it is in order to straighten out this 'bent wood' of modernity that Pope Francis has spoken strong words of denunciation of the dominant model of growth. Three principal theses are argued and defended in his encyclical *Laudato si'*. The first is that the fight against poverty and sustainable development constitute two sides of the same coin. 'The human environment and the natural environment deteriorate together' (*LS*, n. 48). This is to say that all those interventions based upon the assumption of the separation of the fight against poverty from the conservation of the environment are destined to fail. In truth, if poor countries fear collusive agreements between environmentalists and the neo-protectionists of advanced countries that are directed towards limiting their access to markets – and this is the eco-imperialist concern – the environmentalists of the North, for their part, fear, in opposite fashion, that measures for the protection of the environment could be swept aside by the WTO (World Trade Organisation), thereby fostering a race to the bottom in the fixing of environmental standards. This derives from the lack of an integral vision which prevents an understanding of the fact that deterioration of the environment and society are two sides of the same coin. A few years ago the philosopher S. Pastel wrote: 'the international economic system seems to be unable to address together the problem of poverty and the problem of the protection of the environment. Treating the ecological ills of the earth separately from the problems connected with situations of debt, commercial imbalances, and inequalities in income levels and in patterns of consumption, is like seeking to treat a heart disease without combating the obesity of the patient and his cholesterol-rich diet'.

As early as the 1980s the founder of social ecology Murray Bookchin argued that the idea of being able to dominate nature arose from man's domination of man. He was at that time sharply attacked both by the environmentalists of the epoch, who were not very interested in social questions, and by social movements which saw the environment as a 'secondary contradiction'. With *Laudato si'*, social ecology moves from the periphery to the centre of the discourse about ecology: 'a true ecological approach *always* becomes a social approach…so as to hear *both the cry of the earth and the cry of the poor*' (*LS*, n. 49). There is thus a net rejection of a façade-style ecology that is expressed both in false trust in partial solutions and environmental technology and in a misanthropic approach typical of deep ecology which argues 'At the other extreme are those who view men and women and all their interventions as no more than a threat, jeopardizing the global ecosystem' (*LS*, n. 60). The Pope rejects at one and the same time catastrophism – an increase of more than two degrees in the world's temperature means a disaster! – and the reduction of the question of the environment to a utilitarian pragmatism of an analysis based on costs and benefits. In more general terms, the approach that strongly emerges from this encyclical is to keep the biosphere and the noosphere in harmony. This last term was coined in the 1920s by Theilhard de Chardin to refer to all human beings who have the capacity to plan their actions and have a conscious and common project. As L. Galleni (*Verso la Noosfera*, San Paolo, 2016, 'Towards the Noosphere') suggests the noosphere, as a shared entity with its own end must interact with the biosphere in a relationship of symbiosis.

At a practical level, the thesis discussed here has consequences that are of very great importance. One may consider the question of climatic inequality: 70 million inhabitants of the planet emit 100 tons of climate-changing gas *pro capita* every year, the same as is generated by over three billion poorer people who are more afflicted than the former by climatic disorder. The question is not only whether climate inequality is unfair – and it certainly is – but whether the laws of the biosphere will allow us to maintain it, taking into account the fact that these laws are not negotiable. For example, CF_4 – 'teflon gas' – is almost indestructible and has a climate-changing power that is thousands of times greater than CO_2. This is why Eric Neumayer, an economist of the London School of Economics, proposed computing the historical emissions accumulated in about two centuries as a base for assigning the quotas of responsibility for the climatic meltdown and the burdens for remedying it. It may be taken for granted that poor countries are in favour of this proposal which, on the other hand, is opposed by rich countries. It is for this reason that Marco Morosini, of the 'Climate Policy Group', has suggested calling our epoch the *plutocene* (the era of wealth) rather than the anthropocene (cf. *Avvenire*, 12 Dec. 2015). L. Chancel and T. Piketty (*Carbon and Inequality: from Kyoto to Paris*, 2015) are on the same wavelength when they seek to explore the crisis of the environment and the increase in economic inequalities. The suggestion is to consider emissions that are consumed as well as those that are produced.

This is to say that there is not much sense in assessing a nation on the basis of the production of CO_2 by its companies if one does not also see how much the consumption and the lifestyle of its inhabitants affects the environment. For example, the Chinese emit today the equivalent of six tons of CO_2 every year per person (this is in line with the world average), against 13 tons for Europeans and over 22 tons for the North Americans. The problem, therefore, is that Westerners continue to see themselves as having an individual right to pollute twice as much as the average world level.

3. The Ecosystem as a Global Common Good

The second thesis is that the ecosystem is a global common good (*LS*, nn. 23 and 174). Therefore, the ecosystem is neither a private good nor a public good. It follows from this that neither the traditional instruments of the market, from privatisation to the application of 'emission permits' (*LS*, n. 171), which are associated with the name of the Nobel prize winner for economics R. Coase, nor initiatives involving publicity carried out by national governments, actually respond to what is needed. As is known, commons are subject to the devastating consequences that are typical of situations known as 'the prisoner's dilemma': each person waits to see the moves of the other in order to take an advantage from it, with the result that nobody moves first. The fact is that whereas a global governance of the economy does not yet exist we have to deal with a single climate system, with a single layer of ozone, and so forth. One is dealing, evidently, with global common goods: the use of these by one country does not diminish the amount available to other countries; on the other hand, no country can be excluded from using them. (Clearly the emissions of polluting substances constitute global common 'ills').

Now, as economic theory has known for some time, common goods give rise to a troubling consequence which is typical of all situations, and this is known as the 'tragedy of commons'. If the common good is global, then the injurious consequences will also be global. In 1990 the Intergovernmental Panel on Climate Change demonstrated that greenhouse gas emissions would lead to an increase in average temperatures, with all the consequences that we know about. And yet very few countries acted, unilaterally, to reduce their emissions. Similarly, the European Union proposed the introduction of a carbon tax in Europe but after observing that this example was not imitated by other countries (and in particular the United States of America) it proceeded to change its programme. It is specifically the characteristics of a common good that make unilateralism, as a strategy of environmental policy, fallacious.

Furthermore, even if one managed to achieve through negotiations some form of international agreement or treaty, the problem that one would still have to solve is that of its implementation. One may consider the case of the Montreal Protocol to regulate the use of chemical products (CFC) which destroy ozone, and such was the case with the already mentioned Kyoto Protocol on climate change. Why did the first work and produce the wished-for effects whereas the second has in large measure failed, as has already been pointed out? The answer is immediate. The Montreal Protocol contains a mechanism of incentives which is of such a character as to foster participation and adherence by all the countries that signed it, a mechanism whereby it is in the interest of each country to follow the rules that were agreed upon. Such, however, is not the case with the Kyoto Protocol whose draftsmen were not able to find some mechanism that was able to ensure its *self-enforcement*.

But what is the specific nature of a common good? A practical way of answering this question is to compare a common good with a public good. This last is a good that is neither an excludable nor a rival good for consumption. It is a good, therefore, the access to which is assured to everyone, but whose ability to be used by an individual is independent of such an ability on the part of other people. One many think – to clarify this idea – of what happens when an individual travels down a public road: the advantage that he or she obtains by this use is not connected with that of other individuals who also go down the same road. A common good, on the other hand, is a rival in consumption but it cannot be excluded. And it is for this reason that the advantage that each person obtains from its use cannot be separated from the advantages that other people also obtain from it. This means that the benefit that an individual obtains from a common good is materialised *together* with that of other people not *against* them (as happens with a private good) and not even *separately* from them (as happens with a public good)

What, then, goes against a common good? On the one hand, the behaviour of a free rider, the person who lives off the backs of others, for example evading or eluding contributions to its funding. On the other hand, the approach of an extreme altruist which involves nullifying or denying himself or herself in order to bring gain to another person. Both these forms of behaviour do not help to solve the problem of common goods, albeit for different reasons. In contrary fashion, what fosters a common good? Reciprocal behaviour, that is to say behaviour that accepts the principle of reciprocity: 'I give you or do something for you so that you can in your turn give or do something, in proportion to your capacities, to a third party, or, if this is appropriate, to me'. Instead, the principle of the exchange of equivalents says: 'I give you or do something for you on the condition that you return to me something of equivalent value'. Reciprocity, therefore, is giving without losing and receiving without taking away.

Now, where as regards the sphere of private goods resort to the principle of the exchange of equivalents is everything that is needed for the purpose in hand, and where to solve the problem of public goods one can think of applying in some form the principle of redistribution through the pathway of command, instead when one comes to deal with common goods a bringing into play of the

principle of reciprocity is indispensable. It is specifically here that we encounter the crux of the problem: contemporary culture has so forgotten about the category of reciprocity that it does not even suspect that an effective management of common goods can ever be of a private kind or even of a public kind – it is only of a communal kind, that is to say it is founded on the principle of reciprocity.

After reaching the apex of the greatest detachment from the community, the individual man of modernity has ended up by becoming its first victim. Obsessively enveloped in his own subjectivity – analytically represented through a map of preferences – the man contemplated by the dominant theory is projected towards an autonomy and a separateness that are totally not hospitable (Cacciari, 1997) and forgets about every relationship with the other that is not for the pursuit of his own objective functioning. The acute perception of this individualistic isolation has helped to ignite a strong nostalgia for reciprocity, as is confirmed to us by a growing number of empirical and experimental surveys (cf. Sacco, Vanin, Zamagni, 2005). The idea that society is a system of needs to be met when it is wedded to the narrative of a self-referential individual, whose fundamental problem is to maximise some objective function with ties, produces destructive outcomes. One may think of the various traps of social poverty caused by the well-known phenomena of positional competition or the ecological question.

Only if one takes a step back from possessive individualism – without, however, repudiating its acquisitions, first and foremost that of the withdrawal of the individual from domination by communalism – will economic science be able to open itself to the relational and thereby increase both its explanatory and its normative value. One should note – to remove any misunderstandings here – that the relational that I invoke is not that of exchange but that of reciprocity: the first has an instrumental nature – every time that I begin a relationship of exchange it is obvious that I enter into a relationship with someone, but he or she is only an instrument for my purpose; the second is that which looks at the power of 'between' and which in economics is captured by the notion of common goods. No contemporary thinker has understood such distinctions better than H. Arendt. In her *Vita activa* ('The Active Life') one reads that public means 'what is in the light', what one sees and about which one can talk and discuss. 'Everything that appears in public can be seen and heard by everyone'. Private, in contrary fashion, is what is withdrawn from sight. Common, instead, 'is the world itself inasmuch as it is common to everyone and distinct from the space that each one of us occupies privately' (p. 39).

In truth, what is at the basis of this 'tragedy of commons'? The thesis of defence of Hardian – as is known – is that if humanity does not limit individual liberty it will run the risk of ending up like the inhabitants of Easter Island because it ends up by destroying those common goods on which the lives of the members of the human species depend. In truth, the short-sighted and exclusively self-interested pursuit of goals by individuals costs them – without them wanting this exclusively – to cut off the branch on which they are sitting. Hardin's example of common and free pasture where each herdsman brings his cattle to graze communicates the idea very well. The rational choice – that is to say the choice which maximises the interests of the individual – is to steadily increase one by one the number of cattle that pasture because in this way the individual advantage has grown, let us say, by x, whereas the consequent decrease in grass is only a fraction of x given that the damage is distributed amongst all $(n\text{-}1)$ the herdsmen who use the pasture.

In large measure, it is as though the users of the pasture did not consider, at the moment of acting, the reduction of the common good (the grass on the pasture) that their choice involved. The critical character of the common good is not considered because each one sees only his individual interest; because each of them, in other terms, is an *idiotés*, that is to say, literally, 'one who sees only himself'. (One remembers the famous statement of the great Greek statesman of the fifth century BC, Pericles, recounted by Thucydides, according to which democracy cannot function well if most of the people who make up the *polis* behave as *idiotés*). It is evident that with individuals of this character sooner or later the critical threshold is crossed and this sets in motion an individual perception of the imminence of a tragedy, but this takes place when by now it is too late. It thus happens that paradoxically the race to grasp resources increases even more because resources are becoming increasingly scarce.

4. Economic Biodiversity

The third thesis concerns the vigorous defence made by Pope Francis of economic biodiversity. A market economy which wants to move towards an integral ecology cannot depart from a plurality of company forms, and in a special way it cannot but give space to those companies which produce value – and thus wealth – by anchoring their behaviour in principles such as mutuality and intergenerational solidarity. To deny or impede this would mean to forgo, in an irresponsible way, integral human development, which – and this should never be forgotten – involves three dimensions (the material, that is to say growth; the socio-relational; and the spiritual) which are related to each other in a multiplying and not additive way, this last, instead, is what the economic mainstream has been preaching.

As A. Sen suggests, there is a grave confusion at the level of thought between 'omissions of the market' (what the market does not do but could do) and form of 'malfunctioning of the market' (what the market does but does badly). It is from this confusion that a political practice has derived which rather than fostering 'market including' initiatives (those that seek to include, as a tendency, everyone on the productive process), engages in 'market-excluding' initiatives, those initiatives that do not allow the inclusion of 'surplus people', those people who are expelled because they are

irrelevant and who are dealt with only through welfare-state style measures. It is when peering into the current scenario carefully that Pope Francis suggests the adoption of an ecological outlook that is able to relate to all the dimensions of value and is thus able to see the risk of ending up crushed by that fatal circuit that combines an increase in efficiency (power) due to techno-science with the limitless expansion of subjectivity (the will to power). This is why we have to retrieve the idea of limitation and this is why technical arguments are no longer a secure guide for a model of integral human development. Indeed, it should be borne in mind that it is the union of power with the will to power that generates the *hubris* that leads to collapse.

So what should be done? There is a variety of ways of addressing our current challenges. There is the way that we could call the 'fundamentalism of *laissez-faire*' which argues in favour of a plan of technological transformation guided by self-regulating systems, with the abdication of politics and above all with the loss of the possibility of collective action. It is not difficult to see the risks of authoritarianism derived from a democratic deficit which are inherent in this kind of an approach.

A second way is the neo-statist approach which postulates a strong demand for regulation at the level of national governments. The idea is to revive – albeit partially renewed and rationalised – areas of public intervention in the economy and social spheres. But it is clear that this would not only produce undesired effects but could also lead to disastrous consequences in the case of countries in transition. Indeed, the implementation of new free-market policies could, in contemporary conditions, damage the already low levels of prosperity that exist in developing countries.

The strategy favoured by the social doctrine of the Church rests on five columns.

a) Economic calculation is compatible with the diversity of forms of behaviour and typologies of institutions. It is thus necessary to defend the weakest kinds of companies in order to draw from them a teaching for the future. This means that the filter of selection must certainly be present but it should not be too thin, and this specifically to allow any solution that goes beyond a certain threshold of efficiency to survive. The global market, therefore, must become a place in which local varieties can be improved, which means having to reject a deterministic outlook according to which there is only one way of operating on the global market.

It should not be forgotten that globalisation inevitably levels downwards all the institutional varieties that exist in each country. There is nothing surprising about this because the rules of free trade clash with cultural variety and see institutional differences (for example the various models of welfare, systems of instruction, vision of the family, the importance to be given to distributive justice, and so forth…) as a serious obstacle to their propagation. This is the reason why it is essential to be vigilant in order to assure that the global market does not constitute a serious threat to economic democracy.

b) The application of the principle of subsidiarity at a transnational level. This requires that the organisations of civil society be *recognised* and not *authorised* by states. These organisations should have a function that is more important than mere advocacy or denunciation; they should perform a fully legitimate role in monitoring the activities of multinational companies and international institutions.

What does this mean in practice? The organisations of civil society should perform public roles and public functions. In particular, these organisations must apply pressure to the most important countries in order to reach the signing of an agreement that is able to contain drastically the advantages that come from a sudden withdrawal of capital from developing countries.

c) National States, and in particular those that belong to the Big Eight, must find an agreement to modify the constitutions and the statutes of international financial organisations, thereby overcoming the 'Washington Consensus' that was created in the 1980s after the experience of what happened in Latin America. This, in the final analysis, requires the writing of rules that express the idea that efficiency is not only generated by private property and free commerce but also by policies such as competition, transparency, policies for the transfer of technology, and so forth. The application by the International Monetary Fund and the World Bank of this partial, unilateral and distorted vision of things has, as an unfortunate consequence, excessive debt and national financial repression.

It should be remembered that in a financially repressed economy inflationary pressure places a wedge between national deposits and interest rates on loans with the result that national companies are artificially induced to request loans from abroad and domestic savers are invited to deposit their funds abroad.

d) The Bretton Woods institutions, the United Nations Development Programme and other international agencies should be encouraged by the organisations of civil society to include in their parameters of development indicators of the distribution of human wealth as well as indicators that quantify respect for local specificities. These indicators must be adequately taken into consideration both when international classifications are drawn up and when plans for action and assistance are drafted.

Pressure must be applied in order to obtain acceptance of the idea that development must be *fair, democratic and sustainable*.

It is the lack of institutions (and not of bureaucracies!) at a global level that makes very many problems of our time difficult to solve, in particular the problem of the environment. Whereas markets have become more globalised, the transnational institutional framework is still that of the post-war world. It may be objected: are there not perhaps enough international treaties, or enough contracts at a national level, to regulate the relations between individuals? The analogy is

dangerously off the mark because the contracts signed within a country can be applied by the state of that country but a transnational authority does not exist that is able to make treaties between States respected.

e) Lastly, a rich fabric of non-utilitarian experiences must be created in order to base models of consumption on it and in more general terms lifestyles that are able to allow the rooting of a *culture of reciprocity* must be engendered. In order to be credible, values must be practised and not only expressed. This renders fundamentally important the fact that those who agree to undertake the journey towards a transnational civil society must be committed to creating organisations whose *modus operandi* revolves around the principle of reciprocity.

5. From the 'Factum' to the 'Faciendum'

Chapter V of *Laudatio Si'* is directed towards suggesting 'Lines of Approach and Action'. This constitutes an innovation of no little moment. The fact is that Pope Francis does not confine himself to the *factum* (what man does) – he also wants to push as far as the *faciendum* (what man is able to do). In *Genesis* we read that man is called to 'cultivate and steward the creation' (Gen 2:15). To cultivate means that man has to take the initiative; he cannot have a passive stance in relation to natural rhythms. On the other hand, to steward means to care for and not to exploit; it means, that is to say, to welcome. The strategy welcomed by the Pope is that of the transformation of the structures of power that exist today. Therefore, neither the path of 'revolution' nor the path of mere reformism appear to the Pope to be strategies up to the challenges that are now underway, even though for different reasons. The space available to me allows only three suggestions about the approach that Pope Francis shows that he wants to privilege.

The first concerns the urgent need to create a World Environment Organisation (WEO) along the lines of what took place some years ago with the creation of the World Trade Organisation (WTO). In truth, it is the deficit of institutions at a global level that makes the problems of this epoch of ours unable to be solved, the first of which is the problem of the environment. Whereas markets have been globalising, the transnational institutional framework is today still that of the post-Second World War period. But the negotiators of Bretton woods could not even have imagined what would later become the ecological question. It may be said: are the international treaties not perhaps sufficient in the same way as contracts with a country sufficient to regulate relations between subjects? The analogy is dangerously inaccurate because contracts signed within a country can be made effective in practical terms by the state of that country but there is no transnational country that is able to make treaties between States effective in practical terms. In other terms, international agreements on the environment are not binding.

This is why a WEO is necessary. One cannot go on much longer with a situation in which while the market in its multiple expressions has become global, the system of governance has remained basically national and at the most international. There are today about two hundred 'multilateral environmental agreements' (MEA) in the world. Notable examples are the already mentioned Montreal Protocol; the Convention on Biological Diversity; the Convention on the International Trade on Endangered Species; the Convention of Basle on the International Movement of Toxic Waste; the Kyoto Protocol; and so forth. Well, there is nobody who sees in the absence of a WEO how these agreements could ever be implemented: it is sufficient for one country not to ratify an agreement that has been signed to empty it of its regulatory function. Furthermore, what is worse is that in current conditions, individual national States have an interest in creating 'pollution havens' to acquire positions of competitive advantage in international trade.

There are three priority tasks that such an organisation should perform. First, interacting with the WEO, this agency should strive, on the one hand, to make the rules of free trade and those for the protection of the environment compatible with each other, and, on the other, make them respected by all the parties involved. Second, a WEO should intervene, with back-up roles, in all cases – and today these are ever more frequent – where price signals do not manage to anticipate irreversible environmental losses. As we know, thresholds of environmental deterioration exist of such a kind that – up to a certain point – economic activity does not block the regenerating functions of the environment. However, once they have been crossed, irreversible changes can take place due to the fact that the level of economic activity goes beyond the assimilative capacity of the ecosystem. In situations of this kind, market mechanisms become blocked and hence there is a need for them to be replaced by an *ad hoc* agency.

Lastly, a WEO can only take very seriously indeed the question of eco-refugees, that is to say the question of global warming as a factor that produces new migratory flows. According to the UNHCR, by the year 2050 the world could have to manage a forced migration of 200 to 250 million people who leave lands affected by drought or which are completely submerged by water or devastated by deforestation and warming. Between 1997 and 2020, in sub-Saharan Africa alone, the estimates are that there will be about 60 million forced migrants, that is to say people who although they want to remain where they are cannot do so. This is a tragic consequence of land grabbing. However neither the Convention on Climate Change nor the Kyoto Protocol envisage measures to help and/or protect those who in ever greater numbers will be afflicted by the effects of climate change. Still today, people who are migrants because of environmental reasons do not belong to any of the categories envisaged by the international juridical framework. If, therefore, one does not want to continue with the current short-sighted policy of the militarisation of borders – in the United States of America the budget for the control of borders

has risen from 200 million American dollars in the year 1993 to today's 1.8 billion dollars (yet the number of illegal immigrants has doubled, rising from 5/6 million to 12 million) – the creation of a WEO with adequate powers and resources is indispensable.

The second suggestion to which I referred above is that directed towards the transformation of finance. Finance is an instrument with formidable potentialities for a correct working of economic systems. Good finance allows an aggregation of savings in order to use them in an efficient way and allocate them to their most remunerative uses; it transfers in space and time the value of activities: it achieves mechanisms of insurance that reduce exposure to risks; and it allows an encounter between who has economic resources but not productive ideas and who, vice versa, has productive ideas but not economic resources. Without this encounter, the creation of the economic value of a community would remain at its potential state.

Unfortunately, the finance that we are dealing with today has largely escaped our control. Financial intermediaries often finance only those who already have money (that is to say who have real guarantees equal to or greater than the sum of the loan that is requested). The great majority of the instruments of derivatives that have been created, potentially to obtain benefits at the level of insurance, are instead bought and sold in very short periods of time for speculative reasons with the opposite and paradoxical result of putting at risk the survival of institutions that have them in their portfolios. The asymmetric incentive systems of managers and traders (sharing in profits with bonuses and stock options and no penalisation in the case of losses) are constructed in such a way as to push them to take on excessive risks that make the organisations in which they work structurally fragile and in danger bankruptcy. A further element working for dangerous instability is provided by the orientation of these organisations towards the maximising of profits (which is something that is different from pursing a licit and reasonable profit) because it places the well-being of shareholders in a hierarchical way above that of the other stakeholders. Banks that maximise profits in the presence of distorted incentives will find it increasingly remunerative to channel resources towards activities that involve speculative trading or towards those with margins of return that are greater than activity that involves the provision of credit.

It has never before been so clear as it has been in the case of the development of finance over the last decades that the markets, and above all where returns to scale are growing, do not in the least tend spontaneously to competition: they tend, rather, to oligopoly. In truth, the gradual weakening of rules and forms of control (such as the separation between a merchant bank and a commercial bank) have steadily led to the creation of an oligopoly of banking intermediaries that are too large to fail and too complex to be regulated. The sleeping of regulators has thus led to a serious problem of the balance of powers for democracy itself. The report of *Corporate Europe* of 2014[1] highlighted the imbalance in the power relations between financial lobbies and those of civil society and NGOs: finance spends on lobbying activity thirty times more than any other industrial pressure group (according to prudential estimates 123 million euros a year with about 1,700 lobbyists at the centre of the European Union). The ratio between the representation of financial lobbies and the representation of NGOs or trade unions in consultancy groups is 95 to 0 in the stakeholder group of the ECB and 62 to 0 in the De Larosière Group on financial supervision in the European Union.

This dominant position of finance in terms not only of power to apply pressure but also of ease of access to information, to knowledge, and to technology, has enabled the managers of the great financial oligopolies to obtain enormous earnings to the disadvantage of all the other stakeholders. A confirmation of how all of this produces a distortion in the use of resources is the recent abandonment of infrastructure projects which would have allowed a better mobility of means of transport and people, and the recent creation of a tunnel between New York costing hundreds of millions of dollars to reduce by three milliseconds the trading times of certain operators who, through the laying of a cable, obtain an advantage in terms of information that injures others. The disasters produced by this finance are before the eyes of everybody

The destabilising effects of financial capitalism – which starting in the 1980s replaced industrial capitalism – can be easily deduced from the following data. In the year 1980 the financial assets of all the banks of the world were equal to the GDP (gross domestic product) of the world: about 27 trillion American dollars. In the year 2007 – on the eve of the great financial crisis – their financial assets had become equal to four times world GDP (20 trillion as against 60 trillion American dollars). Today, this ratio is usually of the order of five to one. During the same period of time, in 51 countries taken into consideration, earnings from work in relation to GDP declined on average by nine points in Europe and the United States of America; by ten points in Asia; and by thirteen points in Latin America. The points lost by work went to financial income. In the light of these and other data of this kind it is not difficult to understand where we should locate the origins of the degrading phenomenon of 'surplus people', of those people whom Pope Francis calls 'thrown away people'. As the French economist Gaël Giraud has suggested (*La transizione ecologica*, EMI, 2015, 'The Ecological Transition'), today it would be technically possible to place finance at the service of an ecological transition. However, you have to want this! This is something that does not happen because the banks refuse to create liquidity for ecological investments not because they are not able to do this but because such investments are not remunerative in the short term. On the other hand, the central banks do not intervene as they could because they have other macro-economic priorities. In conditions of this kind, we should not be amazed at the end of the civilisation of Easter Island, which has been wonderfully described by the anthropologist Jared Diamond. The inhabitants of

that island cut down all the trees on the island, the only renewable source, in order to obtain short-term advantages.

6. The Civil Responsibility of Companies and Consumers

I would now like to talk about a third suggestion for action. It refers to notions of responsibility both of citizens who are consumers and of companies. I will begin with the first.

In our epoch, we are experiencing a transition from a society of producers (that is to say a society of consumer goods) to a society of consumers. The first is a society in which the consumer is a means to an end, for example the accumulation of capital, profit, power or other things. The society of consumers, on the other hand, is a society in which consumption becomes the end and production is the means. Industrial society, which we left behind us a few decades ago, is a society of producers in which production calls the tune. In the middle of the nineteenth century, the great English economist and philosopher J.S. Mill coined the phrase 'sovereignty of the consumer' to point out that one day not so far ahead in the future the market economy would have reached the point where the free and informed choices of consumers would have indicated – in fact imposed on – producers not only forms of production but also the kinds of goods to be privileged. However, one had to await August 1962 to register a true turning point in this field. When speaking to the American Congress, the then President of the United States of America, J.F. Kennedy, launched in an official way the consumerist movement: the consumer was not to be thought of as a passive customer but as a citizen, that is to say an individual who uses his or her purchasing power to send 'messages' both to politics and to companies – messages that are the precipitate of the value judgements and specific cultural matrices that characterise a community.

Today we find that we have to choose between two versions of the model of the society of consumers, which by now has taken the place of the society of consumption. The first is that well rendered by the aphorism 'consume more, pay less' which is typical of a low-cost society. The French philosopher Gilles Lipovetsky employs the phrase 'turbo consumer' to characterise this version: a low-cost society works to lower the costs of production in order to reduce retail prices and thus increase the intensity of consumption (the volume of consumption related to units of time). It is not difficult to grasp the schizoid negative tendency of this model of consumption because to reduce costs one has to act on wage levels and welfare services. Hence the pragmatic contradiction at the origin today of the worrying situations of social deviancy because each one of us is, at one and the same time, a worker and a consumer. As a worker, one has an interest in obtaining increases in one's remuneration; as a consumer one seeks to pay increasingly less for the goods that one demands. And these two things cannot co-exist together.

The other version of the society of consumers has as its slogan 'consume less and be happy'. We know, in fact, that activity involving consumption is defined by two dimensions: one is acquisitive and the other is expressive. The first – which human beings share with animals – is what leads us to meet fundamental needs. By the expressive dimension of consumption, on the other hand, a person tends to achieve and express his or her own identity outwardly: identity relating to gender, culture and religion. It is the need for recognition that leads us in this direction, a need that in certain circumstances can be even stronger than a biological need. Why – we might ask ourselves – do we need to be recognised? To be happy – this was the answer that Aristotle already had the acumen to offer many years ago. Happiness, understood as the flourishing of a human being, requires that we are recognised by other people and at the same time that we ourselves recognise other people. Well, activity involving consumption is one of the most important ways by which recognition is achieved. This is why voting with one's wallet, campaigns of civil protest, rational boycotts and so forth are initiatives that should be supported and encouraged – because they constitute the indispensable premiss for the affirmation of a new society of consumers which is very different from the neo-consumerist society.

One should observe that still today in teaching, as well as in the practice of so-called strategic marketing, the orientation towards the acquisitive dimension of consumption is prevalent. It is easy to intuit the reasons for this. I would like to comment on one of these reasons in particular – the shortage of culture. It is my opinion that the majority of our fellow-citizens do not know anything about these subjects. The problem is not so much one of information as of education. We still do not have available to us, except with rare exceptions, educational projects that are directed towards a consumption that is responsible in a civil sense. Something, however, is moving in that direction. If today people are beginning to talk about 'societing' in the place of the by now obsolete 'marketing', and above all else if today the notion of 'personalisation' is spreading (to denote an approach where the consumers are the 'co-producers' of the goods and services that they use), all of this is taking place because over the last twenty years very many forms of active citizenship have grown stronger.

It is self-evident that the change in lifestyles to which Pope Francis refers to on a number of occasions in his encyclical postulates, in order for to be achieved, the world of companies understanding that the time has come to go beyond the social responsibility of a company. An array of theoretical and empirical research informs us that contemporary society considers it no longer sufficient – albeit continuing to see this as necessary – for a company to confine itself to making profits in any way in order to achieve its own social legitimation. Except for rare exceptions, nobody is any longer ready to believe in the well-known statement of Milton Friedman according to which the only social responsibility of a company is to maximise profits, albeit respecting the familiar obligations of the law. We know, in fact, that the chain

of economic value and the chain of social value do not always produce in step with one another and when this does take place it is always the first that prevails over the second.

The phrase 'SRC' ('socially responsible company') arose in the United States of America within the business world itself with the aim of assuring the sustainability of the fundamental structure of the market economy – the company. In an essay of 1953 entitled 'Social Responsibility of Businessmen', Howard B. Bowen wrote that 'the social responsibility of businessmen lies in the obligation to pursue those policies and adopt those lines of action that are desirable in relation to the goals and the values of our society'. This idea of Bowen (and of other people) is an idea of social responsible companies that still lacked an ethical foundation. One had to wait a quarter of century before the ethical dimension, in the form of 'business ethics', managed to enter the discussion about the social responsibility of companies.

What fostered the steady abandonment of the thesis – seen by many people as a sort of dogma of faith – according to which 'good ethics is good business', that is to say that what is good for a business is good for ethics? The realisation that in a significant number of situations – over the last decade the news has provided much information on this – the invisible hand of Adam Smith ends up by feeling cramp and this impedes it from carrying out its function to the full. As K. Basu wrote in his book *Oltre la mano invisibile* (2013) ('Beyond the Invisible Hand'), that this famous principle, like a coin, has two sides. One, theorised by Adam Smith himself, is the good side; the other, masterfully evoked by F. Kafka in *The Trial*, is the bad side which, indeed, produces perverse effects. The allegory of Kafka is a lucid description of how possessive individualism, in the absence of an appropriate institutional system, that is to say of specific rules relating to the economic game, can lead to injurious outcomes. In situations of this kind, it is the invisible hand of Franz Kafka that prevails over the invisible hand of Adam Smith. (I would like to observe that contrary to what is usually thought Adam Smith himself was very aware of this point).

When this takes place – and the crisis of the years 2007-8 is only the gravest of very many episodes of 'market failure' – is it perhaps sufficient to lay emphasis on the level of personal ethics, that is to say on the principle according to which if all those who work in a company, beginning with the administrators and the managers, 'behave well', the results will be good? The answer is decidedly in the negative because the company itself, and not only the stakeholders, as an economic institution, is a moral entity that has its own responsibility. A socially responsible company certainly has important goals as regards growth and advance. But these are no longer enough. Already today, and this will be increasingly the case in the near future, a company is asked not only to produce wealth in a socially acceptable way but also to contribute, together with the state and the agents of organised civil society, to redesigning the economic-institutional system inherited from the recent past. Indeed, one is no longer dealing with being satisfied with a company respecting the rules of the game 'given' by others. One may think of the rules of the labour market, of the banking system, of the structure of the fiscal system, of the characteristics of the model of welfare, and so forth. What is further asked for is that a company, specifically because it is a player and an influential member of the club of the market, agrees to continue to rewrite those rules that may have become obsolete or not able to support an integral human development. This is the core of the notion of a company that is responsible in a civil sense.

D. Acemoglu and J. Robinson (2012) suitably made a distinction between extractive and inclusive economic institutions. The first involves those rules of the game that foster the transformation of added value that is created by productive activity into parasitic income and allow the multiple forms of fiscal elusion and corrupting practices. The second, in opposite fashion, are those institutions that tend to facilitate the inclusion of the productive process in the productive process of all resources, above all else labour, assuring respect for fundamental human rights and the reduction of social inequalities. Well, a company that is responsible in a civil sense is a company that works with the resources available to it accelerate the shift from an extractive institutional system to one which is of an inclusive kind. This means that it is no longer sufficient, as instead is the case with the notion of social responsibility, for a company to be ready to link the achievement of *its* objective to meeting conditions such as taking account of the needs and the identity of all the classes of stakeholders. What the notion of civil responsibility further implies is that a company, which by now in the season of globalisation where the national context of governance is being eroded has become a 'political' actor, should take part in the creation of a new *lex mercatoria*. (One should notice that the ancient *lex mercatoria* of the fifteenth century was drawn up through the decisive contribution of merchants themselves – the businessmen of today).

We are on the eve of a new entrepreneurial season characterised both by a rejection of a model based upon exploitation (of nature and of man) in favour of a model centred on the logic of reciprocity and by an attempt to give a meaning to the activities of a company, which cannot be reduced to thinking of itself as a mere 'money-making machine'. (D. Hevesi – not Pope Francis! – wrote in *The New York Times* of 5/9/2008: 'I am saddened and offended by the idea that companies exist to enrich their owners…This is the least important of the tasks that they perform; they are much more honourable and more important than that'). In truth, we find increasingly widespread amongst illuminated businessmen the idea that holds that profit cannot be the *sole* objective of a company and above all else that there cannot be a trade-off between profit and civil engagement. (In Italy the creation of the juridical entity of the 'benefit company has been very recent. It was introduced in 2015 into our law on the model of the American 'benefit corporation'). This is because 'how' profit is generated is

equally important as 'how much' profit is generated. Everybody can see how the idea of shared value, which by now has been accepted by everyone, at least at the level of words, necessarily postulates companies that are responsible in a civil sense and go beyond the instrumental vision of a social responsible company.

We are dealing, therefore, with thinking anew in a generative way about the role of a businessman in the new economic context. This is a role which has come to be configured following the phenomena of globalisation and the fourth industrial revolution. It is by now accepted that economic action today cannot be reductively conceived in terms of everything that is of value in increasing production, hoping that this can be enough to assure social coexistence. Rather, it must aim at life in common. As Aristotle well understood, life in common is something that is very different from mere community, which also involves grazing animals. Here, in fact, each animal eats for itself and tries, if it manages, to take food from other animals. In human society, instead, the good of each member can be achieved only through the work of all the others. And above all else, the good of each member cannot be enjoyed if it is not enjoyed by others. This is the great challenge of civilisation that humanistic management must know how to meet by giving itself a massive dose of courage and intelligence.

7. To Conclude

The historian Lynn White observed as early as fifty years ago that our attitudes to nature consciously or unconsciously are conditioned by religious visions of the world: 'What people do as regards their ecology depends upon what they think about themselves in relation to what surrounds them. Human ecology is profoundly conditioned by or beliefs about ourselves and our destiny – that is to say by religion'.

White ended his essay with the following words: 'Perhaps we should meditate on the greatest figure in Christianity after Christ – St. Francis of Assisi. The key to understanding Francis is his faith in the virtue of humility, not simple individual humility but the humility of man as a species. Francis attempts to depose man from his role as the monarch of the creation and to install the democracy of all the creatures of God. The deeply religious, but also heretical, feeling of the spiritual autonomy of all the creatures expressed by the first Franciscans can point the direction out to us' (*Science*, 1967). Many centuries later another Francis took up this witness. Referring to Teilhard de Chardin, *Laudato si'* affirms that the aim of the journey of the universe is the fullness of God: all creatures advance, together with us and though us, towards this shared goal.

Religious traditions have always embraced a broad range of interpretative positions. Rabbis, Christian theologians and imams in the West and the Middle East; Hindu teachers, Buddhist monks and Confucian scholars in the East: all of them have committed themselves to the interpretation of their respective traditions over the course of time. The project of an alliance between religion and ecology directly concerns the current process of discernment and exegesis, and aims at a constructive stage where the scholars of various religions can indicate which are the current or potential sources of ecological awareness and action in the context of the various traditions. The common values that the majority of the religions of the world support in relation to the natural world can be summarised as veneration, respect, moderation, redistribution, responsibility and renewability. Although as regards these principles there are variations at the level of interpretation, both within each religion and between different religions, one can say that all of them are moving towards an increasingly expanded understanding of their own cosmological orientations and their own ethical commitments; towards an ecology that includes anew in all of its wholeness all the aspects of the question. Although these were previously understood first of all in relation to other human beings, today the tendency is to extend them to the world of nature in order to assure respect for the myriads of species of the planet, in order to achieve ethics that are extended to every form of life, and a limitation of the use of natural resources combined with support for effective alternative technologies and a fair distribution of wealth. Religions can lead to a broader recognition of human responsibility in the continuity of life on our planet and help to renew the energies of hope to ensure that this work of transformation is completed.

The message of hope that emanates from *Laudato si'* is that the certainties that are offered to us by technical-scientific progress are not enough. Indeed, this progress has increased, and will continue, to increase our capacity to find the means suited to reaching goals of every kind. But if the problem of means emerges much more favourably today than was once the case, it is not certain that this takes place in relation to the problem of ends as well. This is a problem that can be formulated in the following way: 'what is it good for me to want?' and not 'what must I do to obtain what I want?' The man of today is afflicted by the need to choose the ends and not only the means. Hence the need for a new hope: faced with strengthening of the chain of means, contemporary man does not seem to find any other way than that of allowing himself to serve them or to rebel. Such was not the case when the chain of means was less powerful. It is understandable that the hope of those who do not have is directed towards having: this is the old hope. To continue to believe this today would be an error. If it is true that abandoning research into means would be foolish, even truer is knowing that new hope should be directed to ends. To have hopes, today, means precisely this: not seeing ourselves either as a mere result of processes that escape our control nor as a self-sufficient reality that is without the need for relations with the other.

Note

[1] http://corporateeurope.org/sites/default/files/attachments/financial_lobby_report.pdf.

The Diplomatic Contribution of the Holy See to the Negotiations about the Environment

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In a few days' time, in Paris, the twenty-first session of the Conference of States Parties to the United Nations Framework Convention on Climate Change, better known as COP-21, will begin its deliberations. Its principal objective is to adopt an agreement that will involve all the countries of the world in order to re-establish a balance between the global emissions of gas that contribute to the greenhouse effect and the ability of the earth to absorb them.

The principal goal of this process is not, in fact, to solve the problem of climate change but, rather, to attenuate its effects. A large part of the scientific community agrees that average global temperatures have increased compared to their pre-industrial levels because of the greater emission of gas, which has a greenhouse effect, generated by man-centred activities. The temperature of the world will increase further independently of what is decided at the COP-21. The hope is that the decisions that are taken in Paris will limit this increase.

It should be remembered that the UN convention on the climate is concerned with a long-term process which one could say began in the year 1992 with the adoption of the above-mentioned juridical text. From this point of view, Paris is neither the point of arrival of this process nor a point of departure for a new stage of development.

In reality, the COP-21 constitutes an important stage for providing an important signal that will direct investments over the next years towards a strengthening of technologies and capacities that are able to respond in an adequate way to the challenges of adaptation to – and the mitigation of – climate change. There is no lack of divergences between the States about how to make this signal clear and effective. Amongst the principal questions around which these divergences revolve, we may observe the following: the level of what is aimed at by the commitments undertaken by the States; the forms and periods of time involved in the controls dealing with the implementation of these commitments; the criteria to be adopted in achieving a differentiation between the States themselves; and the funding and the transfer of technologies. Obviously enough, one is dealing here with elements that are essential to an effective implementation of the new hoped-for agreement.

However, it is advisable to remember that the phenomenon of climate change involves aspects that are not only scientific, environmental or socio-economic in character but also, and above all else, ones that are ethical-moral in nature. The implementation of normative or structural elements and market forces alone, especially if they are without an adequate ethical direction, are not sufficient to solve the interdependent crises of global warming and poverty. The fundamental problem of global warming is indissolubly linked to the search not only for development with a low carbon content but also, and perhaps above all else, for authentic integral human development. In this sense, climate change becomes a question of justice, of respect, and of dignity; and requires a strengthening of that deep and far-sighted rearrangement of models of development and lifestyles in order to correct its numerous dysfunctions and distortions, as *Caritas in veritate* (n. 32) itself pointed out.

From this point of view, for some time the Holy See has been committed to offering its own contribution to this process, and from two directions:

1. On the one hand, through a direct contribution to the negotiations that are underway by the Delegation of the Holy See during the various meetings of the working group of the convention which was entrusted with negotiating the agreement to be adopted in Paris.

2. On the other hand, with both various and differentiated activities involving thought and examination of the Holy See in this field and through the encouragement by the Holy See of institutions of the Catholic Church to make their contributions to the field involved. An interesting example in this sphere is the appeal of the negotiating parties of the COP-21 that was signed by the international meetings of the bishops' conferences on 26 October 2015.

Today I would like to dwell upon the first aspect, namely the diplomatic contribution of the Holy See to the negotiations of the COP-21. This contribution can be summarised under three headings: 1) anchoring the agreement in a clear ethical direction; 2) promoting the achievement of three objectives which are linked to each other, namely attenuating the impact of climate change, countering poverty and making the dignity of human beings flourish; 3) keeping our eyes fixed on the future.

It is clear that *Laudato si'* (LS) offered a large number of points of reference and points for thought and reflection in order to address and manage in an adequate way these three points during the preparatory work leading up to the COP-21.

Let us begin with the first point: anchoring the agreement in a clear ethical direction. We here

enter the area of the ethical finalities and principles that must direct this agreement and of why this is so important. There is an awareness, as the Holy Father said in his message to the COP-20 of Lima which preceded in December 2014 the COP-21, that the process involved 'will have an impact on all of humanity, particularly the poorest and future generations. Moreover, it is a serious ethical and moral responsibility…The consequences of environmental changes, which are already dramatically felt in many countries, especially insular states of the Pacific, remind us of the gravity of neglect and inaction. The time to find global solutions is running out. We can find appropriate solutions only is we act together and in agreement'.

During the preparatory work leading up to the COP-21, the Holy See acted so that certain basic concepts, which achieved a certain consensus, were recognised and agreed upon. These were: the ethical imperative to act in a context of global solidarity; collective but differentiated responsibility in the face of the urgent character of a situation that requires the broadest possible cooperation in order to achieve a common plan (LS, n. 164); and an appeal to special attention being paid to future generations (LS, nn. 159-161) and the most vulnerable groups of the present generation.

This last aspect enables us to move to the second point: promoting the achievement of three objectives which are connected with each other: the impact of climate change but at the same time countering poverty and making the dignity of human being flourish (LS, n. 172). The strong links that exist between the fight against climate change and the fight against extreme poverty are by now evident. These links also highlight the fact that the threat of climate change and the response to it can really become an interesting opportunity, an opportunity to set in motion a new model of development, to improve health, transport and energy security, and to create new job opportunities. For that matter: 1) although the technologies centred around combustible fuels are still central to the contemporary energy system, it should be acknowledged that there is an increasing development of the technology that is needed to achieve an economy with a low carbon use. Furthermore, the costs of access to this technology are gradually decreasing; 2) we are witnessing the very interesting dynamic of new policies at a national and regional level in this context; 3) there is an increasing awareness of the numerous and diverse opportunities that this process offers at an economic and entrepreneurial level, and also at the level of local authorities – in the context of cities – and of national authorities. These aspects highlight how the transition towards an economy with a low carbon content now appears to be inevitable. The most 'polluting' industries, which are implementing strategies for their own reorganisation, are also aware of this. The dynamic of this transition will also depend upon how much the States commit themselves to strengthening the framework of investment to foster this transition, and the COP-21 will be able to make, as I have already observed, a significant contribution on this front.

From this point of view, the Holy See, taking *Laudato si'* as a point of reference as well, has on a number of occasions stressed the importance of fostering this transition through activities that promote renewable energy (LS, nn. 26 and 164), energy efficiency (LS, nn. 26, 164 and 180), improved methods of energy conservation (LS, nn. 26 and 180), a suitable management of transport (LS, nn. 26 and 180), of waste and of forests (LS, n. 164), and a circular model of the economy (LS, n 22); through programmes that are able to address in a serious way the grave problem of the waste of food and can assure sufficient food security where that food is healthy, accessible and nutritious, with the existence of appropriate, sustainable and diversified systems of agriculture (LS, nn. 164 and 180); and through the strengthening of the financial resources to be employed in such fields and the development of alternative financial instruments, with especial attention being paid to the identification of incentives, the elimination of subsidies and the avoidance of speculation (LS, n. 171).

It is here that the human inventiveness that is able to make human dignity flourish must be at work. It is certainly the case that the new agreement cannot enter into detail as regards these abovementioned programmes and activities, but it should be formulated in such a way as to inspire their correct and effective implementation. In this area, and this constitutes one of the central parts of the implementation of the future agreement, developed countries should 'set a good example' and take the initiative (LS, n. 172) in limiting in an important way the consumption of non-renewable energy and above all in promoting cooperation to achieve the development and the transfer of technologies that are appropriate for policies of adaptation and mitigation, above all as regards the most vulnerable groups. This is also a way of helping to solve that 'ecological debt' that was denounced by *Laudato si'*, 'particularly between the global north and south, connected to commercial imbalances with effects on the environment, and the disproportionate use of natural resources by certain countries over long periods of time' (LS, n. 51).

In calling for cooperation between countries it is advisable to remember that this should be anchored in a farsighted long-term approach that is able to maintain our eyes fixed on the future. And thus we come to the third point. An agreement with a broad temporal perspective such as that which we have been considering here should, on the one hand, envisage processes for the reviewing of the commitments that are made and for 'follow-up' that are transparent, effective and dynamic, as well as being able to steadily increase the level of what is aimed at (LS, n. 167). On the other hand, it should be understood and 'adopted' by local populations. This requires assuring the participation of the local populations in decision-making processes, and that means native popula-

tions as well (LS, nn. 143-146). From this point of view, it is advisable to emphasise that a change in models of production and consumption (LS, n. 180) cannot be sufficient if this is not also accompanied by a change in lifestyles.

In this area, another important element comes into play: education in sustainable lifestyles (LS, nn. 164 and 206) and in responsible awareness (LS, nn. 202 and 231). This means taking the opportunity of the question of climate change in order to intensify our efforts as regards formation and education, above all in order to help young people, so as to achieve the adoption of a sense of responsibility towards the creation and authentic integral human development for all the peoples of the earth – both present and future. The contemporary lifestyle, with its throwaway culture, is unsustainable and must not find space in our models of development. The Holy See continues to invoke these aspects during the process leading to the COP-21 and to offer important contributions in this area. Throughout the world a large number of Catholic educational institutions are involved in promoting this education in responsibility towards the environment which should be increasingly anchored in respect for that 'integral ecology' which was amply analysed by Pope Francis in his recent encyclical letter.

This, as we are warned by *Laudato si'*, is a 'A great cultural, spiritual and educational challenge… and it will demand that we set out on the long path of renewal (LS, n. 202). This is a challenge that goes far beyond the COP-21 and which places us in front of what will happen after the COP-21 of Paris.

The Dialogue of Religions with the Sciences in Matters Connected with the Environment. The Encyclical of Bergoglio on the Environment: 'Universal Ecological Conversion'

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'We are not God. The earth precedes us and has been given to us'. In his encyclical of June of this year Pope Francis speaks about the current 'crisis' and asks 'all people of good will' to have an 'ecological conversion' and a 'new universal solidarity'.

In 192 pages and 296 sub-sections the Pope speaks about ecology as the study of the *oikos*, in Greek the 'home' of everyone; of responsibility for the 'common home' against the concrete risk of self-annihilation. Man is a 'personal' being but he is not the lord of nature. And nature is not ugly matter at our disposition; living beings are not 'mere objects' for exploitation and profit – they 'have their own value before God'. For that matter, ecology is always also 'human ecology'; in the world everything is connected: the frailty of the earth and of the poor, environmental and social imbalances, financial speculation, weapons and wars.

Bergoglio lists the negative features of the 'ecological crisis': global warming, climate change, pollution, the increase in sea levels, the impoverishment of biodiversity, the unfair distribution of food, the lack of the right to access for everyone to water. He denounces planetary 'inequity': 'the foreign debt of poor countries has been transformed into an instrument of control' but 'the same thing does not happen' as regards the exploitation of resources and there is 'a true ecological debt, particularly between the global north and south'. He points his finger against the 'weakness' of international policy: 'The establishment of a legal framework which can set clear boundaries and ensure the protection of ecosystems has become indispensable; otherwise, the new power structures based on the techno-economic paradigm may overwhelm not only our politics but also freedom and justice'. He thus denounces the 'globalisation of the technocratic paradigm' which is reflected in 'obsessive consumerism' and 'which dominates present-day economics and politics'.

'Economic powers continue to justify the current global system where priority tends to be given to speculation and the pursuit of financial gain, which fail to take the context into account, let alone the effects on human dignity and the natural environment'. Furthermore, 'It is foreseeable that, once certain resources have been depleted, the scene will be set for new wars'. Everyone must have the courage to impose long-term projects rather than pursing power. Our survival, the harmony of the creation, are at stake.

The Bible narrates that the world was created in seven days. According to the Book of Genesis, God pre-existed eternally before the created order. The whole of creation from the light to the stars, from the sky to the fish in the sea, and on to the mingling of dust and divine breath that gave life to humanity, was done by God to rejoice at the wonderful goodness of nature and the environment of the earth. Man and woman were created to reflect the power of God, to love and steward well the resources of the world, and to offer up prayers to God.

Unique in all the order of the creation, humanity – men and women – alone bears the image of God, the image (from the Hebrew *tselem* – where a child is the image of its parent) of God amongst the animated and not animated things of the creation. As bearers of His image, human beings have the mandate to live in communion with God and to take care of each other and the world.

Man is created similar to God, as His image and likeness on the earth. To emphasise the importance and the diversity of man in relation to the other works of creation, two particulars are inserted: the plural in the soliloquy of God to the heavenly court and the reference to a dialogue with the beings that have just been created which places God in a unique and personal relationship with the man and the woman. In addition, the text states that the whole of the work of creation is 'good'. Instead, it is said that the creation of the man and the woman is 'very good', thereby affirming in this way the supremacy of the human being over the whole of the rest of the creation.

To man is entrusted the creative work of stewarding and completing and he has the task of reproducing.

The text implicitly says that God is eternal, that is to say that He existed before creating other things and that He will also exist afterwards. Everything else is temporary.

To live in harmony with nature means at times to halt. And perhaps to reflect. Judaism, through its acceptance of *Shabbat*, the feast day of rest, established by law a biblical break, a 'planetary everyone stop!' which with time took on a symbolic value which has traversed countries, cultures and economies. The concept of rest, a fundamental point in the relationship between Judaism and nature, this 'biological stop', and more in general a careful stewardship of the resources of the planet, are points with which modern society must come to terms, not least because increasingly often things here are not working out.

Thousands of years ago, when everything on this planet could be feared with the exception of the ending of resources, Judaism 'put its cards on the table' and antedated concepts which today are at the centre of the concern of care about ecology. The problem of harmony between man and nature was certainly not born in antiquity because there was a concern about the ending of natural resources, but because of the fact that God grants to man the use of His work and its ownership remains in his hands. As such, it must be protected in the best ways possible. The key concept around which Jewish 'ecologistic' thought revolves is that of the *Shabbat*. The interruption of the weekly cycle appears to be preordained to make the principle take root that time must be lived and experienced as a moment and an opportunity to overcome that daily material slavery which keeps us bound up with the needs of our bodily selves, and as an entrance into a dimension of a completely different nature. Where in the first chapter of the Torah God orders man to 'fill the earth and make it subject', a few verses later it makes clear that 'God placed man in the garden' (the whole world) so that he would cultivate it and steward it. There is therefore a right to use nature for his own needs but at the same time there is the duty to safeguard it. How these two aspects can coexist is explained in a verse of the fifth book of the Torah, which is dated but effective: 'When during a war an army besieges a city and a tree is prepared to be used as a battering ram, you cannot use a fruit tree for this purpose, only a tree that does not bear fruit'.

Trees, water and earth were the basis of all the efforts and thoughts of the new State of Israel, as well, naturally, as human life. Since 1901 in Israel over three hundred million trees have been planted. In the region of the Negev desert, near Yatir, where the first tree was planted in 1964, a pine forest now overs thirty thousand dunes of an area of thirty square kilometres. In this area the average temperature has fallen by two degrees. These pines live with a glass of water a year thanks to the drop irrigation system. In a land where miracles are a part of history, there now remains a wise knowledge of nature, a capacity to exploit its resources, but also perhaps above all else a capacity to defend them. Israel is a country that has one source of natural water reserves: Lake Tiberias – the Sea of Galilee. Today in the national territory of Israel there are two hundred reservoirs which collect the rain water that falls in January and February. This water is then distributed during the rest of the year. Nothing must be wasted and nothing must be thrown away: 90% of waste water is recycled, made drinkable, and reused for agriculture. And then one searches, one tries and one learns. One has to constantly compare oneself with other peoples, one has to learn from them and also teach them. To live in harmony with nature, exploit its resources but also defend them and make them proliferate. God has always said this. It is men who find it hard to understand this.

When examining the holy texts, perhaps Judaism is the religion which more than any other has developed the subject of ecology, declining it in practical cases with very modern and surprising recommendations. However, if we have to speak instead of the practical implementation of precepts, it is Islam that has had a greater incisiveness as regards the 'green' behaviour of the faithful, not least because in the Islamic world religious precepts coincide with the laws of the State.

The biblical commandment of *bal tashchit* prohibited the cutting

down of trees, the deviation of rivers, and wasting water. A kosher diet, observed both by Jews and by Muslims, has its origins in respect for animals which had to be slaughtered in a way that limited their suffering to the utmost. The message to cultivate and steward the creation also arrived in Christianity. Symbolic figures, such as St. Francis, have always highlighted the importance of respect for animals and nature. Without any doubt, the encyclical of Pope Francis is a strong and important document for the construction, and making stable, of an ethical and rational system for the defence of nature and life itself.

The Creator created everything. During the first week of the creation, before ending the week, He created man (humanity) and He immersed him in the perfect balance of Eden.

Man made a different choice to the one he was ordered to make. Since then, after leaving Eden, he has had to survive in the domain of nature and the things that were created before him. Man has to remember that he can choose between good and evil and in general he can make choices on which his life and the balance of nature depend. Man bases his life on three fundamental relationships: the relationship between man and the Creator; the relationship between man and other human beings; and the relationship between man and the nature which surrounds him. Man must remember these balances. When he forgets them, he draws away from Eden and ventures into unknown and dangerous paths. He must always remind himself that he is destined to study and work hard to obtain a decent life and build a safe environment which can be loyal to him at moments of need. All human beings resemble each other. They can, and they must, have the same obligations and the same rights. Only by remembering this and the importance of the creation, good relationships with his neighbour, the observance of the natural balance of things, and using in an ethical way scientific knowledge and discoveries produced by research, can he hope to have a better life and perhaps the possibility of rediscovering the path to Eden.

Projects and Innovative Initiatives for a 'Healthy World'

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Improvements in economic development, science and technology, and research and development, have generated many gains at the level of health. In the year 2013 global average life expectancy was 71.5 years.[1] The decline in the number of deaths of children under five since the year 2000 has saved the lives of 48 million children.[2] The number of years of schooling and adult literacy have increased; absolute poverty in some regions of the world has declined;[3] diseases such as smallpox have been eradicated; and at a global level the Montreal Protocol and subsequent action to phase out ozone-depleting substances will have prevented 2 million cases of skin cancer annually by 2030 while contributing to the international goals to reduce the emission of greenhouse gases.[4]

Despite the progress to date, there is a substantive and growing body of evidence that shows that current deteriorating environmental trends may slow or inhibit further improvements to wellbeing, possibly reverse achievements and lead to increased health disparities and a decline into poverty. Already today, it is estimated that nearly one quarter of all diseases and deaths are due to hazards from unhealthy living and working environments. According to the WHO, the rich-poor 'health gap' is caused by a small number of illnesses. Many of these illnesses are linked to environmental conditions and are exacerbated by the social context and poverty. More than 1 billion people in low- and middle-income countries lack access to safe water, and 2 billion lack adequate sanitation.[5] Not only is there a health gap between the rich and poor countries, but the health gap is most acute amongst the poorest in poor countries. Furthermore, health risks caused by industry-induced contamination of land and water are one of the most common sources of local-level grievances and have the potential to ignite conflict.

Beyond these national and local-level risks, there are environment-related transnational risks such as communicable diseases, climate change, potential water shortage-related conflicts, and risks from conflict and terrorism that feed on poverty and environmental constraints. These risks and threats, as the UN High Level Panel on Threats, Challenge and Change put it, 'recognize no national boundaries, are connected, and must be addressed at the global and regional as well as the national levels'.[6] The responsibility

to address environmental risks is also intergenerational.

In a recently released paper on *uncovering pathways to an inclusive green economy*,[7] the UNEP stated that: 'A failure to recognize serious ecological constraints is a failure to acknowledge the health of our common home and the needs and rights of future generations – or in some cases for current generations. Once a floor or a ceiling is reached, the rules of the game change and survival itself may become a challenge, regardless of the offsetting stock of financial or human capital. The understanding of what constitutes 'critical natural capital' is changing rapidly as we approach ecological boundaries and binding constraints owing to cumulative impacts'.[8]

Thus, reducing environmental stress and investing in ecosystem resilience reduces risks to health and wellbeing and enhances the resilience of people, especially women and children, who may be vulnerable due to poor initial endowments and entitlements and lack of support networks. Addressing the links between the environment and wellbeing calls not only for national and global action, but preventive, and not just *post facto*, action to ensure large scale and also temporal effects.

This international conference thus comes at an important time, when the world has adopted a positive 2030 sustainable development agenda and the 17 SDGs in which the environment is well integrated through the goals; just before the historic COP 21 in Paris to obtain an agreement on climate change; and with the backdrop of other conversations on emerging global and local ecological constraints and tipping points with their potential for unwanted dislocation and/or conflict.

My paper has two sections: section I will touch on just two key environmental and natural resource issues that influence wellbeing – climate and air pollutants and natural resource use, and will then focus more narrowly on the projects, initiatives and programmes to address these challenges, in support of a healthy world, with a clear disclaimer as to representativeness in terms of scope and coverage. I will highlight that there is an artificial distinction between the national and global benefits of interventions to improve the environment as many initiatives that seek to address national risks have global benefits and those that address global risks have national benefits. It is in the space of multiple benefits of environmental improvements and initiatives that I would like to locate my contribution. Section II goes beyond projects and initiatives and speaks about the key changes that are required in terms of economic signals, the knowledge that is created, and environmental and resource governance.

1. Addressing Multiple Benefits

Climate, health and unjust outcomes

As the IPCC TAR Report put it: 'The impacts of climate change will fall disproportionately upon developing countries and the poor persons within all countries, thereby exacerbate inequities in health status and access to adequate food, clean water and other resources'.[9] This was a theme reiterated in later IPCC assessment reports. We see this in the papal encyclical on 'Care for our Common Home': 'The climate is a common good, belonging to all and meant for all' "[Climate change] represents one of the principal challenges facing humanity in our day. Developing countries will probably feel its worst impact in coming decades. Many of the poor live in areas particularly affected by phenomena related to warming, and their means of subsistence are largely dependent on natural reserves and ecosystemic services such as agriculture, fishing and forestry'.

The World Bank in a recent report on climate change and poverty suggests that beyond agricultural impacts, the next strongest drivers of climate-linked poverty are health effects such as higher incidences of malaria, diarrhoea and stunting, and lower labour productivity due to extreme heat. With no action, at a global warming level of 2-3 degrees Celsius, people at risk from malaria are expected to increase by 5% and from diarrhoea up to 10% by 2030.[10] Poor people lose more when natural disasters strike as they have few safety nets. This study suggests that climate change may result in 100m additional people living in poverty by 2030. There seems to be little doubt that climate change will be the single most difficult challenge to international sustainable development, affecting the North and the South, the developed, the emerging and developing economies.[11] It could lead to rapid, large and unexpected impacts on local, regional and global scales. Differential vulnerabilities and adaptive capacities give rise to issues of 'equity' and 'justice'.[12]

Air pollution

Air pollution is the world's largest single environmental health risk. Approximately 4.3 million people a year die prematurely from illness attributable to household air pollution caused by the inefficient use of solid fuels. Over half of the deaths from acute lower respiratory infections among children less than 5 years old are due to air pollution from household solid fuels. In addition, 3.7 million deaths can be attributed to outdoor air pollution, of which transport, energy production and industry are major sources. That the poor are more vulnerable should be evident given their greater exposure to pollution sources but also their lack of alternatives in terms of relocation to regions with cleaner air. The 2011 UNEP/WMO assessment indicated that reducing the emission of black carbon, methane and subsequently tropospheric ozone could yield a benefit of 2.4 million avoided premature deaths annually by 2030 and 52 million tons of avoided crop yield loss for four staple crops – maize, wheat, rice and soybean – annually by 2030. In addition to the health and agricultural benefits associated with SLCPs emission reduction, the UNEP/WMO assessment also indicated that black carbon and methane emission reduction

could help avoid increased future global warming by an average of about 0.5°C by 2050.

The UNEP is engaged in a series of programmes and initiatives to drive mitigation and reduce air and climate pollutants.

Initiatives with multiple benefits

The *Climate and Clean Air Coalition*, for example, was launched in February 2012 by six governments and the UNEP to catalyse major reductions in short-lived climate pollutants (SLCPs) with an initial focus on black carbon, methane, tropospheric ozone and some hydrofluorocarbons (HFCs). Constituting a unique initiative of State and non-State actors with its secretariat at the UNEP (now including more than 45 State partners and 50 non-State actors), the CCAC contributes to multiple benefits. Fast action to reduce SLCPs can be achieved through existing technologies and could prevent a significant proportion of the estimated 6 million deaths annually from air-pollution related illness; avoid annual crop losses of over 30 million tons annually by 2030; and slow down the warming expected by 2050 by as much as 0.5°C and by up to 0.7°C in the Arctic by 2040, and deliver significant regional climate benefits. The UNEP, apart from being the secretariat of the CCAC, is actively involved in initiatives concerning urban health; diesel vehicles; the oil and gas industry; HFCs; solid waste; assessment; finance; agriculture; and planning

Enlighten: the enlighten initiative[13] was established in 2009 to accelerate a global market transformation to environmentally sustainable, energy-efficient lighting technologies, as well as to develop strategies to phase-out inefficient incandescent lamps to reduce CO2 emissions and the release of mercury from fossil fuel combustion. A global transition to efficient street lighting solutions – light emitting diodes, LEDs – would save over 130 TWh in annual electricity consumption, which is equivalent to 40 large power plants (of 500 MW), and 66 million tonnes in CO2 emissions, equivalent to taking close to 37 million passenger cars off the roads. Street lighting uses between 20%-40% of a city's municipal budget and is fundamental in increasing the security of citizens' security and promoting economic development.

The UNEP seeks to promote cleaner transport to reduce outdoor air pollution. Vehicle emissions are the first urban air pollutant, especially through small particle matter (PM). The UNEP is leading the global effort to reduce emissions from vehicle fleets – buses, cars and 2 and 3 wheelers. The *Partnership for Clean Fuels and Vehicles (PCFV)* is a global public-private initiative which brings together 72 organisations representing developed and developing countries, the fuel and vehicle industries, civil society, and leading world experts on cleaner fuels and vehicles. The focus is on cleaner air through applying fuel quality improvements and proven vehicle technologies in use in leading global auto markets.

Enabling a wider access to natural resources through sustainable consumption and production

Inequality in incomes and consumption, the problem of 'late starters' in development when key natural resources and ecological sinks are becoming scarce, involve an urgent need to: (i) conserve and share resources and ecological space; (ii) share benefits from the development of natural resources; (iii) reduce wants; and (iv) address the trust deficit across groups, societies and nations with unequal incomes, capacities, opportunities, information and life worlds.[14] Allowing space for the lives of the poor to improve needs some retreat from overconsumption by the rich. As Mahatma Gandhi said: 'the Rich must live more simply so that the Poor may simply Live'.

Given global development aspirations, the world requires a 'decoupling' of economic production from resource use and environmental degradation and a shift to sustainable patterns of consumption and production (SCP). This shift is central to balancing human activities with the long-term functioning of ecosystems. The UNEP believes that by embedding SCP systems in national and sectorial policies, rethinking unbridled consumerism, and balancing over- and underconsumption can enable the unserved and underserved to access key supply-constrained resources while maintaining harmony with the earth's life support system. Recognising the importance of a decoupled growth from resource use and environmental footprints for the future of our societies and communities, *member States at Rio+20 adopted a global framework to promote decoupling/sustainable consumption and production* which is called the 10-year framework of programmes on sustainable consumption and production patterns (10YFP), now a target under SDG 12. The programme which is hosted by the UNEP seeks to scale up and enhance international cooperation in order to accelerate the shift towards sustainable consumption and production (SCP) in both developed and developing countries. It is composed of six priority programmes: sustainable public procurement, consumer information, sustainable lifestyles, sustainable tourism, sustainable food systems, and sustainable buildings and construction.[15]

'Detoxifying' our economies and societies – the substitution and design-out of harmful product components

The UNEP implements a range of activities to support the implementation of the Basle, Rotterdam and Stockholm Conventions, including the development of POPs destruction technologies to support the polychlorinated biphenyls (PCB) elimination network (PEN), the development of a DDT roadmap, and the identification of alternatives in India, Africa, and Asia. The SAICM, a voluntary framework, has as its overall objective the achievement of a sound management of chemicals throughout their life cycle so that by the year 2020 chemicals will be produced and used in ways that

minimise significant adverse impacts on human health and the environment.[16] The Minamata Convention on Mercury is a global treaty to protect human health and the environment from the adverse effects of mercury. It was agreed in January 2013.The major highlights of the Minamata Convention on Mercury include a ban on new mercury mines, the phasing-out of existing ones, control measures on air emissions, and the international regulation of the informal sector for artisanal and small-scale gold mining. The Convention draws attention to a global and ubiquitous metal which, while naturally occurring, has broad uses in everyday objects and is released into the atmosphere, soil and water from a variety of sources.[17]

2. Beyond the Discourse on Projects and Initiatives

Addressing environment and health linkages, however, requires more than just projects and initiatives, which, while important, are discrete and often time and resources bound. What is required is a fundamental transformation, a paradigm shift that brings environmental and sustainability to the centre of knowledge and decision-making processes for all groups – government, business, consumers, and producers. I highlight here three important directions for change.

Signaling correctly is important for informed and free choices

The relevance of well-functioning subsystems – both social and ecological – to human wellbeing has not been sufficiently recognised: neither in our mainstream economic models which do not account for the impact that economic activities can have on the environment and through pathways of poor air, land or water quality that influence the lives of people, nor indeed when economic activity disrupts trust or social capital which in turn affects human wellbeing. We see this often in poorly planned minerals development activity or irresponsible mining. As a result, the value added from such activity suggests an artificial addition to GDP but one in which the impact on health and lives is not factored in and appropriately deflated. This sends wrong signals to decision-makers as to the value of the activity and does not alert them to the need for a good management of the industry. Recognising and internalising the environmental and social costs of human activity into the monetary assessment of gross domestic product is the key to getting the right signals into economic decision-making as they are also the key to the choices we make as ordinary individuals when making our consumer choices. A comprehensive accounting of natural wealth and degradation is the key to internalisng the 'invisibility of nature' in overall economic performance. The purpose of valuing ecosystem services is not to privatise them or make them into commodities for the market. Instead, valuing can be a crucial management tool in understanding, and acting to conserve, ecosystems and reduce development pressure on them. Fundamentally, accounting for natural capital and degradation in a nation's economic performance provides a better understanding of the direction and sustainability of the long-term wellbeing of its people. The UNEP does considerable work in this area through its work on the TEEB[18] and its engagement in the inclusive wealth index measures the assets from which human wellbeing is derived, including manufactured, human and natural capital. In this, it measures a nation's capacity to create and maintain human wellbeing over time.[19]

A different way of knowing is the key to protecting the environment and wellbeing

Part of the reason why the links between the environment, ecosystem services and human health and wellbeing are not recognised and acknowledged is that knowledge production is still locked into disciplines and sub-disciplines. What is required is new knowledge, *different research* that bridges social and ecological systems. For example, while public health specialists and disease experts acknowledge the existence of a complex 'web of causation' for ill health, their focus most often remains on the biological and ecological mechanisms of disease transmission. Rarely do they consider social, cultural, political, environmental and economic factors that may help explain the occurrence of the disease and unwellness in the first place, and/or guide the design and implementation of responses to prevent and control transmission. To understand the interactions between social and ecological systems, there is a need for *transdisciplinary knowledge* which involves moving across disciplines, across the social, health and natural sciences. It also requires an engagement with non-scientific actors, as these provide access to different knowledge systems that may contribute to important insights in understanding the problem of human health in the anthropocene, and one that sees human health interventions as being beyond just a consideration of the host etiological agent and the environment, to include human activity, policies and ecosystem conditions in ecosystem approaches to human health and wellbeing.[20]

To protect environment for human wellbeing is to govern differently

Addressing environment and health linkages requires us to govern differently: governing differently is about paying attention to the most vulnerable, among whom are children but also the elderly, taking into account the main social determinants that influence vulnerability to environment-health risks, and also looking at poverty, inequalities and gender implications. Thus is takes into account the fact that depending on where people live, the vulnerability to environmental degradation is different and needs, therefore, to be addressed differently.

Governing differently is about engaging and providing incentives and empowerment for all actors of society in order to be able to address environment and health issues. This entails providing access to information to citi-

zens in order to make decisions but also working with the financial and economic sectors to improve market practices through integration of ESG risks, using incentives as well as enforcement measures.

Governing differently means to support institutional innovations in social behaviour, some of which emerge as a result of tweaking the existing institutions drawing on Elinor Ostrom's thesis that small changes in institutions often produce large outcomes, and other innovations which produce new institutions: for example, the Pani Panchayat illustration of Salunke in Maharashtra, India, or waste management practices in Manila city, in Germany, and in the Netherlands.

Key areas for transforming the institutional and legal frameworks are to be found at all levels of collective decision-making and typically move bottom up from local awareness and a growing demand for better and healthier living environments to wider agreements governing shared interests, such as access to clean air or fresh water resources; or managing the flow of toxic materials that risk creating liabilities for human wellbeing far into the future. There is a need to engage with local knowledge more generally as many solutions to environmental problems are best found locally. Identifying and addressing women's needs and promoting women as decision- makers are critical elements as women often possess the knowledge and skills critical to finding local solutions.

There is a need to promote more integrated thinking and approaches and a strengthened interface between the environment and health. This means designing, planning and implementing policies through interministerial and intersectorial coordination, leading to the integration of environment-health issues in key sectorial policies such as agriculture, building or transport. There is also a need to strengthen the science-policy interface to build more effective integrated policies. This implies the monitoring of the environment in which people live and work, in relation to air quality or water for example.

Conclusion: the 2030 Development Agenda and UNEA 2 as an Opportunity to Raise Momentum and Scale up

The recently adopted Sustainable Development Goals offer an opportunity to bring existing projects and initiatives to the scale required to effectively address environment and health linkages. The countries of the world, in adopting the Sustainable Development Goals, have provided a pathway to achieving integrated policymaking as regards these issues at global, regional and national levels. This will be critical to ensuring the transformations needed on a large scale to deliver sustainable development and a more equitable world. For countries, investment in a healthy environment is an investment in the wellbeing of current and future generations. The SDGs offer an opportunity to act on the social, environmental and economic determinants of good health in a cohesive way.

The second meeting of the United Nations Environment Assembly in May 2016 will dedicate its high-level interactive ministerial session to the topic 'healthy environment, healthy people'. This meeting will be an opportunity for UN agencies, governments and stakeholders to call for action to deliver on the environment and health nexus.

Notes

[1] GBD 2013 Mortality and Causes of Death Collaborators (2014), 'Global, regional, and national age–sex specific all-cause and cause-specific mortality for 240 causes of death, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013', *The Lancet* 385 (9963): 117–171. doi:10.1016/S0140-6736(14)61682-2. ISSN 0140-6736.

[2] WHO http://www.who.int/gho/en/ (accessed 20.10.2015).

[3] World Development Indicators 2007.

[4] Scientific Assessment of Ozone Depletion 2014. UNEP and WMO.

[5] Addressing the needs of clean water and sanitation will require about USD 7 billion/yr which is estimated to be less than what Americans spend on elective cosmetic surgery per year, and Europeans spend on perfume (HDR 2005, p. 93).

[6] UN 2004, p.11.

[7] Reference:http://www.unep.org/greeneconomy/Portals/88/documents/GEI%20Highlights/IGE_NARRATIVE_SUMMARY.pdf, p. 24.

[8] Rockstrom et al. (2009), 'Planetary Boundaries: Exploring the safe operating space for humanity', Ecology and Society 14(2): 32.

[9] IPCC 2001, Synthesis Report. Summary for Policymakers, p. 12; see also Stern 2006 and the working groups' summaries for policy makers preceding the IPCC's 4th report to be released in November 2007.

[10] http://www.worldbank.org/en/news/infographic/2015/11/08/managing-the-impacts-of-climate-change-on-poverty

[11] Climate variability, including extreme weather events, is estimated to cause over 150,000 deaths annually around the globe. The global mean sea level is projected to rise by 0.18 to 0.59 metres;this is higher in Asia (IPCC, FAR, 2007) and is projected to increase the annual coastal population that flooded to ~ 94 million; 60% of this in South Asia; 20% in South East Asia See IPCC, Climate Change 2007: 'Impacts, Adaptation and Vulnerability. Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report', available at: www.ipcc.ch/SPM6avr07.pdf. Also see Patwardhan, 2006 for a discussion on impact on LDCs, The Stern Review (2006) warned that failure to control climate change could reduce the global economy by 5-10% annually by the end of the century and lead to social disruption.

[12] For an elucidation on 'equity and justice' issues in climate change see Rose *et al*. (1998); Ikeme (2003); Thomas and Twyman (2005); Winters *et al*. (1998); Brown (2003); Adgers, 2001.

[13] http://www.enlighten-initiative.org/

[14] Trust is about developing an attitude that factors in the interests of the other, not just for opportunistic, prudential or strategic reasons but also to promote common wellbeing and humanity.

[15] http://www.unep.org/10yfp/

[16] http://www.saicm.org/

[17] http://www.mercuryconvention.org/

[18] http://www.teebweb.org/

[19] http://inclusivewealthindex.org/#the-world-wants-to-know-how-its-doing

[20] http://www.idrc.ca/EN/Programs/Agriculture_and_the_Environment/Ecosystem_Approaches_to_Human_Health/Pages/default.aspx

Access to Safe and Clean Water: a Fundamental, Universal and Essential Human Right

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I want to express my thanks to H.E. Archbishop Zimowski and to Msgr. Mupendawatu for inviting Caritas Internationalis to this international conference. As you know, the Caritas network is acting worldwide on health issues and many other issues, including HIV/AIDS, Ebola, non-communicable diseases, in emergency situations as well as at the level of long-term development.

Pāni opor nam gibon! Water is life!

I have heard these words a number of times in Bangladesh. Yes, water is life. But water can, alas, also be death! Drinking polluted water is still a cause of death for many children around the world. That is true in Bangladesh as well.

Floods also bring their share of death and tragedy. The melting glaciers of the Himalayas, in adding to the monsoon rains, bring even more water to the two major rivers that fertilise that country, the Ganges and the Brahmaputra, regularly flooding the plain twice a year. One-third to two-thirds of the country disappears under water. Then a cyclone or two a year in the Gulf of Bengal make the sea level rise, invading the lowlands of the delta. This overpopulated country (165 million inhabitants on a surface not bigger than Belgium) is blessed with water that brings life but also death.

I could extend this story to other parts of the world, where water is abundant or scarce. You all know about this reality.

I will start my paper with two references to the right to water in Catholic social teaching.

Access to safe water is a basic human right. In a Message to the Bishops of Brazil in 2004, Saint John Paul II wrote 'as a gift from God, water is a vital element essential to survival, thus everyone has a right to it' (PCJP, *Water an essential element for life*).

In *Laudato Si'* §30, Pope Francis tells us that 'Access to safe drinkable water is a basic and universal human right, since it is essential to human survival and, as such, is a condition for the exercise of other human rights', including the right to health, the right to housing and the right to adequate food.

There is no doubt that for the Church access to safe and drinkable water is a fundamental human right.

The Current Situation

Let us look now at the reality of the 'right to water' as such in international law.

On 28 July 2010, by Resolution 64/292, the United Nations General Assembly explicitly recognised the human right to water and sanitation and acknowledged that clean drinking water and sanitation are essential to the achievement of all human rights.

The resolution called upon States and international organisations toprovide financial resources; transfer capacity-building and technology to help countries, in particular developing countries; and to provide safe, clean, accessible and affordable drinking water and sanitation for all.

Water is closely linked to sanitation. The UN speaks about WASH: water, sanitation, hygiene. Yesterday was the world toilets day!

Unfortunately, not all States include the right to water in their legal systems. Some States tolerate or even undertake actions that are directly or indirectly harmful to the rights of communities of bordering States, or they even *use water as an instrument of political or economic pressure* (PCJP, *Water an essential element for life – A contribution of the Holy See to the Sixth World Water Forum, 2012*).

The reality of lack of access to safe water

In 2015, 663 million people still lack improved drinking water sources. Eight out of ten of those people live in rural areas (530 million).

In 2015, 2.4 billion people still lack improved sanitation facilities. Seven out of ten people without improved sanitation facilities, and nine out of ten people still practising open defecation, live in rural areas *(UN: Progress on Sanitation and Drinking Water – 2015 update and MDG assessment).*

Contaminated water and poor sanitation are linked to the transmission of diseases such as cholera, diarrhoea, dysentery, hepatitis A, typhoid and polio.

According to the WHO, some 842,000 people (of whom 361,000 are children aged under 5) are estimated to die every year from diarrhoea as a result of unsafe drinking water and a lack of sanitation and hand hygiene (Drinking Water Key Facts: http://www.who.int/mediacentre/factsheets/fs391/en/).

The place of water in international development policies

At its plenary session held on 12-15 October this year here in Rome, the World Committee on Food Security and Nutrition hosted by FAO recalled that water, food security and nutrition are intrinsically linked, and that water is essential for the progressive

implementation of both the right to adequate food in the context of national food security and the right to safe drinking water and sanitation.

The committee also offered the following recommendations. Efforts should be made: 1. To promote the sustainable management and conservation of ecosystems for the continued availability, quality and reliability of water for food security and nutrition; 2. to improve consistency between water and FSN related policies, strategies and plans; 3. to achieve equal access to water for all, prioritising the most vulnerable and marginalised of all ages and empower women and young people; 4. to refrain from using water as an instrument for political or economic pressure; and 5. to promote the full and meaningful implementation of international human rights obligations and instruments as they relate to water for FSN.

All this is very technical, and is expressed in UN language, but it does reflect the priority given to access to safe drinkable water in the international spheres.

This is reflected in the SDG where you will find 'water targets'.

Water targets in the SDGs

In the former MDG: Target 7.C was as follows: 'Halve, by 2015, the proportion of the population without sustainable access to safe drinking water and basic sanitation'.

The global MDG target for *drinking water* was met in 2010, but the least developed countries did not meet the target. 2.6 billion people have gained access to an improved drinking water source since 1990.

However, the global MDG target for *sanitation* has been missed by almost 700 million people. Yet 2.1 billion people have gained access to an improved sanitation facility since 1990.

These are good points to celebrate. But more had to be done.

The new SDG 6 says: 'Ensure availability and sustainable management of water and sanitation for all'.

6.1. By 2030, achieve universal and equitable access to safe and affordable drinking water for all.

6.2. By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Such is the situation in the international arena.

The Caritas Experience

For us, access to sufficient, safe, drinkable, physically accessible and affordable water is *a right to life issue*, therefore it is a *central objective of many Caritas initiatives around the world.* 'Our world has a grave social debt towards the poor who lack access to drinking water, because they are denied the right to a life consistent with their inalienable dignity *(Laudato Si'*, n. 30).

In fact, *water is a necessary pre-condition to other forms of development* that help marginalised people get out of poverty. Once this basic pre-condition is achieved, Caritas initiatives allow for the realisation of all other aspects of life: from sanitation to food production, and from empowerment to civic participation.

Caritas helps local actors develop their projects not only to provide safe water but also to reduce the incidence of disease (and therefore death) due to the mismanagement of water resources and poor hygiene. Thus, Caritas initiatives try to involve the community in a developmental perspective, starting from a basic need such as access to water. Activities range from the construction of infrastructure to the organisation and training of communities in the management of water systems to improve hygiene conditions. The community is supported to involve all social actors, especially the public sector.

Let me now give you two examples.

Caritas Burkina Faso

From 1 January 2012 to 31 December 2014 Caritas Burkina-OCADES led the project for *Drinking Water, Sanitation and the Promotion of Environmental Education (Project WSS/PE)* in eight rural communities of the four dioceses of Kaya, Koupela, Manga and Ouagadougou (the population of the project intervention area is estimated at 3 million inhabitants). The objective was to contribute to improving the *health* status of the populations and their living conditions through better access to drinking water and sanitation.

During those three years, the project achieved some valuable achievements: 40 new drill holes for 12,000 beneficiaries in villages without drinking water; 110 old wells repaired to help 33,000 beneficiaries unable to repair their pumps; 202 water associations established and trained to manage the pumps; and 8 rural districts established the municipal maintenance of a water points system.

Caritas Brazil

In areas characterised by water scarcity, agricultural activities can be so limited that the population does not enjoy minimal subsistence conditions. Therefore, building on ensuring access to water – and always with the aim of achieving authentic development – Caritas has undertaken further initiatives for the attainment of other human rights, such as the right to adequate food; health; civic participation; and advocacy in the adoption of public policies.

The Brazilian semi-arid region covers nine States in the northeast and southeast of the country (an area of about 980 000 km2). It is a high temperature region where the rainfall regime is uneven, sometimes with long periods of drought and occasional rainfall concentrated in a few months. Without water, it is extremely hard for rural communities to cultivate their land and grow their food.

Since the 1950s Caritas Brazil has been an active member of '*Articulaçao do semi-arido* (ASA)', a network of non-State organisations that originated in the initiatives of local residents, carrying out coordinated intervention, ad-

vocacy and partnership with local governments in the region. Before ASA begun operating, people depended on food aid and water distribution from public authorities.

The intervention of Caritas has been, first of all, to secure long-term water supplies by installing reservoirs in each community to capture rain water, clean it and store it, for both personal use and for irrigation purposes. In addition to installing reservoirs, Caritas accompanies the communities through workshops in water management to educate the local population in using water correctly and avoiding waste. Subsequently, Caritas continues this accompaniment through monitoring visits and keeping in contact with the communities.

Reservoirs have notably improved the lives of local residents.

The availability of water has finally enabled them to grow crops (such as potatoes, vegetables, fruit trees) and raise cattle without depending on water distribution.

The farmers – who have organised themselves into associations to be able to participate in the government's programmes – have reached such a level of productivity that they are even able to sell their surplus on the local market.

Their self-managed, organic food production has notably benefited their health (whereas the large use of agro-toxics is a big problem in Brazil) and their household economies, and has enhanced solidarity between and within families.

This has contributed to the replenishment of underground water tables that provide drinkable water.

To bring together the rich experiences developed across the world, *Secours Catholique/Caritas France* a few years ago developed what has been called 'wikiwater'. This is an online guide intended for anyone who is interested in questions of water and sanitation and was created with the idea of sharing different experiences and practices that have bee used with as many people as possible, all over the globe and in particular with those who need that information the most. This involves: 1. facilitating access to water – tap, stock, treat, analyse, distribute, preserve; 2. sanitation and preservation; 3. reducing the costs of water; 4. awareness efforts as regards hygiene and health; 5. organising and managing water. Look at www.wikiwater.fr

The Challenges Ahead

In *Laudato Si'*, Pope Francis calls our attention to various important factors: (*Laudato Si'*, n. 27) 'Other indicators of the present situation have to do with the *depletion of natural resources*. We all know that it is not possible to sustain the present level of consumption in developed countries and wealthier sectors of society, where the habit of wasting and discarding has reached unprecedented levels. *The exploitation of the planet has already exceeded acceptable limits and we still have not solved the problem of poverty*. (n. 28): 'Sources of fresh water are necessary for health care, agriculture and industry. Water supplies used to be relatively constant, but now in many places *demand exceeds the sustainable supply*, with dramatic consequences in the short and long term'. (n. 29): 'One particularly serious problem is the *quality of water available to the poor*. Every day, unsafe water results in many deaths and the spread of water-related diseases, including those caused by microorganisms and chemical substances. Dysentery and cholera'. (n. 30): 'Even as the quality of available water is constantly diminishing, in some places there is a growing tendency, despite its scarcity, to *privatize this resource*, turning it into a commodity subject to the laws of the market. Yet *access to safe drinkable water is a basic and universal human right, since it is essential to human survival and, as such, is a condition for the exercise of other human rights*. Our world has a grave social debt towards the poor who lack access to drinking water, because *they are denied the right to a life consistent with their inalienable dignity*'. (31): 'Some studies warn that an *acute water shortage* may occur within a few decades unless urgent action is taken. The environmental repercussions could affect billions of people; it is also conceivable that the control of water by large multinational businesses may become a *major source of conflict* in this century'.

Water has been the source of conflicts and has been used as a weapon of war throughout history. If there is no governance of water and no respect for the human right to water, we may see an increase in conflicts over water in the coming years. Egypt and dams on the Blue Nile in Ethiopia and the Sudan; Israel and the Occupied Territories; India and Bangladesh. In 2014 alone, sixteen tensions or conflicts arose about the question of access to water… http://www2.worldwater.org/conflict/list/

These elements and the analysis given by Pope Francis might look scary! But they are the reality with which we have to engage and build hope for the future.

So, what has experience taught us? What are the best ways to ensure the right to water for all? What should future development policies help to achieve? Here are four guidelines for our work.

1. Increase awareness of water, sanitation and hygiene rights

There is a general lack of awareness among people in communities regarding their right to safe and drinkable water, sanitation and hygiene services.

Effective implementation, sustainability, operation and maintenance of water systems, sanitation and hygiene projects can only be achieved *if people at the grassroots level are empowered* with adequate knowledge of their rights and their own water, sanitation and hygiene projects.

2. Access to water requires a political will and shared commitment on the part of stakeholders

Involving *key stakeholders* (e.g. community members, government water departments, civil society and the private sector) remains indispensable for suc-

cessful water programmes. http://www.wikiwater.fr/c5-les-diverses-formes-juridiques.html

3. Establishing linkages between water, sanitation and hygiene issues in water policy

It is Caritas' view that these issues should be tackled *holistically* as they are intertwined with the vision of ensuring a sustainable management and utilisation of water resources.

4. Establishing and training community water management committees

Establishing these committees is critically important for the sustainability of water infrastructure. However, it is not enough to set up such committees. It is also important to equip them with the skills to maintain and manage the water infrastructure.

Water and sanitation facilities on their own do *not automatically* generate improved health. *The correct and sustained use of facilities* is what ultimately leads to disease reduction and healthier people.

We clearly have to move forward along those lines to improve the way things are and make drinkable water a reality for all.

With such measures, people in Bangladesh as elsewhere will, hopefully, be able to master better the gift of water that God has given them.

ROUND TABLE

Education and Ecological Spirituality: a Different Lifestyle

1. Educating in the Alliance between Humanity and the Environment in a Spirit of Solidarity and Care Based upon Compassion. Request for Assisted Suicide in the Light of the Encyclical letter *Laudato Si'*

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The German philosopher Friedrich Nietzsche (1844-1900) wrote in his philosophical poem 'Thus spoke Zarathustra' about Voluntary Death: 'Die at the right time: so teacheth Zarathustra. To be sure, he who never liveth at the right time, how could he ever die at the right time? Would that he might never be born! – Thus do I advise the superfluous ones… His death, dieth the consummating one triumphantly, surrounded by hoping and promising ones… death, praise I unto you, the voluntary death, which cometh unto me because I want it.'[1]

For this fictitious character Zarathustra, sovereignty and self-determination are the ultimate determinants of freedom. Voluntary death is thus a radical act of free will. For Nietzsche, suicide is the 'triumph of rationality' when there is nothing more to expect and to live for.

Today, there is an ongoing debate about whether medical doctors should be allowed to assist suicide in cases of fatal illnesses when patients ask for it. Of course, the number of deep analyses with good arguments, both for and against assisted suicide, is immense. One argument is that as an act of free will, persons should have the right to decide themselves when and how they die.

Support for Assisted Suicide

In 2014 the opinion research centre Forsa found that in the case of a personal fatal illness, 70% of Germans wanted to have the option to ask for assisted suicide and only 22% rejected it.[2] In the same year, the Allensbach Institute reported that 67% of Germans supported assisted suicide while 19% were against; in the year 2008 the same institute had found that 58% agreed with assisted suicide.[3] Moreover, 60% agreed that private organisations that offer support to committing suicide in the case of incurably sick people should be allowed; 20% disagreed; and 20% were undecided. It seems that the proportion of people who support assisted suicide has been rising.

However, in 2005 the German Hospice Foundation commissioned the opinion research centre Emnid to pose different questions. Emnid found that only 35% advocated medically assisted suicide, while 56% advocated palliative medicine and terminal care instead.[4] Here, the respondents had an alternative option to respond to, namely palliative care, while the Forsa opinion polls did not offer any alternative response option but instead asked whether the individual was in favour or not of assisted suicide. Moreover, today society is more aware of hospice work and palliative medicine, and is much more aware that there are options available as regards controlling pain and avoiding loneliness and isolation. Interestingly, in the Emnid opinion poll the proportion of palliative medicine supporters rose from 35% in 1997 to 57% in 2000 and to 56% in 2005, whereas the percentage of assisted suicide supporters decreased from 41% to 36% and 35% respectively.[5]

In 2012, Forsa found that 77% agreed that medical doctors should be allowed to assist medical suicide in the case of a fatal illness; 19% rejected it.[6] Here, mostly 45 to 59 year-old people agreed (85%), while young adults

(70% in 18 to 29 year-old people) and older people (72% of those > 60 years) were more reluctant. In addition, more Catholics had objections to assisted suicide (25%) compared to 20% of Protestants and 12% of those without any religious denomination. In the Netherlands, where the proportion of patients with amyotrophic lateral sclerosis (ALS) who choose the option of assisted suicide is quite high (i.e., 20% in 1994-1998 and 17% in 2000-2005), this decision was related to an a-religious outlook, a higher educational status, and dying at home, but not to quality of care or depressive symptoms.[7]

Katharina Schuler critically commented that none of the opinion polls asked about the more critical point of how to decide when even the best palliative medicine and best pastoral care cannot provide a high quality of life as assured by a hospice foundation.[8] Autonomy to decide at the end of life is seen as important and most people would agree that fear of endless suffering and being left alone helpless is an anxiety-inducing prospect. In fact, in several cases the situation of people calling for help in dying is undeniably, devastatingly awful. When you are empathic and compassionate you have to face up to this horrible situation in order to find a good answer.

It is surely true that 'nothing and no one can in any way permit the killing of an innocent human being, whether a foetus or an embryo, an infant or an adult, an old person, or one suffering from an incurable disease, or a person who is dying. Furthermore, no one is permitted to ask for this act of killing, either for himself or herself or for another person entrusted to his or her care, nor can he or she consent to it, either explicitly or implicitly. Nor can any authority legitimately recommend or permit such an action'.[9]

However, what should be done when a suffering person argues that there is no meaning anymore in his or her life because of his or her depressive loneliness? What should be done when the suffering person says 'I can't stand this suffering anymore; it is too much for me. Please help me out'? What do we have to offer to these suffering people who ask for assisted suicide for different reasons?

A qualitative study from Switzerland showed that patients who died because of assisted suicide did not regard pain and symptoms as the main reasons for asking for assisted suicide. What motivated them was 'fear of the future, fear of loss of dignity, a lack of independence in daily activities and bodily functions'.[10] Interestingly, most of these decisions were pre-illness decisions. Maybe we are encountering here a fear of being disappointed by the treatment options of the medical system and the support capacities of friends and relatives. If this is the case, what are we really encountering when fear prevents people from the possibility of experiencing that others might nevertheless care for them and stay close with them even during dark times?

We should remember the moving story of Ronan Porat from Israel who was diagnosed with ALS at the age of thirty, and met the 'love of his life' Tali 'when he thought all that was left for him was to lie in bed with artificial respiration, being fed through tubes, motionless and unable to speak, and forced to wait for the arrival of the angel of death'. In fact, he met his 'angel of love' who married him later on.[11]

Implications of the Encyclical Letter *Laudato Si'* for the Question of Assisted Suicide

One can read some phrases from Pope Francis' encyclical letter *Laudato Si'* in the light of what has been said above in a new way: 'Our insistence that each human being is an image of God should not make us overlook the fact that each creature has its own purpose. None is superfluous. The entire material universe speaks of God's love, his boundless affection for us' (*LS*, n. 84).

What about suffering people who cannot feel God's love, who are unable to experience our solidarity and compassionate support, who cannot see that their lives and even their dying may have meaning, who feel lonely and irrelevant, and who are helplessly driven towards nothingness? When we encounter Christ in each and every person, how can we help him?

Pope Francis clearly states that 'A sense of deep communion with the rest of nature cannot be real if our hearts lack tenderness, compassion and concern for our fellow human beings' (*LS*, n. 91).

In fact, when God has given life we have to care for it. When each and every year 'thousands of plant and animal species' disappear – why don't we care? When every day human beings with all their potentials, dreams and expectations die, because of hunger, war, suicide or social isolation – why don't we care? Do we at least pray for them? What about our responsibility to care for God's creation and all its inhabitants? Not only will 'thousands of species will no longer give glory to God by their very existence, nor convey their message to us' (*LS*, n. 33), but also many human beings 'will no longer give glory to God by their very existence, nor convey their message to us' (*LS*, n. 33).

Maybe the question is not whether assisted suicide should be permitted or not (I think we are quite clear about this), but how it is that society has failed and human beings have to ask for assisted suicide and what can be done to ensure that there is no need to request assisted suicide?

The Advocates of Life

We certainly need advocates of life and educators who credibly convince the next generations (and ours too) that everyone is of worth, that everyone is needed, and that each and every person makes the difference. 'Because all creatures are connected, each must be cherished with love and respect, for all of us as living creatures are dependent on one another' (*LS*, n. 42), as the encyclical letter *Laudato Si'* observes.

'This basic awareness would enable the development of new convictions, attitudes and forms of life. A great cultural, spiritual

and educational challenge stands before us, and it will demand that we set out on the long path of renewal' (*LS*, n. 202) .

Pope Francis argues for 'environmental education' and this implies that everything is connected in God. But it seems we have forgotten this fundamental truth. Thus, 'It needs educators capable of developing an ethics of ecology, and helping people, through effective pedagogy, to grow in solidarity, responsibility and compassionate care' (*LS*, n. 210).

We can refer to a statement of the Catholic bishops of Japan: 'To sense each creature singing the hymn of its existence is to live joyfully in God's love and hope',[13] also to persons who ask for assisted suicide. We have to ask again why for some people their song of life became faint – or why their hope disappeared. Maybe we have simply forgotten to listen to their silent hymns and to remind them that their song is worthwhile.

How can we change our minds and rediscover our connection with God and with all living beings which, indeed, need our solidarity and compassionate care?

The encyclical letter says: 'This contemplation of creation allows us to discover in each thing a teaching which God wishes to hand on to us, since "for the believer, to contemplate creation is to hear a message, to listen to a paradoxical and silent voice"' (*LS*, n. 85).

This means that we need to change our mind-set first and cultivate spiritual awareness, and with this attitude of consciousness we can engage in concrete compassionate care for others in need – and discover God's love and teaching. Yet, changing people's mind-set is a difficult task. It not only requires cognitive awareness, it also needs a concrete encounter with the suffering world and subsequently a strong intention to become active. Living in our private secure havens is comfortable, but the real world is around us. Ecological education and caring for others means to see thousands of possibilities of helping, and a commitment to face the suffering world – the True Face of Christ.

In Mahayana Buddhism, Bodhisattva Avalokiteshvara is an archetypical ideal of compassion.[14] The names of its Chinese (Guanyin), Korean (Kwan Um) and Japanese (Kanzeon) expressions can be translated as 'Listener to the Voices of the World'. Legend has it that as an enlightened being the Bodhisattva decided to return again and again to the realms of the suffering world until all feeling beings were redeemed. Again and again the Bodhisattva returns to care selflessly for the suffering and dying, and needs to have thousands of hands, eyes and ears.[15] Maybe ours, as well. This ideal of unlimited compassion is the strict opposite of any self-centred attitude, and inspires people to care because we are not separated. You and I are not different.

A further ideal from other religious traditions is *tikkun olam*, the Jewish concept of helping to repair the world and to establish the future world.[16] For Rabbi Jill Jacobs, this concept refers not only to the material world but also to moral and ethical change and spiritual sensitivity.[17]

The encyclical letter *Laudato Si'* embraces both the Bodhisattva ideal and the *tikkun olam* concept and recommends that we can all develop and foster specific attitudes to heal the world: 'First, it entails gratitude and gratuitousness, a recognition that the world is God's loving gift, and that we are called quietly to imitate his generosity in self-sacrifice and good works…It also entails a loving awareness that we are not disconnected from the rest of creatures, but joined in a splendid universal communion' (*LS*, n. 220).

Outlook

Finally, we are called to open our eyes anew, not only to 'discover the action of God in the soul, but also to discover God in all things' (*LS*, n. 233).

With this attitude we can face the world – and we have to find an answer when a suffering person asks for assisted suicide.

With this attitude we could also think of establishing a link between pastoral workers and an associated network of intercessors. For those who are lonely and suffer, we need compassionate palliative and pastoral care with professional structures and trained pastoral and medical experts, and also an initiative of intercessory prayers by the ordained and by lay persons with a specific commission by the Church. When the lonely, suffering and those who may ask for assisted suicide really know that there is a network of intercessors who do care and pray for them as well, then they may feel acknowledged and comforted – and not forgotten.

Whatever we may expect, it is true that 'Intercession unites our hearts with the people and places we pray for'.[18] Thus, we help others – and our hearts too.

And this would be a true 'culture of care' instead of a 'throwaway culture', as recommended by Archbishop Zimowski, the President of the Pontifical Council for Health Care Workers.[19]

Notes

[1] Friedrich Nietzsche: *Thus Spake Zarathustra. A Book for All and None* (translated By Thomas Common). Chapter 21; http://www.gutenberg.org/files/1998/1998-h/1998-h.htm

[2] http://www.dak.de/dak/download/Forsa-Umfrage_zur_Sterbehilfe-1358250.pdf

[3] http://www.ifd-allensbach.de/uploads/tx_reportsndocs/KB_2014_02.pdf

[4] http://www.wernerschell.de/Rechtsalmanach/Heilkunde/Langzeitstudie_BPK05.pdf

[5] http://www.wernerschell.de/Rechtsalmanach/Heilkunde/Langzeitstudie_BPK05.pdf

[6] http://www.dghs.de/fileadmin/user_upload/Dateien/PDF/Forsa-Umfrage_2012-w.pdf

[7] Maessen M., Veldink J.H., Onwuteaka-Philipsen B.D., de Vries J.M., Wokke J.H., van der Wal G., van den Berg L.H.:'Trends and determinants of end-of-life practices in ALS in the Netherlands', *Neurology* 2009:73(12): 954-961.

[8] http://www.zeit.de/online/2005/43/Sterbehilfe

[9] Congregation for the Doctrine of the Faith, *Declaration on Euthanasia* (5 May 1980) http://www.vatican.va/roman_curia/congregations/cfaith/documents/rc_con_cfaith_doc_19800505_euthanasia_en.html

[10] Gamondi C., Pott M., Payne S., 'Families' experiences with patients who died after assisted suicide: a retrospective interview study in southern Switzerland', *Ann Oncol.* 2013; 24(6): 1639-1644.

[11] http://www.ynetnews.com/articles/0,7340,L-3602647,00.html

[12] Encyclical letter *Laudato Si' of the Ho-*

ly father Francis on care for our common home, June 18, 2015.

[13] Catholic Bishops' Conference of Japan, 'Reverence for Life. A Message for the Twenty-First Century' (1 January 2000), 89.

[14] Taigen Dan Leighton, *Faces of Compassion: Classic Bodhisattva Archetypes and Their Modern Expression – An Introduction in Mahayana Buddhism* (Wisdom Publications, 2012).

[15] Büssing A., ‚Zuwendung zum anderen – Die Geisteshaltung des Bodhisattvas', in Belschner W., Büssing A., Piron H., Wienand-Kranz D. (eds.), *Achtsamkeit als Lebensform*) LIT-Verlag, Frankfurt, 2007). Pp. 69-84.

[16] http://www.biu.ac.il/js/rappaport/Research/PDF/Hoveret%2015_01-56.pdf

[17] Rabbi Jill Jacobs, *There Shall Be No Needy: Pursuing Social Justice through Jewish Law and Tradition* (Jewish Lights, 2010).

[18] Mike Bickle, *Growing in Prayer. A real-life guide to talk with God* (Creation House, 2014).

[19] Zygmunt Zimowski, 'Presentation', XXX International Conference 'Culture of *Salus* and Welcome at the Service of Man and the Planet', Pontifical Council of Health Care Workers, November 19-21, 2015, p. 4.

2. Joy and Peace, the Foundation of an Ecological Spirituality

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Introduction

Be praised, my Lord, through all your creatures,
especially through my lord Brother Sun,
who brings the day; and you give light through him.
And he is beautiful and radiant in all his splendor!
Of you, Most High, he bears the likeness.

Many of us recognize these words. Those present here who are Italians memorized them in middle school. Do not worry, I am not here to test your memory or understanding of the *Canticle of the Creatures*, which was composed by St. Francis of Assisi in 1225-26. Rather, I recall these lines from the first poem written in Italian, in order to open the mystical vision of their author as a gift to all of you in your vocation as health care workers.

Mysticism. To many living in the contemporary, globalized context of the world today, this word might seem obscure, irrelevant and perhaps even frightening. For St. Francis, mysticism was a practical reality, something that erupted within daily life, and which opened the eyes of the heart and mind to see a very different reality that is present, capable of expressing a truth that cannot be conveyed through technological, sanitized, efficient instruments and practices. The mysticism understood by St. Francis was relational; it led him to embrace all those who were excluded in society, marginalized, and the created universe. For St. Francis, his mysticism was grounded in the relationship he was called to share with the earth he called Mother and fired by the joy and the peace its vision gave him – a joy and a peace that he invites us to embrace as our own today. Pope Francis also has expressed on many occasions that the mystical and contemplative dimension of life open within us the path towards a greater capacity to embrace, love, and care for one another and for all of creation – cf. "Interview with Pope Francis," Fr. Antonio Spadaro, https://w2.vatican.va/content/francesco/en/speeches/2013/september/documents/papa-francesco_20130921_intervista-spadaro.html.

To describe this embrace of joy and peace, I propose to speak about the following three experiences or intuitions that transformed the life of Francis of Assisi, who was born into a family that possessed material and political power, a society that was torn apart by competing forces – a landed aristocracy, an emerging merchant class, and a religious institution (the Church) that was caught in the middle, indulging at times in the pursuit of power. The first intuition that Francis of Assisi slowly came to discover was that of his understanding of the *universe as an ecology of brotherhood/sisterhood*. The second discovery was a vision of *humanity's privileged place within this universe*, a place that also bears with it *tremendous responsibility*. The third intuition of Francis of Assisi was the awareness of *the gift this vision can be for all of humanity*, and especially for those called to fulfill a vocation as healers in a wounded, dis-eased world.

The Ecology of Brotherhood/ Sisterhood

Brother sun, sister moon; brother wind, sister water; sister death. This way of speaking rings with the imaginative language of poetry. For St. Francis, though, this language, beautiful as it may be, was simple and unvarnished. It described reality as it really is, as God has seen it from the very moment He called it into being: His beloved children, human beings, organic and inorganic materials, sisters and brothers to one another. In fact, in the first nine verses of the *Canticle of the Creatures*, St. Francis does not once mention human beings but focuses exclu-

sively on the created universe, thanking God for the harmony that the creatures express towards one another, in service of praise to the Creator.

St. Francis was a convinced and convicted Christian. He believed in the doctrine of creation with all his heart. It opened his eyes to seeing the entire universe as having been born from the transcendent love of God. In love God called it into being, and in love God calls it to be itself – to give thanks for the gift of its life, in all its splendid diversity, by living the gift it received, freely and without pretense. In his poem *As Kingfishers Catch Fire*, that most Franciscan of Jesuits, Gerald Manley Hopkins, described this vision beautifully – as I am sure Pope Francis, also a Jesuit, has done in his Encyclical *Laudato Si'*.

As kingfishers catch fire, dragonflies draw flame;
As tumbled over rim in roundy wells
Stones ring; like each tucked string tells, each hung bell's
Bow swung finds tongue to fling out broad its name;
Each mortal thing does one thing and the same:
Deals out that being indoors each one dwells;
Selves – goes itself; myself it speaks and spells,
Crying, *What I do is me: for that I came*.

Paraphrasing the Jesuit poet Hopkins, what each of us do is *us*; for *this* God created us, each and every one of us: brother sun to bring in the day and sister moon to illumine the night, brother wind to make the trees dance and sister water to refresh us, and dear sister death to lead us home. Creation, in the mind of St. Francis, gave witness to a harmony of relationships, a reciprocal vocation of respect one for the other, even to give their lives for one another so that all might live and fulfill their mission of giving praise to God. And us? What about us? As these sisters and brothers glorify God by being who they are, and so in their diversity of voices sing to us of God's creative love, so too we do *us*: we uphold the dignity of this created ecology of sisterhood/brotherhood, we give it room *to be* by being who we are: living images of our loving God and bearers of the responsibility to care for all human beings and for all of creation as God cares for *us.* This was St. Francis' intuition of an ecology of brotherhood/sisterhood that took concrete form in a globalization of *fraternitas*: all things living called to share in the one vocation of helping one another to fulfill the mission to give praise to God by simply being who we have been created to be, with and for one another. It is of this same reality that Pope Francis writes, quoting the bishops of Japan: "To sense each creature singing the hymn of its existence is to live joyfully in God's love and hope" (*Laudato Si'* 85).

Words of the Word

Convinced and convicted Christian that he was, St. Francis also believed with all his soul that while we may be last in the order of creation, we nonetheless hold a privileged place within it. After all, it was not of sun and moon that God said, "Let us create [them] in our image. (Gn 1:26)" It was of us: "God created humankind in His image; in the divine image He created them; male and female He created them. (Gn 1:27)" What is more, it was not with a wisp of wind or a drop of water that God told His children about His desire to draw us to Himself and share with us the glory of His own eternal life. Rather, when the fullness of time had come, He spoke this life-giving Word in the way He had always intended to give it voice: in the flesh and blood of our own humanity, "and we saw his glory, the glory as of the Father's only Son, full of grace and truth. (Jn 1:14)"

In this light, it is clear that St. Francis was not speaking with his head in the clouds when he admonished us to keep in mind "the wondrous state in which the Lord God has placed you, for He created you and formed you to the image of His beloved Son according to the body, and to His likeness according to the spirit (*Adm.* V)." St. Francis saw clearly, in the light of his Christian faith, that *this* is who we really are: living images of God's creative Word of love. We unite our vocation with that of all of creation, as beloved sisters and brothers, to praise God by living as His children and to open ourselves to receive the further gift of a share in God's own life. This is how God sees us, and this is the life which God has never ceased calling us to live: to do *us*, truly and completely, by following in the footsteps of His Word of love made flesh, Jesus Christ.

This vision of an ecology of brotherhood/sisterhood that filled St. Francis created the conditions for him to reach out to all in an act of mercy and reconciliation, two necessary conditions for coming into an experience of unbounded joy and peace. All who are present have, perhaps, tasted such joy and peace in the medical and pastoral care of those who are ill, who are dis-eased. It is the joy that comes from knowing who you are even as you place your talents at the service of God and God's people; it is the peace that flows from the freedom of living without pretense, living in simplicity and humility, witnessing the glory of God come alive in the healing process, a process that is filled with mercy and the power of reconciliation. In a word, it is the joy and peace born from seeing, as St. Francis saw so clearly, that what a person is before God, *that* a person is and nothing more – and *nothing less*. (*cf. Adm.* XX) We are children of God. We are sisters and brothers with all creation, as an expression of what the *Catechism of the Catholic Church* intends where it states: "God wills the interdependence of creatures… Creatures exist only in dependence on each other, to complete each other, in the service of each other" (no. 340). We are the caretakers of this ecology of brotherhood/sisterhood. We are living images of God's love, mercy, and reconciling presence in the world. We are "words," (visible expressions) so to speak, of *the* Word (Logos) in whom God is uniting the world to Himself, forever. It is here that we can see the gift this vision can be for you

as healers in a broken world. It is here where mercy, pardon, and reconciliation meet, embrace, and explode upon the world. I would like to explore this briefly by way of a story.

Creating Places of Wholeness

In the Democratic Republic of Congo where I worked for ten years, I experienced countless expressions of God's ecology of brotherhood/sisterhood on a regular (indeed, daily) basis. This was particularly true whenever I entered one of the local Christian-operated hospitals and dispensaries to visit sisters and brothers from our local community. These women and men were diseased in more ways than one. Certainly, there was the illness that wracked their bodies, but there was also the *dis-ease*, an overwhelming sense that their entire world was out of order, not in harmony, which threatened their minds and hearts: feelings of being cut off from their families, friends, and village communities; from their ancestors, from the spirit forces that gave life to the natural world, and cut off from God. These spiritual forces are not divorced from God but are expressions of the faithful presence of God, of God's love and care. When human relationships break down, people no longer experience spiritual forces as something positive and joy-producing but rather as life-threatening and joy-robbing. As poor and as desperate as these hospitals could be, nevertheless they were truly places of healing, mercy, and reconciliation – patients, their dis-eased sisters and brothers, could be made whole again.

What do I mean? Come into the room with me. What do we see? Doctors, nurses, medical professions, and all the tools of the trade: heart monitors, IV bags, flip-charts – everything we expect to see. And more: we see crosses hanging on the wall where patients can see them; Bibles written in any one of a number of languages resting at their bed sides; symbols of their ancestors lovingly placed under their beds, close to the earth they call "home" and reaching back to the homes, the villages, the *communities* to which they long to return. And there is still more to see: families and friends, priests and pastors, village elders and local healers. In a word, we see all the members of the ecology of brotherhood/sisterhood to which these people belong, reverently re-created in their hospital rooms so that they might be made *whole* again – restored and reconciled to the joy and peace that comes from knowing that they are children of the God who has vouchsafed the gift of eternal life for all His children in the flesh and blood of His Son.

Yes, there were many people who never walked out of those hospitals. Yes, I watched many sisters and brothers die due to a lack of the tests and procedures and medications that we take for granted. I witnessed some families who were unable to embrace the death of their loved one because, I believe, they had never come to the experience of what it means to live in an ecology of brotherhood/sisterhood, the same as expressed in the Gospel narratives where Jesus, his disciples, and the family participate in the miracle of healing and restoring to life of those who were ill, dis-eased, or who had died (cf. Mt. 12:22-24; Mk. 10:46-52; Jn. 5:2-15; Lk. 17:11-19), and which St. Francis came to experience in his life. At the same time, I saw countless people welcome death as a sister with the same dignity – yes, the same peace and abiding joy – with which they had embraced life. Why? Because they knew that they *belonged* to a fraternity, a family, which flowed from the heart of God, from God's love and reconciling mercy. Even in death, their lives gave praise to the One from whom all life and every good comes, and this in no small part to the "world" recreated for them by the sisters and brothers they called my doctor, my nurse, my *care*-giver. Even the creatures we consume in order to sustain our life offer their own form of praise to God through the giving of their lives in order that others – in this case human beings – might live and fulfill the vocation to which we and all of creation have been called.

I believe that when allow God to provoke within us a journey of conversion, a conversion that fundamentally involves the embracing of an ecology of brotherhood/sisterhood, we will discover the tools or keys for unlocking the power of God's joy and peace in our lives. This conversion will necessarily lead us to a simplification of our lifestyles, "free of the obsession with consumption," allowing to grow within us the conviction that "less is more," (*Laudato si*, no. 222). In the language of St. Francis of Assisi, he speaks of 'sine proprio', of appropriating nothing for ourselves because all is gift, all belongs to God and is offered to us so that we might grown in our humanity, in our capacity to care for one another and care for the planet. In the words of Pope Francis, "Even living on little, (we) can live a lot, above all when (we) cultivate other pleasures and find satisfaction in fraternal encounters (an ecology of brotherhood/sisterhood), in service, in developing (our) gifts…" (*Laudato si'*, no. 223).

Conclusion

What gift does the mystical vision of St. Francis hold out to us? His vision of the universe as the free creation of a loving God? His belief that sun and moon, wind and water, even death are our sisters and brother? His faith that Jesus Christ is the one who truly and fully shows us how to be living images of God's love in and for all creation? I believe it is this: seeing that what the Most high and glorious, all-good God has called you to do as healthcare professionals is something you do best by doing *you* for each and every person God entrusts to your care. With all your heart, be their sister. With all your soul, be their brother. Allow them to see in you the joy and peace that belongs to them as God's beloved children, and help create a space wherein they might welcome these as gifts from God for their human pilgrimage. "We are speaking of

an attitude of the heart, one which approaches life with serene attentiveness, which is capable of being fully present to someone without thinking of what comes next, which accepts each moment as a gift from God to be lived to the full, "writes Pope Francis (*Laudato si'*, no. 226). In these ways, you will do your part in bringing some measure of healing and restoration to our broken world. In this way, we will all participate in the healing and reconciling of all things in God who calls us to live an ecology of brotherhood/sisterhood as the perfect expression of the joy and peace that is God's gift offered without limit or distinction to all of creation. *Laudato si', o mi Signore!*

3. Towards Ecological Pastoral Care Founded on Man's Reconciliation with Himself, the Creation and God

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Awareness about the crisis of the environment, which has been caused by the action of man and faith in limitless economic growth, is a relatively recent fact. The first critics of limitless economic growth of the Club of Rome about fifty years ago were still convinced that awareness – which could be transmitted to men – of the imminence of an environmental collapse would, due to man's instinct for survival, lead to a new way of thinking which in turn would lead to a change in lifestyles. This prediction did not come true. As regards questions connected with protection of the environment, too often people move within two ethical systems of reference that contradict each other. High ideals, rigorous rules and obligatory requirements, above all if imposed on others, are at times opposed by approaches of an exaggerated materialist kind in people's own lives.

Pope Francis in his encyclical *Laudato Si*' has recently emphasised the reciprocal relationship between the destruction and use without scruples of nature and the irresponsible exploitation of man. An intrinsic nexus exists between the two things. Instead, the Bible and Christian traditions interpret the creation as the home of life, in which God has assigned a place to man together with other creatures. Man, created in the image and likeness of God, has a special responsibility – he must serve. In this sense, a process of true humanisation has been imposed on man.

Given that it is man who projects his uncontrolled greed and his internal asymmetries onto the human throng and the environment, ecological pastoral care must start from man and his interdependence with other men. It has to point out concrete pathways for the peace of man with himself and peace with men, as well as foster their concord with the creation. The basic requirement for this is man's peace with God. The principal need, therefore, is for ecological pastoral care, and only subsequently pastoral care of ecology, with models for concrete action as an expression of the work of the Church in favour of the environment.

Man as a Point of Reference for Ecological Pastoral Care

Ecological pastoral care will take into account the experiences of the past in the field of the socio-political struggle for a change in consciences. The appeals, the warnings or the transmission of notions about the dramatic character of the crisis of the environment have still had insufficient effects. Ecological pastoral care directs its gaze to man and seeks to explore the spiritual riches of the Church and her long history of spirituality.

The invitation to follow a lifestyle in conformity with the Gospel in various ascetic traditions has always aimed at the *conversion* of man, his changing direction and his transformation. However, spiritual tradition did not want this process of transformation, with all its ascetic concrete expressions, to be guided by fear. It was a matter of fostering the affirmation of the force of attraction of life that is truly good, according to the divine command: 'we shall become mature people, reaching to the very height of Christ's statute' as we read in the Letter to the Ephesians (Eph 4:13). That goodness that descends from God is what ecological pastoral care will seek to place at the centre of attention. The creator placed in the creation what led the Greek translators to translate the word 'good' with 'beautiful' in the first account of the creation in the Book of Genesis: 'And God saw all that he had done, and behold it was very

beautiful'.[1] Indeed, the good of God is also beautiful.

Ecological pastoral care seeks to introduce the wealth of spiritual tradition, but above all else also of the ascetic tradition, into the daily limit experiences of man in this home of life. I am led to start with the limit experiences that man makes with his own home, with his own body, and/or with his own psycho-somatic constitution, but above all else with the crisis of health, with illness. The violent shaking of this house is perceived by man in an existential sense. The crisis of an illness is understood as a great challenge and is accompanied by the search for a positive overcoming of it and often with a question about meaning. Many usual concepts are called into question. However, as a rule, illness, differently from the crisis of the large home, in the home of the life of the creation, is not caused directly by man. However, such fundamental experiences of man offer ecological pastoral care points of departure for achieving greater comprehensibility. This bridge between the first home of man and the creation as a home of life is, for the Pontifical Council for Health Care Workers, a good place to discuss ecological pastoral care.

A Deeper Understanding of Health

Through their own ways of speaking about health, many people express the fact that they understand it as a wellbeing characterised by a state of absence of pain and conflict, or anyway at the least by the possibility of minimising damage of any kind. This concept of health derives from the modern search for happiness which is based upon the absence of pain and suffering in life. According to this vision, health becomes an article of consumption, a merchandise that has to be offered by medicine.

On the one hand, the wish for health involves many forms of treatment on the basis of a marked cult of the body and physical fitness, on a par with what one observes in our society as regards other luxury goods as well. On the other hand, this approach fosters a demanding attitude towards medicine, medical doctors and medical treatment. With this demanding attitude man forgoes a notable part of his self-responsibility for health, transferring the question broadly to the responsibility of medicine, medical doctors, etc., who are placed under the pressure of success.

Despite this, the cult of health directed towards fitness, to a young look and to medicine, does not manage to remove from man his fear of illness. As excessive expectations cannot be met, in the difficult existential situation of being infirm the feelings of senselessness and their various shadings appear even more threatening.

A vision of health that descends from the Christian image of man starts from a deeper basis. Health is that strength of human beings which allows them to adapt to changes in their conditions and life environments (to the different stages of life, to weakness and strength, to joy and pain) and to manage them. Man is thus attributed a strength which, despite the reduction or the loss of what in general is seen as quality of life, enables him to find a positive approach to life, as a result of which he also manages to accept 'less' with joy. The character of the gift of life becomes liveable and is not sacrificed to demanding thinking.

With his strength nourished by his sense of life inside him, man becomes capable of adapting himself to different environments through which he is led by his own life's pathway. To the basic Christian vision of health belongs the search for this interior spring of strength which, in the ultimate analysis, springs from man's relationship with God. The strength of being human beings requires a broader horizon of meaning. It is from here that one should bend the bow towards ecology and/or ecological pastoral care. It must provoke that strength of men in the interior of men so that man understands that life is a gift of God and beauty which escapes the trap of the connection that exists between technical-economic progress and 'always having more', with the promise of happiness. The emptied self – which experts in social ethics talk about – moves towards the outside and obtains hope from this kind of self-fulfilment. The strength of human beings must allow a responsible and lasting utilisation of the creation of God. This is the strength that allows forgoing and sharing, managing to recognise limitations, although seeing life as a valuable good. The simple instructions for use of ecology, in the form of appeals laws, order and prohibitions, however necessary they may be, require a control, as a result of which they are not in themselves sustainable. However, where does the strength of human beings come from?

Brotherhood with the Creation is Rooted in the Relationship with Christ

Ecological pastoral care must make Christology its hermeneutic base, that Christology which reveals to man that an encounter and relationship with Christ is the basis of brotherhood between man and the creation. With the advent of Christ who became flesh, God revealed that the creation has a purpose. It is ordered aiming at Christ. The author of the hymn to the Colossians meditates on the mystery of Christ in the creation: 'For it was by God's own decision that the Son has in himself the full nature of God. Through the Son, then, God decided to bring the whole universe back to himself. God made peace through his Son's blood on the cross and so brought back to himself all things, both on earth and in heaven' (Col 1:19-20). The creation is not a heap of matter; it is not a quarry for the needs of men. The creation belongs to Christ, even though it must offer to man a basis to ensure his existence.

We, who have been baptised in the name of Jesus Christ, are brothers and sisters of he to whom everything in heaven and

earth leads back. On our relationship with Christ depends brotherhood with the creation. This marks out Christians in terms of our commitment to the creation from those ecologistic approaches which, because of fear about the future, launch appeals for the saving of resources, wanting to prescribe forms of conduct to men whose principal goal is the conservation of the natural heritage. Faith in Christ changes the vision of life. Indeed, in him we feel that we are the beneficiaries of a gift, loved by God and thus able to live this relationship itself. The yearning to possess is the opposite of this relationship. Our orientation towards Christ, as the centre of the creation, seeks to free us from all the ties of having to have. Christ, as an event of encounter, heals our inner selves in which thoughts grow that – transmuted into acts – upset violently the equilibrium of the creation. Thus it is community with Christ that calls us to brotherhood, to harmony between man and the creation, because the way of liberation from our false selves is opened up to us. Care for the creation and its proper use become an expression of brotherhood.

A Relationship with Christ like the Relationship of Francis

If Christ is the centre of the creation and everything has been created looking to him, then man, specifically because of his relationship with Christ, achieves respect for, and appreciation of, the creation. The relationship with Christ works for the development of the human being and the person for the good of the home of life of the creation. However, we need to have spaces and places with convincing people, lived models, on the base of which it is possible to accomplish this relationship with Christ and its outcome – brotherhood with the creation. In his relationship with Christ, man can feel that he is the beneficiary of a gift and loved by God. Man learns that this love goes beyond his self because it unites and even more because it is also directed towards neighbour: the entire creation is here protected. St. Francis of Assisi lived in an exemplary way a brotherhood with man and nature which sprang from his relationship with God. His union with the Lord was even visible physically through his stigmata. From this union lived with Christ, for whom the world was created, the sun, the moon, water, all creatures and even death became his sisters and brothers. His canticle to the sun is a testimony to his relationship of love with Christ by which the whole of the creation became his family. As a person suffering physically, in this hymn he left us a wonderful testimony to brotherhood with the whole of the creation. From this also comes human ecology, to employ a modern term for respect for the dignity of every human being, born or near to being born, efficient or old and weak. The idea of brotherhood between man and the creation, therefore, is something that is absolutely Christian. However, it can arise only from union with Christ, otherwise our affection for the environment will fall into spiritism or into the practice of witchdoctors or into a naturalism that means: everything is nature and beyond it there is nothing else. If we have become brothers and sisters of Christ we can see the created world as the home of God whose finality is Christ.

An Ecology of the Heart

The strength of human beings is perceived where an 'ecology of the heart' is practised. As man projects his own mental disorder into the creation, the personal way towards a sustainable life begins in the interiority of man, so to speak with an ecology of the heart. For the same reason, for old monasticism the Biblical tradition, the surroundings of a convent and a monastery itself were the space of the presence of God. The search for God by man is equivalent to the recognition that God is searching for men and has always loved me. Ecological pastoral care, therefore, must find ways so that man with his gaze turned trustingly toward God beholds his weakness, his blameworthiness and above all his greed. A suitable possibility by which to achieve this is certainly personal spiritual accompanying.

An individual must perceive his own ideas, his own false longings, his own false feelings and his own guilt and heal them in the light of God. The rhythm, the structure, the order of life that is to say, in this case can be of help. One experience of monasticism is that interior order leads to exterior order. Our interior processes must contemporaneously find concrete expression in practical everyday life, in mutual behaviour, and in the management of the good that has been entrusted to us, respecting the creation. Ecological pastoral care will also allow, therefore, man to make himself accessible to the social dimension of his behaviour and his sin. How important this aspect is, is demonstrated by the aporia in which we have been placed through increasing economic growth and prosperity. If one posited our European prosperity as the basis of the standard of living of the whole world, the world economy would be fifteen times greater than it is at the present time.

The Christian life from the outset has been marked by a measured and moderate lifestyle. Following Jesus is not demonstrated only in the interior change of a baptised person – it is also manifested in daily behaviour and lifestyle. The letters of the New Testament offer a rich repertoire of warnings and exhortations to live in modesty without looking for the superfluous, wealth, or hyper-saturation and to be ready to share and to help. The Fathers of the Church brought out this social dimension of faith. Through their deliberately simple lifestyle, Christians have always demonstrated that they did not want to be or could be the possessors of the goods of this earth – only their stewards. Therefore today we should at the least establish some small significant signs of this faith so as to remember it, for example during Lent, by forgoing food and through the renewal of our readiness to engage in sharing.

Through the exercise of an approach of care and gratitude one

develops the capacity to manage in a responsible way food as well and live with moderation. Specifically as regards such an attentive basic approach of a voluntary measured character, it is advisable to remember that children and young people learn their behaviour and their approaches to life by example, whether that example is good or bad. We can set an example for other men, inviting them to follow our model which encourages people to imitate our approach and our good 'new lifestyle'.

The Word of God in the Creation

Given that the creation arose from the Word, it is permeated by the word of God. Reality bears within itself a message. In order to recognise this structure of the world, we must return again to being able to listen. An omnipresent and unceasing flow of superficial information and images has made us unable to perceive the word of God in the creation. Ecological pastoral care must restore to men, who are submerged by stimuli, the capacity to listen. The capacity for spiritual listening, for listening to the will of God, is the requirement for hearing the word of God. Spiritual listening is the basis of spiritual obedience but also of any true human encounter. Listening leads to respect for our neighbour and for the creation.

Note

[1] καὶ εἶδεν ὁ θεὸς τὰ πάντα, ὅσα ἐποίησεν, καὶ ἰδοὺ καλὰ λίαν. *Gen* 1,31 (LXX).

4. A New Contemplative Outlook: the Sacramental Signs and the Celebration of Rest

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At the beginning of this paper I would like to cordially thank His Excellency Msgr. Zygmunt Zimowski, the President of the Pontifical Council for Health Care Workers, for his trust in me and his invitation to this thirtieth jubilee conference.

The Holy Father Francis begins the sixth chapter of his encyclical *Laudato si'* with the following words: 'Many things have to change course, but it is we human beings above all who need to change. We lack an awareness of our common origin, of our mutual belonging, and of a future to be shared with everyone. This basic awareness would enable the development of new convictions, attitudes and forms of life. A great cultural, spiritual and educational challenge stands before us, and it will demand that we set out on the long path of renewal'.[1] As we have already heard in the previous papers given at this international conference, the Pope means a new direction for the whole of the lifestyle of individuals, not only in the fields of the environment, culture, education, politics and pastoral care, but also in the field of spirituality, with special emphasis on a new vision of the sacramental symbols. It is for this reason that my paper is entitled 'A New Contemplative Outlook: the Sacramental Signs and the Celebration of Rest'. In 1989 (the year of great political changes in Germany and in Europe) the Ecumenical Patriarch of Constantinople of that time, Demetrios I, invited the Orthodox world, and all other Christians, on the first September of every year 'to pray to the Creator of the world: with prayers of thanksgiving for the great gift of the creation and with prayers of intercession for the protection and the salvation of the world'. This appeal seemed to fall on deaf ears. The idea was taken up occasionally, for example at the second ecumenical meeting at Graz held in 1997. The *Charta Oecumenica* signed by the European Churches four years later also took up the subject. But apart from the activities of some individuals or little groups no visible result was achieved.[2]

During the Ecumenical Day of Munich in Bavaria of 2010, which in a striking way placed the Orthodox Church at the centre of its spiritual and liturgical experience, the working group of the Christian Churches in Germany *(Arbeitsgemeinschaft Christlicher Kirchen – ACK)* proclaimed in Germany an ecumenical day of the creation. This day was to be celebrated throughout the national territory of Germany, if possible on the first Friday of September, but the individual communities, because of local needs, were to be able to move the date to another day in September, and at the latest even to 4 October. This was a further enrichment provided by the Orthodox Church which begins the liturgical year in October. At

the same time we have witnessed a sort of sub-division of work by the great ecclesiastical traditions to promote Christian responsibility at an international level.

The Pope has always felt committed in a special way to peace in the world, through his diplomatic activities as well. The World Council of Churches, which has a strong evangelical direction, always speaks out for global justice. The Ecumenical Patriarch of Constantinople, the honorary head of the whole of Orthodoxy, is dedicated to ecology.

The symbolism of baptism and of water has great importance in the sacramental understanding of Orthodox spirituality. The Patriarch has taken up this theme and in blessing sees and rivers – such as the Black Sea, the Elbe, and the Amazon – has established a tangible religious relationship with the creation, From a Christian point of view, the creation is not only nature – it is also a divine gift. In the ecumenical review *Una Sancta* (2/2010), the Greek Orthodox theologian and archpriest, Georgios Basioudis, who is active in Mannheim, explained the theological core of the Christian commitment to ecology, and this is more than an adaptation to the secular fashion of the modern world. One is dealing here with cooperation between the divine and the human, between the material and the spiritual. How is God present in the world? How can the laws of nature which govern life be transparent so that we can see the Holy, the Sublime? For Basioudis, the centre of nature and of grace is found in the sacraments, in particular in the celebration of the Eucharist. In the physical, in the body, is found – as was the case with Christ – the moment of the incarnation of the eternal divine Word.

1. The New Contemplative Outlook: on Matter, Spirit or the Sacraments?

Basioudis makes himself the spokesman from his Orthodox context of a new decisive assessment – but one which is also modern and extended to the whole of the cosmos – of a way of thinking about, and living, the sacraments, first of all in the holy liturgy, in the Eucharist: in addition to the profound character of the bloodless sacrifice of the Son of God which he offered up as a reconciliation between the creature (man) and his creator (God), the Eucharist is also a banquet, a meal: 'Man is portrayed as a hungry and thirsty being. The bread and the wine, elements for the daily nourishment of man (at least in the Mediterranean area, where, indeed, we now find ourselves) are blessed and they lead to *Koinonia*, to community with God. Man needs the bread and the wine of the Eucharist, the water of baptism and the oil of anointing (confirmation, anointing of the sick) to reach God. The world, the Creation, becomes the material of man's communion with God. The respect and fear with which the Orthodox Church addresses these elements do not derive from a way of thinking in terms of 'magic' or the tendency to idolatrise them. They derive, instead, from the profound belief that the world, the Creation, is full of God, that the grace and the love of God and the energies of the Holy Spirit keep it alive'. The blessing of these elements, explains the archpriest, causes, a 'retrieval of their true dimension because they realise the task of their creation, that is to say to be instruments of the communion between man and God'.[3]

For this theologian, this aspect of grace, which is spiritual and dialogic, is at the same time also something that is very concrete, of the senses and natural. 'The Eucharist shows man as God wants him to be; as a being who eats with gratitude for his Creator, who absorbs the world in his body and transmutes it into his flesh and blood. Thus man enters into communion with God so as to then be able to work, strengthened by the food that he has received. Man is a Eucharistic being, and his relationship with the world is Eucharistic. The world is sacramental, it is the material of a cosmic sacrament. The world is the creation of God, which because of the sin of man 'suffers labour pains'…and awaits its renewal…The new Adam, Christ, rehabilitates the sacramental character of the world, rehabilitates the creation as material of a cosmic mystery, as a means of communion between man and God. And at the same time rehabilitates and manifests man as a priest and the wise steward of the creation'.[4]

2. Does Orthodoxy Love Leonardo Boff? (Johannes Röser aks)

In this broad vision of the sacramental, this Orthodox theologian feels that he is explicitly in line with the Brazilian theologian Leonardo Boff who had been treated with a certain circumspection. Towards the end of the 1960s in his doctorate at Munich, which was entitled 'The Church as a Sacrament on the Horizon of the Experience of the World' and was praised by Joseph Ratzinger and proposed for publication, as in other writings on the doctrine of the sacraments Boff had pointed out the way to a modern, illuminated and mystical vision of faith and of life. In this context, the scholar Basioudis observes an important Orthodox-Catholic linkage and agreement: from this work one can evince 'an understanding of the world as a sacrament, and the relationship of the world with God and with man is placed on a rational basis. The sacramental character of the world is based upon the goodness of the creation, the new paradigm has a positive vision of the world. It invites man to live in a Eucharistic way. It places emphasis on his responsibility for the maintenance of the creation and for respect towards his fellows and all creatures'.[5]

In the current concern of the Vatican, and especially of the Pontifical Council for Promoting Christian Unity, of the Pope Emeritus Benedict XVI and Pope Francis himself, for a Catholic-Orthodox link, from a sacramental point of view as well, it could be productive to discover in this context this special vision of the sacramental signs. Above all, what Boff says about the *Mysterion* – the Greek expression is preferred – and on

its complex expressive power in the understanding of the Church and Christ is important. Naturally enough, we do not want to rehabilitate and justify his subsequent liberation theology but, rather, to reflect on this new vision of the sacramental signs, because this vision, which lies at the central point as regards the sacraments, is much nearer to how Ratzinger thinks about mystery than is commonly thought.

3. The New Contemplative Outlook of the Dynamic of Creation

Without any doubt, the creation is something that is dynamic and in perpetual development. Physicists and biologists rebuke us for having a concept of the creation that is too static, too retrograde, as if the creation had taken place in a remote past. In reality, the creation takes places continuously, in a cosmic sense as well. The greatest part of the creation did not take place yesterday – it will take place tomorrow, with new dimensions of energy and new spiritual dimensions that are unexpected. The creation is in front of us with unimaginable energies, in a continuous process between becoming and being consumed. How can we celebrate before God what does not yet exist but which will come? How can we celebrate, beyond what is static, immobile and conservative, also what is progressive, not to speak of the creative possibilities that God has introduced during the course of evolution as its own dynamic? Equally, what does the fact that the creation is not only beautiful, good and harmonious but also consumption, catastrophes, annihilation and decline, mean for our Eucharist of thanksgiving to God? What does the fact that our small great world is in reality finite, that sooner or later the 'plan of creation' of God and natural laws between chance and determination, will fall into ruin, mean for our spiritual awareness? Does a liturgical-religious expression not exist for this terrible sensation? These insistent questions reveal an understanding of God the Creator which is at times overly ingenuous. It is probably for this reason that Pope Francis wrote the following words in his encyclical: 'Encountering God does not mean fleeing from this world or turning our back on nature. This is especially clear in the spirituality of the Christian East. "Beauty, which in the East is one of the best loved names expressing the divine harmony and the model of humanity transfigured, appears everywhere: in the shape of a church, in the sounds, in the colours, in the lights, in the scents". For Christians, all the creatures of the material universe find their true meaning in the incarnate Word, for the Son of God has incorporated in his person part of the material world, planting in it a seed of definitive transformation. "Christianity does not reject matter. Rather, bodiliness is considered in all its value in the liturgical act, whereby the human body is disclosed in its inner nature as a temple of the Holy Spirit and is united with the Lord Jesus, who himself took a body for the world's salvation"'.[6]

But there is also a bitter aspect: despite the fact that the relations between the Catholic Church and Orthodoxy after a long period of distance are becoming positively more intense, a document of the theological working group of the Orthodox Bishops' Conference in Germany requests a certain distance in liturgical celebrations. This document, which is entitled 'Prayer in an Ecumenical Perspective' and was drawn up under the direction of Professor Assaad Elias Kattan, places the emphasis in a rather defensive and restrictive way on the fact that it is not possible to celebrate the liturgy in a common way with different confessions. At the utmost there could be common prayers – that is to say functions – but not authentic divine services. In this document it is explained that in the Orthodox approach 'liturgy' refers to the holy liturgy of the celebration of the Eucharist. For that matter, it is recognised that the phrase 'divine service' in Europe has a meaning beyond the Eucharist and also refers to common prayers or functions, something which from an Orthodox point of view can be tolerated. We hope that in this field, as well, the new common contemplative vision of the sacramental signs of the Eucharist will foster a drawing near of the two Churches, above all else given that in the encyclical we can read: 'It is in the Eucharist that all that has been created finds its greatest exaltation. Grace, which tends to manifest itself tangibly, found unsurpassable expression when God himself became man and gave himself as food for his creatures. The Lord, in the culmination of the mystery of the Incarnation, chose to reach our intimate depths through a fragment of matter. He comes not from above, but from within, he comes that we might find him in this world of ours. In the Eucharist, fullness is already achieved; it is the living centre of the universe, the overflowing core of love and of inexhaustible life. Joined to the incarnate Son, present in the Eucharist, the whole cosmos gives thanks to God. Indeed the Eucharist is itself an act of cosmic love: "Yes, cosmic! Because even when it is celebrated on the humble altar of a country church, the Eucharist is always in some way celebrated on the altar of the world"'.[7]

If, therefore, the Eucharist conjoins heaven and earth, embraces and penetrates the whole of the creation….should this not become an incentive for a new unity of these Churches? It is already yearned for. 'The world which came forth from God's hands returns to him in blessed and undivided adoration: in the bread of the Eucharist, "creation is projected towards divinization, towards the holy wedding feast, towards unification with the Creator himself". Thus, the Eucharist is also a source of light and motivation for our concerns for the environment, directing us to be stewards of all creation'.[8]

Naturally enough, without refusing to acknowledge all the dogmatic, juridical, moral and structural problems of ecumenism (which the Pontifical Council for Promoting Christian Unity attends to in an assiduous way) it is specifically the new ecological vision and at the time contem-

plative vision of the sacramental signs that offers us a further motivation, a new catalyser, to achieve the unity of the Church, to express in the cosmic event of the adoration of the Eucharist not only the almost romantic and poetic totality of the creation but also the real and existential totality of the faithful and the Church so that the prayer of the Lord - *Ut unum sint!* – is answered.

4. The New Contemplative Outlook of Sunday

If, therefore, the 'first day' of the new creation is the day of the victory of the Lord, namely Sunday, then the victory of the Lord must also include its prayer for unity. And we celebrate this victory every Sunday, unfortunately still separated, each Church on its own. But if 'Sunday is the day of the Resurrection, the "first day" of the new creation, whose first fruits are the Lord's risen humanity, the pledge of the final transfiguration of all created reality', then it is precisely Sunday and its profound sacramental meaning that proclaims the unity desired by the Lord.

The achievement of the end, of the harmony, that is to say the union of the creation with its Creator and the union of the faithful with each other, proclaims at the same time also the definitive purpose of humanity – eternal happiness: '"man's eternal rest in God". In this way, Christian spirituality incorporates the value of relaxation and festivity. We tend to demean contemplative rest as something unproductive and unnecessary, but this is to do away with the very thing which is most important about work: its meaning'.[9]

Naturally here one is not dealing with 'doing sweet nothing' but, rather, and above all else, a part of our vocation which requires another way of behaving, which, as Pope Francis has written, does not achieve 'empty activism'. One is dealing here clearly with a new contemplative vision of this special rest willed by God: 'Rest opens our eyes to the larger picture and gives us renewed sensitivity to the rights of others. And so the day of rest, centred on the Eucharist, sheds it light on the whole week, and motivates us to greater concern for nature and the poor'.[10]

In his encyclical *Ecclesia in Europa*, that great Pope, St. John Paul II, wrote the following words: 'Indeed, were Sunday deprived of its original meaning and it were no longer possible to make suitable time for prayer, rest, fellowship and joy, the result could very well be that 'people stay locked within a horizon so limited that they can no longer see 'the heavens'. Hence, though ready to celebrate, they are really incapable of doing so'. And without the dimension of celebration, hope would have no home in which to dwell'.[11]

The *new contemplative outlook of the sacramental signs*, especially of the profound meaning of the Eucharist, as a sacrifice of salvation of the Son of God, as a source of strength for hungry creatures, who are sated by the gifts of the Creator, but also as 'rest' for tired pilgrims who follow their own particular vocations, can, and must, be included in that divine commandment: service to one's neighbour and especially to the tired, the weak and the poor. This service receives from its ecological dimension a universal meaning which is addressed not only to those people who share our faith but also to the whole of the creation of God, so that in the end we will find ourselves face to face with the infinite beauty of God.

As scientific proof of these affirmations that I have made in my paper, I will refer to the research of the speaker who preceded me, Prof. Arndt Büssing, who, together with Prof. Baumann and Prof. Frick, engaged in a very fine study of the spirituality of pastors of souls in Germany. He met priests and lay people who are active in pastoral care and have to combat illnesses, tiredness or even the syndrome of burn-out. The large majority of the people who were interviewed confirmed that specifically with the prayers of the hours and the sacraments, and in particular the Eucharist, even when they do not bring the peace that is wished for, strength, or interior or spiritual growth, nonetheless confer on the people who were interviewed a basic support for their spirituality. Activism, long meetings, discussions and administrative activity, on the other hand, do not do this.

In the light of what has been said above we can understand better the special features of the life of St. Francis of Assisi and we can sing with him: 'God, who calls us to generous commitment and to give him our all, offers us the light and the strength needed to continue on our way. In the heart of this world, the Lord of life, who loves us so much, is always present. He does not abandon us, he does not leave us alone, for he has united himself definitively to our earth, and his love constantly impels us to find new ways forward. *Praise be to him*!'[12] – *Laudato si*', my Lord!

Notes

[1] Pope Francis, *Laudato si'*, n. 202.
[2] Johannes Röser, Christ in der Gegenwart, 35 (2010): http://www.christ-in-der-gegenwart.de/aktuell/artikel_angebote_detail?k_beitrag=2521526
[3] *Op. cit.*
[4] *Op. cit.*
[5] *Op. cit.*
[6] *Laudato si'*, n. 235.
[7] *Laudato si'*, n. 236a.
[8] *Laudato si'*, n. 236b.
[9] *Laudato si'*,n. 237a.
[10] *Laudato si'*, n. 237b.
[11] Pope St. John Paul II, *Ecclesia in Europa*, n. 82.
[12] *Laudato si'*, n. 245.

SATURDAY 21 NOVEMBER

The Anthropological Roots of the Ecological Crisis

H.E. MSGR. IGNACIO CARRASCO DE PAULA
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The title that was given to my paper – 'The Anthropological Roots of the Ecological Crisis' – coincides almost literally with the heading of the third chapter of the encyclical *Laudato si'* (on care for our common home) which was published by Pope Francis on 24 May of last year, the solemnity of Pentecost. The encyclical, however, employs a more direct phrase, one that is less speculative, that is to say it speaks about human roots, as though it intended to remind us that the subject of the problem is real man, historical man, and not a particular paradigm of interpretation.

Given the restricted availability of time, I will refer all those present to a reading or re-reading of this text of Pope Francis. For my part, I will now make some observations which have the not taken for granted aim of understanding the thought of Pope Francis on the subject in a more effective way, taking into account the context offered by this thirtieth international conference of the Pontifical Council for Health Care Workers on 'The Culture of *Salus* and Welcome at the Service of Man and the Planet'.

The pathway that I intend to follow seems to me to be one that is obligatory: first of all it is necessary to establish what one means by the phrase 'ecological crisis' so that one can then proceed to explore the certain, or only likely, anthropological roots of this crisis.

In this encyclical the word 'crisis' is used thirty-two times yet only eleven times is this crisis described as ecological or environmental. The twenty-one other times it refers to other sources of malaise and imbalance that afflict contemporary society: malaise of a social, cultural, ethical-moral, spiritual, financial and political (and other) kind.

An analysis of the current ecological crisis should be structured – and this is what the encyclical of the Pope does – around two distinct axes: the first is of a descriptive character; the second deals with interpretation. On the one hand, the symptoms, the manifestations, and the phenomenological profile that unveil the dark face of the crisis should be highlighted. On the other, the causes, the reason for the imbalances, and the origins of the wounds inflicted on our common home should be identified.

It is obvious that we cannot dwell now on the aspect that describes a phenomenon that is extremely complex and generated by many causes, and about which many old and new disciplines can express their views. However, as regards the interpretative – or it would be better to say aetiological – part, here as well, although a one-directional reading cannot be engaged in, it is worthwhile beginning by dwelling to a certain extent on the approach that Pope Francis calls the 'technological paradigm'.

The technological paradigm is a way of approaching reality that can be ascribed to practical reason. It works according to a logic that does not follow the path or the rules of recognising the *verum*: it follows, rather, the path of the generation of the *bonum*; of good, however, not understood in a metaphysical sense but in a strictly physical sense, that is to say in quantitative more than qualitative terms, and thus with calculable statistics, concepts that can be measured, compared and/or interpreted: profit, efficacy, functionality, and so forth. For the technological paradigm, what is important is that things 'function'. Thus successes and defeats are assessed according to a fundamentally *heuristic* paradigm: what functions automatically is perceived as the promoter of well-being, as a factor for happiness, etc. Here, however, one must be careful because by its nature the technological paradigm tends to grant primacy to the 'part' over the 'whole', so that a good choice, or to put it better a choice that functions (for example managing to meet everybody's energy requirements), can be seen as a sufficient reason to go forward despite the future (that is to say not immediate) and predictable consequences at the level of injurious side effects (for example deforestation, the destruction of water reserves, etc.).

In other words, the technological paradigm, more in facts that in intentions, has acted to cover the dark side of the irresponsible use, and even abuse, of the goods with which God has enriched and made beautiful the common home. It has allowed a reckless exploitation of nature, maltreating it and transforming it fallaciously into almost an enemy of man. It has fostered a perception of the environment that is predominantly utilitarian in character: nature has

become a kind of subjected kingdom where man, adopting the role of absolute master, can freely use, consume and throw away things as he wishes.

However, the technological paradigm has been, and continues to be, only an instrumental factor. Indeed, the real subject of the choices and behaviour that have led to the current ecological crisis is human will, and nothing else but the free will of man. It should be remembered that according to the classical vision, which was taken on by Christianity, the freedom of man is not neutral, it is not indifferent, but, rather, in opposite fashion, it is directed towards good, as a result of which every choice that is contrary to true good is seen as a consequence of a mistake, of an error, or of a deception: an unhappy choice is preceded by the perception that something is good when in reality it is not. Thus the question about the anthropological roots of the ecological crisis is not only pertinent but absolutely necessary if we want to re-establish the due balance between the tenant and his natural dwelling, between the man of the third millennium – with his boundless demands – and a common home that we should hand over complete, safe and welcoming to future generations. Perhaps this is why the Holy Father, in number 118 of *Laudato si'* writes: 'there can be no ecology without an adequate anthropology'.

In the same encyclical Pope Francis provides an illuminating example of error which led to free but radically mistaken choices: 'An inadequate presentation of Christian anthropology gave rise to a wrong understanding of the relationship between human beings and the world. Often, what was handed on was a Promethean vision of mastery over the world, which gave the impression that the protection of nature was something that only the faint-hearted cared about. Instead, our "dominion" over the universe should be understood more properly in the sense of responsible stewardship' (n. 116).

This adjective – 'responsible' – is extremely clarifying inasmuch as it emphasises that man is authorised, indeed called, to act upon nature, but not in an arbitrary way and even less in an irrational way. Reasonableness, that is to say the *recta ratio* in the language of ethics based upon the *humanum* (on the nature of man), must prevail over every other value, and in particular over utility and the pleasurable.

Allow me now a short parenthesis in order to introduce an important perspective. Not many people know that at the origins of the young discipline that I have cultivated for years – bioethics – the ecological question – together with other subjects which it would not be appropriate to cite now, played a decisive role, from the oncologist Van Rensselaer Potter, who made the term 'bioethics' popular with his book *Bioethics: Bridge to the Future*, to the philosopher Hans Jonas and his work *The Principle of Responsibility*. Thus care for the environment and the defence of human life and its dignity are inseparable values, to the point that indifference towards one of them is often accompanied by contempt for the other.

To return to the anthropological roots, the Catholic faith points to a sick root that induces man into error in perceiving, and above all interpreting, reality, and, as a consequence, leads him to make bad choices. I am speaking here about the doctrine of original sin and the injurious consequences for human nature derived from the first rebellion against God, in particular the propensity to self-reference, selfishness, ambition, greed, etc. However this on its own does not seem to be an answer that is totally satisfying because the ecological crisis is a historical reality, a problem that we have not inherited from a remote past, but, rather, a phenomenon that has been produced only in recent times, a phenomenon intimately connected with the currently dominant culture – the culture of modernity. Why is this? Is it only because man possesses an almost limitless technological power which is potentially capable of razing our planet to the ground? If 'I can, thus I want to, and therefore I do' is not a complete answer, one has to continue to look into the heart of modern and post-modern man for the principal anthropological root of the crisis of the environment.

Pope Francis in n. 6 of *Laudato si'*, quotes the following words of his predecessor Benedict XVI: 'the deterioration of nature is closely connected with the culture that shapes human coexistence' (*Caritas in veritate*, n. 51). The wounds inflicted on the natural environment are the result of our irresponsible behaviour, he argues, but at the origins of this irresponsibility (we could also say irrationality) is the idea that incontestable truths that should guide our lives do not exist, as a result of which human freedom does not have limitats. One thus forgets that 'man is not only a freedom which creates itself. Man does not create himself' (Speech to the *Deutscher Bunderstag*, Berlin, 22 September 2011). He is the intelligent being that is furthest away from the myth of the superman. He is rationality but he is also nature that is created and loved by God for what he is, that is to say frail and imperfect human nature, and yet constructed in the image and likeness of God.

If we want to cancel our debt to nature, make peace with it and reconstruct a relationship of respect and friendship with it, if we want to receive and benefit in the right way from the support and security that it offers us, it is indispensable to retrieve, both in nature and in man himself, the creative and redemptive presence of God. Man has received from the Creator God the insuperable dignity of being His son and the formidable task of stewarding the whole of the creation. However, he is fundamentally a redeemed being that cannot save himself on his own; he is a being who always needs help. This awareness is indispensable if he is to rediscover his place in nature and interact fruitfully with it. God is the only Lord; we are all only free co-workers.

The Promotion of the Culture of Life of the Planet

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Board Member of the Greenbelt Movement, Kenya

On behalf of the governing board of the Greenbelt Movement, Kenya, I express our appreciation to the Pontifical Council for Health Care Workers for the invitation to this international conference. As the representative of an organisation that strives to persuade a critical mass of ordinary people to be agents of change for a healthy environment in their localities, I wish to share with you our approaches to that issue and our successes.

The history of life on the planet and of human societies is not necessarily a progressive or predictable improvement upon some previous state, and the evolution of current social structures may have proceeded through a series of contingent and fortuitous events that occurred in various global regions. Populations of people, like those of other organisms, may have adapted to, or been constrained by, the multi-factorial components of the environment in which they found themselves. Therefore, it is likely that the survival of nations (both large and small) throughout the ages has been the result, to some extent, of their capacity to innovate and adapt to most – if not all – of the threats to their existence that they encountered. The implementation of their solutions must have been difficult to achieve and probably involved a multitude of problems. In this age of human history, a number of contemporary threats to life as we know it have been reported and most of them can be traced back to some form of human activity. Rapid advances in science and technology often outstrip the educational processes that inform civil society of new developments that may have long-term detrimental effects, even when they experience immediate improvements in their lives. Therefore, large numbers of the global populations are ignorant of the potential dangers associated with some industrial innovations and seem complacent about the impact of new technological processes on their health or wellbeing.

It seems that most individuals are aware and very concerned about the dangers to the world of a nuclear conflict and of the nuclear winter that could be its aftermath. Such an event would signal the end of agriculture! But a much smaller percentage of the population is familiar with the science of genetic engineering. This science, which involves the manipulation of genetic information, has provided health-care professionals with tools to treat and eradicate some of the most devastating diseases that have afflicted mankind. However, the same technology is utilised in the food industries to incorporate alien substances into common agricultural produce. The question arises of the suitability of such biochemical modifications for all people. Perhaps a greater risk stems from the possibility of 'bio-engineered pandemics'. It is within the scope of biotechnology to make diseases, which are already in existence, decidedly worse. This might arise from an accident!

Precaution is also called for in the expansion of computerisation and computer-based artificial intelligence. The very young, even children, cleverly utilise computers for academic, social, and communication purposes. But in spite of the knowledge pertaining to computers that is possessed by ordinary members of society, very few people are acquainted with recent advances in artificial intelligence. There are contemporary designs that scale up the capability of machines to perform human tasks, and already there are computers that operate at speeds many times faster than the neurons of the human brain. Such developments may overwhelm the human capacity to integrate such equipment into the work environment without excessive loss of employment, with a resulting economic disempowerment of large segments of the labour force.

Perhaps the biggest thing to happen in industrial advances since the development of the microchip is the discovery of the nano-particle which is an even smaller object, with diameters less than 10 nano-metres in size. Such particles are utilised in an array of products like plastics for food containers to make them leak-proof or to hinder the growth of bacteria. They are also the components of materials for lightweight luggage and for stain-proof fabrics. However, the new nanotechnology could be the source of new risks to health and the environment. These micro-particles are said to be the new asbestos – and with the same possible effects. Perhaps prior to, and compounding, the fall-out from all of these modern innovations are environmental deteriorations which contribute to climate change and the damage associated with it. Consequently, we strive to modify our human behaviour to diminish the speed at which such change occurs.

Because people value continuity and their personal freedoms, getting people to consent to changing their own behaviour and their values in order to avoid some disaster is not an easy task. But today I will provide some examples of the experiences, trials and practices of a regional organisation with unique successes in convincing and mobilising a di-

verse population of local peoples to transform some new lifestyles and some contemporary values in order to save their environment.

At the time of its formation, the Greenbelt Movement attempted to address a number of needs and problems that had been brought to the attention of its predecessor, which was an environment committee. Foremost among these issues was the scarcity of water and a project revolving around water for health was initiated. But concomitant with that scarcity was a scarcity of fuel and energy with a consequent loss of forests at an alarming rate. To foster a change in behaviour, it seemed necessary to pay attention to those factors that ensure the persistence of social and cultural elements in any society. Quite often social or cultural behaviour persists due to the absence of a better alternative and so a society will continue along the same path that leads to a desired destination and obviously works. There is also a cost factor which may impede a change in routine. Equally, the socialisation of members within a society causes many people to accept and believe that their traditions and culture are precious resources that are worth preserving.

It is said that societal change is stimulated by hunger and needs. With that kind of thinking in mind, the objectives of the Greenbelt Movement as an organisation at the outset included: 1. the provision of a source of water (particularly for household use); 2. re-afforestation (with the establishment of green areas (the belts); and 3. the provision of some income for the most needy. But to reach the number of people who wanted to be involved, it was also necessary to mobilise volunteers who did not have these immediate needs. The sources targeted for these volunteers included: 1. established women's organisations; 2. Churches; and 3. schools and academic institutions.

To standardise an approach that all participants could use, the Greenbelt aMovement created an activity programme of ten steps which can be summarised as follows: a) the identification and registration of interested community groups; b) a familiarisation of these groups (through special meetings) with the procedures that they had to follow in order to acquire the resources they required to produce and, subsequently, distribute tree seedlings; and c) the establishment of a 'follow-up' protocol which allowed a payment for seedlings/trees that survived in the distribution zones.

Such efforts have produced a decreased rate of deforestation rate of 5.1% since the end of the 1990s, as reported by the Kenya Forestry Services.

It might be said that traditional societies at one time had a healthy relationship with the flora and fauna of their natural surroundings but that the advent of the 'cash economy' stimulated a change in the values system so that the attainment of cash became the priority. Consequently, the ultimate reward of cash has become an important motivating factor in protecting an environment. Perhaps this is what we call 'social economics' today. However, at least two episodes may serve as indicators of changes in attitudes with a renewed veneration for a preserved environment. One such episode related to a city forest whose imminent demise provoked such a furore that community members, well-known activists, university students and NGOs generated a solid bloc of protests and initiatives that led to the termination of so-called development activities. A similar show of solidarity was displayed in relation to the protection of a space that was to be a children's playground. The participants were happy to be part of the effort to conserve an enjoyable ecosystem! What began as a cry for the protection and conservation of green spaces has become a social habit.

A Healthy Environment for an Integral Human Development

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'The Glory of God is that the poor should live'. Paraphrasing St. Irenaeus, the Blessed Oscar Arnulfo Romero, a pastor and martyr of Latin America, reminded all the members of the Church of the task – which cannot be put off – of renewing our Christian commitment and contributing to the construction of the civilisation of Love, a new world in which there is no longer abject poverty, hunger, violence, injustice and the despoiling of the environment, and in which every human being 'has life in abundance' (cf. Jn 10:10), in full harmony with the Creation.

The signs of the times challenge us to illumine, in the light of the Word of God and the social doc-

trine of the Church, those unprecedented human situations which involve an epochal change, promoting as permanent principles the inviolability of human dignity, the universal destination of goods, the primacy of labour over capital, participation in the search for the common good, subsidiarity, solidarity, the preferential option for the poor, the excluded and the thrown away, and care for, and the defence of, our *common home*.

Human history with its lights and shadows, its successes and its crossroads, becomes a 'theological setting' for encounter with the Lord, above all starting with the concrete situation of the preferred recipients of the Kingdom, the insignificant, the thrown away, to whom the Church must show the merciful face of God who loves us with an infinite love.

Without any doubt, the love of the one and triune God reveals itself in current history as a divine, creative and provident love of the cosmos which through the mission of Jesus frees us from personal and social sin and through the gift of the Spirit encourages those who look for the Kingdom of God and His justice.

In this sense, when we are commemorating the fiftieth anniversary of the publication of *Gaudium et Spes* and the coming to an end of the Second Vatican Council, the words of the Council Fathers sound out with great force: 'Not, on the contrary, are they any less wide of the mark who think that religion consists in acts of worship alone and in the discharge of certain moral obligations' (*GS*, n. 43).

For his part, His Holiness Pope Francis, in his encyclical *Evangelii Gaudium*, in total harmony with the spirit of the Second Vatican Council, emphasises that 'no one can demand that religion should be relegated to the inner sanctum of personal life, without influence on societal and national life, without concern for the soundness of civil institutions, without a right to offer an opinion on events affecting society' (*EG*, n. 183).

An event today that concerns us in a special way is the ecological question, the need to live in a healthy environment and its connection with integral development.

What is Integral Development?

The social doctrine of the Church has highlighted that commitment to justice, to the advancement of man and to integral human development are a constituent part of Christological faith.

When we speak about integral human development, we should emphasise what Paul VI stated in his famous encyclical *Populorum Progressio* that 'The development We speak of here cannot be restricted to economic growth alone. To be authentic, it must be well rounded; it must foster the development of each man and of the whole man' (n. 14).

The Church, an *expert in humanity*, does not accept that the economic should be separated from the human. What matters for us is man, every man and every woman, every group of men, and on to the inclusion of the whole of humanity.

The above-mentioned encyclical points out that development is 'transition from less than human conditions to truly human ones' (*ibidem*, n. 20).

Over recent years there has been a growth in awareness of the close relationship that exists between development and the safeguarding of the environment.

We cannot speak about development, and even less of sustainable development, if we do not have a healthy environment and if we do not preserve the creation.

In his encyclical *Laudato si'*, Pope Francis asks us the following question: 'What kind of world do we want to leave to those who come after us... We need to see that what is at stake is our own dignity. Leaving an inhabitable planet to future generations is, first and foremost, up to us' (*LS*, n. 160).

Care for the Environment and Human Health

One need only read the encyclical *Laudato si'* to be aware of the inseparable relationship that exists between the subject of the environment and care for human health. A human being is a part of the environment and lives in a constant interchange with the environment itself, beginning with the air that is breathed. The Supreme Pontiff observes: 'Exposure to atmospheric pollutants produces a broad spectrum of health hazards, especially for the poor, and causes millions of premature deaths. People take sick, for example, from breathing high levels of smoke from fuels used in cooking or heating' (*LS*, n. 20).

Just as we cannot avoid breathing, so can we not live without drinking. And once again it is the poor who have less access to water or at least to water that is free from pollutants. As Pope Francis observes in his encyclical: 'Every day, unsafe water results in many deaths and the spread of water-related diseases, including those caused by microorganisms and chemical substances. Dysentery and cholera, linked to inadequate hygiene and water supplies, are a significant cause of suffering and of infant mortality' (*LS*, n. 29).

'*Access to safe drinkable water is a basic and universal human right, since it is essential to human survival and, as such, is a condition for the exercise of other human rights*'. To deny poor people the right to water means '*they are denied the right to a life consistent with their inalienable dignity'* (*LS*, n. 30), the Pope also observes.

The voracity of those who set themselves to cutting down forests and woodlands attacks people's health, as the Supreme Pontiff points out: 'The loss of forests and woodlands entails the loss of species which may constitute extremely important resources in the future, not only for food but also for curing disease and other uses' (*LS*, n. 32).

The consequences of ecological damage do not have the same impact on the whole of humanity. Their impact is discretional and as is always the case it is the poor first of all who are struck in a fatal way. As the Pope observes: 'The impact of present imbalances is also seen in the premature death of many of the poor' (*LS*, n. 48).

However it is the whole of humanity that is hit by climate change and by ecological damage. Here there is the perfect expression of the Latin adage: *Homo homini lupus* (man is a wolf for men). From all of this arises a duty for the Church, a duty that involves evangelisation, as a commitment towards the world in which she lives. This duty is pointed to by the Supreme Pontiff: 'The work of the Church seeks not only to remind everyone of the duty to care for nature, but at the same time "she must above all protect mankind from self-destruction"' (*LS*, n. 79).

Caring for our health is also ecological work. As Christians, we know that our bodies are sacred because they are a temple of the Spirit and a gift of God for our existence. Here the Pope states that 'Learning to accept our body, to care for it and to respect its fullest meaning, is an essential element of any genuine human ecology' (*LS*, n. 155).

A Look at Reality

In his Bull of Indiction of the Jubilee of Mercy, His Holiness the Pope gave us a clear and prophetic warning: 'Let us open our eyes and see the misery of the world, the wounds of our brothers and sisters who are denied their dignity, and let us recognize that we are compelled to heed their cry for help! May we reach out to them and support them so they can feel the warmth of our presence, our friendship, and our fraternity! May their cry become our own, and together may we break down the barriers of indifference that too often reign supreme and mask our hypocrisy and egoism!' (*Misericordiae Vultus*, n. 15).

The encyclical *Laudato si'* makes an important contribution to the concept of development and its connection with the environment.

A superseded vision of ecology concentrated its interest only on safeguarding plants, water, air and animals, without placing an emphasis on the principal work of the creation which is men and women, who are created in the image and likeness of the Creator, and without calling into question economic and political models that plunder the environment and impoverish and exclude broad swathes of the population.

According to the encyclical *Laudato si'*, 'The principle of the maximization of profits, frequently isolated from other considerations, reflects a misunderstanding of the very concept of the economy. As long as production is increased, little concern is given to whether it is at the cost of future resources or the health of the environment' (*LS*, n. 195).

The encyclical then observes that at the present time some companies 'are concerned only with financial gain' and some politicians are obsessed solely with 'holding on to or increasing their power' and not with conserving the envrionment and taking care of the weakest (cf. *LS*, n. 198).

In his speech to popular movements in Santa Cruz, Bolivia, Pope Francis pointed out that there had been imposed 'the logic of profit at any cost, without thinking about social exclusion or the destruction of nature'.

In addition, when describing the signs of death that pervade today's society, *Evangelii Gaudium* offers the following courageous denunciation: 'Today everything comes under the laws of competition and the survival of the fittest, where the powerful feed upon the powerless. As a consequence, masses of people find themselves excluded and marginalized: without work, without possibilities, without any means of escape' (*EG*, n. 53).

St. Peter's successor emphasises the terrible drama of the inequality that afflicts the whole world: 'While the earnings of a minority are growing exponentially, so too is the gap separating the majority from the prosperity enjoyed by those happy few' (*EG*, n. 56).

When looking at the reality of many of our brothers and sisters, *Evangelii Gaudium* emphasises that 'We cannot ignore the fact that in cities human trafficking, the narcotics trade, the abuse and exploitation of minors, the abandonment of the elderly and infirm, and various forms of corruption and criminal activity take place' (*EG*, n. 75).

And Pope Francis asks us: '"Where is your brother?" (*Gen* 4:9). Where is your brother or sister who is enslaved? Where is the brother and sister whom you are killing each day in clandestine warehouses, in rings of prostitution, in children used for begging, in exploiting undocumented labour?' (*EG*, n. 211).

When speaking about the obstacles in the way of achieving integral development the Pope points out that 'It is no longer simply about exploitation and oppression, but something new. Exclusion ultimately has to do with what it means to be a part of the society in which we live; those excluded are no longer society's underside or its fringes or its disenfranchised – they are no longer even a part of it. The excluded are not the "exploited" but the outcast, the "leftovers"' (*EG*, n. 53).

On the other hand, the Church perceives that climate change and its effects are aggravating humanitarian problems: hunger, disease, conflicts, natural disasters, migration and the movement of peoples.

And it emphasises that the people who are most afflicted by the consequences of climate change are the poorest.

As the bishops of Latin America warned us at Aparecida: 'too often the preservation of nature is subordinated to economic development, provoking injury to biodiversity, the exhaustion of reserves of water and other natural resources, the contamination of the air and climate change…The region is damaged by the earth's warming and by climate change which are provoked principally by the non-sustainable lifestyle that has been adopted by industrialised countries' (Aparecida, n. 66).

Missionary Disciples Going Forth at an Ecological Level

The core of what Pope Francis proposes in order to obtain a 'healthy environment that promotes development' is integral ecology, a new paradigm of justice that 'respects our unique place as human beings in this world and

our relationship to our surroundings' (*LS*, n. 15).

'The urgent challenge to protect our common home', the Supreme Pontiff argues, 'includes a concern to bring the whole human family together to seek a sustainable and integral development, for we know that things can change' (*LS*, n. 13).

Indeed, 'Nature cannot be regarded as something separate from ourselves or as a mere setting in which we live' (*LS*, n. 139). A global perspective also involves the ecology of institutions.

'If everything is related, then the health of a society's institutions has consequences for the environment and the quality of human life. "Every violation of solidarity and civic friendship harms the environment"' (*LS*, n. 142).

In the same way, in order to achieve a healthy environment we have to promote profound changes in lifestyles, in models of production and in models of consumption.

Pope Francis in his encyclical argues that the solution does not depend solely on those who govern and the powerful but, rather, it also depends on education in responsibility towards the environment in schools, families, the mass media and in the catechesis.

I fully agree with what was affirmed by the Manifesto of Churches and Christian Organisations on climate change on the occasion of the conference of the United Nations on climate change in Copenhagen: 'We make a personal appeal to become aware of our individual and family responsibilities as citizens and stewards of our common earth. This requires a change in our habits at the level of behaviour and consumption, as well as an ethical commitment to the ecological disaster of, and the imbalance in the distribution of resources on, the planet'.

The world has an increasing need of *new ethics* directed towards respect for the person and care for everything that lives. A culture of *life* with habits and customs that respect and protect our common home.

There is also a need for a *new economy* where the human person is at the centre of the real concerns of everyone, an economy where it is not money that governs (cf. *EG*, n. 58).

In turn there is a need for a *new sense of politics* as regards human coexistence and the achievement of the common good. Today the common good is not only human – it concerns people and nature.

A healthy environment requires assuring socio-economic conditions so that every man and every woman can live with dignity as sons and daughters of God; caring for and protecting nature, trees, woods, rivers and seas; love for animals and the prevention of the extinction of species; and a halt to pollution, the accumulation of solid refuse, the emission of poisonous gases and the destruction of the ozone layer.

A healthy environment against individualism unleashes brotherhood; against the accumulation of possessions, encourages sharing; and violence is left behind us so that we can achieve much-yearned for peace, which is the outcome of justice.

Praise be!

We baptised men and women who are involved in the construction of a new and more just, fraternal, supportive, peaceful and ecological world must nourish a spirituality that allows us to behold God in the Creation, to praise Him and to bless Him.

With the Psalmist today we lift up our hearts in a song of praise 'O Lord, our God, how majestic is your name throughout the world…you have made him little less than a god, you have crowned him with glory and beauty, made him lord of the works of your hands, put all things under his feet' (Psalm 8).

And with His Holiness Pope Francis we exclaim: 'All-powerful God, you are present in the whole universe and in the smallest of your creatures. You embrace with your tenderness all that exists. Pour out upon us the power of your love, that we may protect life and beauty. Fill us with peace, that we may live as brothers and sisters, harming no one.' (*LS*, 'A Prayer for our Earth')

So be it!

Educating in the Environment and Health

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Environmental factors that contribute to illness are 'modifiable and can avoid causing damage' although their consequences for health and quality of life can be 'irreversible'.

Today, the level of illness provoked by environmental contamination is one of the most important risk factors in the field of public health.

As early as 2006[1] the environment was held to be responsible for 23% of all deaths (premature mortality), 24% of all morbidity (years of healthy life lost), and 36% of the deaths of children under the age of fourteen. In devel-

oping regions, that level is 50% higher.

Few risks afflict health as much as pollution of the air. A recent resolution of the World Health Organisation[2] called attention to the fact that this highest of environmental risks is responsible for one death in every eight and is the cause of over 80% of deaths in low- and middle-income countries.

Today we know about the special vulnerability that exists during childhood and youth, the relationship between cause, exposure and effect, the environmental factors that lead to illness, and the grave consequences of the presence and the toxic impact of chemical substances that are present in the environment.

The vulnerable sections of the population include *children, pregnant women, and young people during the reproductive cycles of their lives. Exposure begins at the moment of conception*.[3]

Children are afflicted through the exposure of their parents (and their grandparents! Here we are dealing with trans-generational exposure and effects) and absorb toxic substances more and eliminate them less than adults (we are dealing here with a higher metabolic level, a higher body/volume coefficient than in adults, and immature systems of de-intoxication). In addition, they do not know about the dangers and cannot avoid them which means that they are liable to a greater number of non-intentional lesions (accidents are the principal cause of deaths in children under the age of four)[4] when the environment in which they live is not suited to their young ages and their physical characteristics and also is not suitably controlled.

The effects of exposure at an early age can manifest themselves during adulthood since children *have a longer time span than adults for the emergence of illness*.

In the *communities at risk* (for examples those that live in states of poverty and in native populations), *the environmental impact of illness can double*.

Situations of inequality and lack of access to health and to a healthy environment aggravate the circumstances that are frequently encountered in low and middle-income countries.

The characteristic which chemical substances released into the environment have of lasting over time facilitates their bio-accumulation, bio-concentration and expansion in living beings as they gradually penetrate the trophic chain – something that increases the toxic effects of chronic exposure at low doses.

Of particular concern are the effects of environmental pollutants on fertility (reproduction) and the development of the brain (expressed in behavioural problems, alterations in intellectual functions, and a deterioration in the intellectual coefficient). The fact that a chemical substance is an *endocrine disruptor* (*it acts like a hormone*), or that it is toxic in its impact on the development of the brain (*intelligence and behaviour*) and on *fertility* (*reproduction*), adds important weight to it toxic character. *A safe exposure dose does not exist*.

As an example of the perception of the toxicity of chemical substances ('safe doses'), we can cite the changes in the interpretation of exposure to lead which took place in the recent past. Today it is recognised that for every 1μg/dL of lead in the blood, the intellectual coefficient (CI) decreases by 0.25–0.5 points, and that for every10 μg/dL of lead in the blood, growth (height) decreases by 1cm. This damage is imperceptible at the outset and begins to be manifested when the lead levels in the blood reach 45 μg/dL (abdominal pains: colic similar to porphyria). In less than twenty years, tolerance levels have declined, moving from doses of lead in the blood near to 60 μg/dL in 1960/1970 to 10 μg/dL in 1991 and on to the present-day 5 μg/dL.[5] This dramatic change is due to a recognition that lead has a perceptible toxic effect on the brain.

It should be emphasised that because of its chemical characteristics, lead competes with the absorption of calcium and when this last is scarce the quantity of lead absorbed by the body is greater. It is evident that a combination of exposure and a poor environment polluted with lead, and bad alimentation, aggravates the situation.

On the other hand, we have to point out that there is a still a great deal to be learnt about the new and emerging risks, such as, for example, the toxic character, the method of action, and the exposure of nano-particles when they enter the environment. Their effects on the environment, on the beings that live in it and on human health, are still not known.

Contemporary Scenarios as Regards Health and the Environment

A correlation exists between changes in the epidemiological map and changes in *the scenario of the environment*.

In recent decades, the incidence of some illnesses has increased in a marked way. For example, the problem of fertility in young couples or of cancer in young people and in adults (especially breast cancer and prostate cancer, amongst other glandular cancers), of endocrinal illnesses (diabetes and obesity in children, hypothyroidism in young men), and of illnesses of the development of the brain (learning and behavioural problems).

A correct and accurate survey of the incidence of illnesses could provide us with an idea of their incidence at a global and regional level, helping us to outline a dynamic and up-to-date scenario for a better direction of effective initiatives involving prevention. Estimates, in general, are made on the basis of information that is provided by the more developed countries of the world.

Unfortunately, the information that we have is still partial and incomplete given that there are still regions and countries that do not gather such information, do not gather it in a suitable way, or do not apply up-to-date indicators of health and the environment in an up-to-date way. Not all public health authorities recognise and record in a harmonised and comparable way information on new indicators of health and the envi-

ronment. As a result of this situation, the definition of scenarios is still not precise or complete.

Although simple, efficient and proven instruments exist for the taking of decisions in the field of environmental public health, they are not yet widespread or applied widely enough. *We have to apply up-to-date indicators of health and illness*.

One of the most important contributions to preventable deaths is to improve and up-date the register of deaths and their respective causes. However, many countries do not do this and do not have reliable information about the risk factors that are associated with illnesses or non-transmissible illnesses.[6]

The repercussions of air pollution for public health is greater than is commonly thought and has a clinical correlation in the records relating to heart disease and cerebral-vascular accidents, not to mention respiratory pathologies (lung cancer, bronchitis, asthma and so forth).

In order to outline those scenarios that help in decision-making processes, instruments have been developed that apply context indicators (which include social determinants) relating to health and the environment, as well as initiatives to gather and analyse information. The '*Asociación Argentina de Médicos por el Medio Ambiente*' (AAMMA) has applied the MEME (Multiple Exposure Multiple Effects) Model[7] proposed by the World Health Organisation, and has also developed the '*Perfil de la Salud Ambiental de la Niñez en Argentina* – Perfil SANA.[8] This last is an instrument at the service of those who have responsibilities for decisions in the field of public health (this was published in the year 2006).

Environmental Public Health

Subjects relating to the environment are complex and multisectorial. However, opportunities for successful intervention exist in the sector of public health and these involve effective benefits for health, quality of life and the environment.

This sector has a leading role in this area. For example, measures to clean the air that we breathe must be coordinated with other sectors.

Health-care professionals have the scientific and technical training to understand the various processes that are at work, develop strategies, and launch alarm signals about the repercussions of changes in lifestyles and the impact of human activity on the environment. Strategies for the environment must be placed at the centre of public health policies.

In recent decades, thanks to new knowledge, it has been possible to update and understand the new scenarios, produce instruments to facilitate the decision-making processes, and outline strategies for environmental public health in order to implement successful initiatives in the field of the protection of health.

We should emphasise the importance of the role acquired by the sector of health in decision-making processes that relate to the environment. Stress should also be laid on the important improvement to public health that has been achieved by the elimination of certain toxic chemical substances (their production, sale and use) through international conventions. We may think here, for example, of the Minamata Convention on the elimination of mercury and the Stockholm Convention on long-lasting organic chemical substances (which include various very toxic pesticides, amongst which chemical substances catalogued as frequently used 'endocrine disruptors' which have an impact on hormonal activity).

The Roles and the Responsibilities of the Academic World

Medical doctors must be trained about the environmental determinants of health and the subjects and issues connected with the environment in general so that they can understand factors working for illness. Since one is dealing here with avoidable causes of illness, they should learn that it possible to engage in effective initiatives to change them and act to prevent exposure to them, thereby protecting the people who are most vulnerable and at risk.

It is essential to train medical doctors in the field of environmental public health who have *personal, professional and institutional commitment*, who are involved in decision-making processes, and who are ready to discuss and address problems and strategies with a multidisciplinary approach.

The academic world has immense roles and responsibilities – and ones that cannot be delegated – in maintaining instruction, information and research *independent* so as to produce human and professional values with a holistic vision of the relationship between man and the environment.

To come fully to the twenty-first century, one must direct knowledge towards current problems and scenarios, shaping thought about a sustainable form of life. One should also identify and spread reliable and independent sources of information in order to help and have a better understanding of contexts, and spread those instruments that allow a better assessment of environmental processes by connecting them to the role and the responsibilities of man, of science and of technology.

It is also urgently necessary to strengthen medical professional resources and all the sectors involved in order to encourage participation, promote inter-sectorial inclusive cooperation, define current scenarios, develop suitable policies and strategies, and engage in effective initiatives in order to stop the increase in the contribution of the environment to illness and invert the damage to the environment.

From the point of view of professional medical training, for over two decades the 'International Society of Doctors for the Environment' (ISDE) has been involved in informing and training medical doctors about the importance of environmental factors in bringing about illness.

In Argentina and the rest of Latin America, the AAMMA has en-

gaged in training activities with societies of paediatricians and has promoted within them the development of working groups in the field of environmental children's health, as well as paediatric units in hospitals. Paediatricians and general medical practitioners are important points of reference for society.

In addition, the '*Asociación Argentina de Médicos por el Medio Ambiente*' (AAMMA) has produced educational tools in the field of health and the environment for primary, secondary and agro-technical school students which are spread through specific publications.[9]

At an academic level, and once again in Argentina, for more than ten years the AAMMA has been responsible for a postgraduate course in health and the environment directed towards training university professionals in various fields, who, in one way or another, have to face these subjects in the practice of their professions (lawyers, engineers, architects, environmental technicians, and others). In addition, in 2012 the Higher Council of the University of Buenos Aires approved the qualification of the specialist physician in health and the environment which is studied for at its Faculty of Medicine. This initiative, for which the AAMMA is responsible, seeks to train medical doctors in various specialisations. There are some private universities that have already begun to include subjects relating to health and the environment in the study courses of their medical schools.

Conclusions

The increasing evidence about the impact of the environment on illness is enormous and points to a need, and an urgent need, to engage in effective initiatives to protect health and quality of life. *The sector of public health plays a central role, and a role that cannot be delegated, which must be of pre-eminent importance when it comes to assuring the right to health and to a healthy environment*.

Demonstrating the relationship between health and the environment allows us to understand the relevance of the environmental roots of illnesses, to identify the environmental sources of pollution or exposure, and to act to secure prevention. *The academic world and the professional sector must review their objectives and their strategies in order to adapt and apply their knowledge and skills to the contemporary scenario.*

The loss of quality of life, of health, or of a young life provokes profound emotional and economic injury to a family. Children have no voice at a political level and we have the enormous and mandatory responsibility to protect them. We must become more responsible and as a consequence inform people in a suitable way, *instructing without causing alarm*, thereby protecting the environment in which we live in a responsible way, an environment which we share with other living beings in this 'Common Home' of ours.

The encyclical Laudato Si' is undoubtedly a very important document which has provided us with vigorous instruments for the ineluctable task that we medical doctors have in front of us.

Notes

[1] WHO, 'Ambienti salubri e prevenzione di malattie: verso una stima del carico di morbilità attribuibile all'ambiente', 2006.

[2] http://www.who.int/mediacentre/news/releases/2015/wha-26-may-2015/es/.

[3] Widows of vulnerability during development. A window of vulnerability is a space of time when defensive measures are reduced, compromised or absent. It is an opportunity to attack something that is at risk (Oxford Dictionary).

[4] According to the World Health Organisation, the principal causes of infant mortality because of lesions are road accidents, drowning, burns, falls and poisoning.

[5] Center for Disease Control and Prevention, USA, 2014. http://www.cdc.gov/nceh/lead/ACCLPP/blood_lead_levels.htm.

[6] *About two-third of deaths (38 million a year) are not reported*: 'Understanding death, extending life', Michael R Bloomberg, Julie Bishop, Volume 386, No. 10003, e18–e19, 17 October 2015, published Online: 01 October 2015.

[7] http://www.who.int/ceh/indicators/indiconcept/en/.

[8] http://www.aamma.org/wp-content/uploads/2009/05/Perfil-SANA.pdf.

[9] For example 'Toxicología en el salon de clase' for primary and secondary schools and 'Herramientas de Capacitación para el Manejo Responsable de Plaguicidas y sus Envases: Efectos sobre la Salud y Prevención de la Exposición' for agro-technical schools: http://www.aamma.org/publicaciones/

TOWARDS AN ECOLOGY OF HEALTH-CARE SYSTEMS THAT PLACE MAN AND NOT PROFIT AT THE CENTRE OF THINGS

The Contribution of Three Experts:

1. Health-care Policy

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Your Excellencies, Your Highness the Princess of Monaco, Distinguished Guests, Ladies and Gentlemen,

Firstly, I would like to express my profound gratitude to His Excellency Archbishop Zygmunt Zimowski, the President of the Pontifical Council for Health Care Workers, for inviting me to this important meeting – this is a real honor and privilege for me. When we speak about a health-care policy that places man and not profit at the center and respects the primacy of the person over things, we are not speaking about abstract ideas. I wonder how many patients are listening to us now – but in fact we all have been, are or will become patients. Setting up the right priorities for health systems is also setting priorities for ourselves. Human-oriented health-care systems and the integration of a variety of benefits and services provided to a patient in order to meet critical health needs should be one of the main tasks of modern medicine. In order to achieve this goal, health-care policy should be shaped by important values and include such characteristics as being: person-centered; respectful of human dignity; ethical; preventive; just; available; accessible; holistic; outcome-oriented and evidence-based; and transparent.

When put into practice, patient empowerment should mean: respect for the dignity of patients as persons and not just as objects of health care; treatment of patients as suffering persons and not only as sick or disabled people who expect to be cured; respect for the wishes of patients and a readiness to adjust care to their expectations; and supporting citizens in having personal responsibility for the outcome of treatment and rehabilitation and a pro-health lifestyle.

What Can we Achieve through Patient Empowerment?

Empowered patients are able to take part actively in the management of their own health. Empowered patients are able to make informed choices about treatment and management options in managing their own condition. The benefits of patient empowerment are numerous – for patients, for health-care professionals and for health-care systems. Empowerment can bring increases in life expectancy, a greater control of symptoms, less anxiety over health issues, enhanced quality of life, and more independence and autonomy. A crucial instrument in promoting patient empowerment is patient education. I strongly believe that we can achieve this only through strong partnership between government and the civil society.

As I mentioned at the beginning of this paper, our duty is to place the good of the person above profit. But we cannot close our eyes and pretend money does not exist. The important thing is to understand that the relationship between health and economic development is complex and runs in both directions: economic prosperity is good for health and good health outcomes favor economic growth and development. The other thing to be said here is that modern health-care systems are often seen as an important part of the economy. Indeed, pharmaceutical, medical product and care-providing businesses are often some of the strongest parts of national economies and labor markets. However, governments should be aware that expensive medicine may be even more costly if left to the free market. At the same time, the responsibility of governments towards their citizens makes it crucial to safeguard equally accessible and safe health care of good quality for all those who need it. Poverty or a low social status must not be barriers for anybody. This is why public or national health care should be based on broadly regulated public or private but not-for-profit health-care institutions that act with the mission of giving help and care to all in need. Money, competition and the 'invisible hand' of the free market are not the best regulators and guarantors of the right solutions in this area.

This approach also supports more opportunities in the area of

public health. Here, too, not just saving money but also the good of the population and individual citizens should be the engine of activity. Recently, the importance of public health policy in my country, the Republic of Poland, has been systematically growing. This year we have had an Act on Public Health which defined the idea of 'health in all policies' in Polish law for the first time. The main objectives are to: increase the number of healthy years in people's lives; improve the quality of life (as a factor that influences people's state of health); and decrease the number of avoidable cases of illnesses and accidents.

The public health system will operate through the National Health Program – a document that lays down a detailed strategy and the means to its implementation – which will be adopted at least every five years. The institutional framework of the Polish public health system will include the Council of Public Health which comprises *inter alia* the representatives of all ministers, the representatives of local government, and the representatives of the health-care professions, and this body will be responsible for planning, supervising and assessing policy.

The priority actions to be taken in order to implement public health attitude in practice will be: a systematic monitoring of the health of the Polish population, and of threats to health and quality of life as a health-influencing factor, in order to identify priorities and define the best preventive actions and health programs; health education programs aimed at, and adjusted to, various age groups, in particular children and adolescents; the implementation of health-care programs that promote a healthy lifestyle, physical activity, and healthy food/diet; the elimination of health inequalities; education in the field of public health – doctors, nurses, teachers and public administration employees; and scientific research and international cooperation in the field of public health.

When we talk about human-oriented health-care systems, we think mostly about the role of the state. However, we should not forget that placing man above profit should be a *credo* not only for governments. We must remember that in order to provide universal access to health care and maintain its continuity, it is necessary to ensure a rational pricing of medical products. In my opinion, the current prices of medical products do not reflect the actual cost of their development, registration and production. In my opinion, the people who manage pharmaceutical companies should not take into consideration only their profits – they should also realize that they bear at least part of the responsibility for providing patients with sustainable access to therapies based on the medical products they produce. We are convinced that there is a need to continue and deepen the debate on the principles of the pricing of medical products by pharmaceutical companies.

I have just started my mission as the Polish Minister of Health but I am convinced that I must work to make sure that the good of every individual patient as well as the good of the health of the population should be the central focus of every action and policy of the health-care system. I strongly believe that it will be possible to achieve this. ■

2. Health-care Legislation

HON. DR. ANNA ZABORSKA
Member of the European Parliament, Slovakia

The Universal Declaration of Human Rights states in article 25 that 'Everyone has the right to…medical care and…the right to security in the event of…illness, disability…in circumstances beyond his control'. In some countries, health-care systems and policies are based on the principle of human rights as enshrined in the Universal Declaration of Human Rights and other human rights treaties. In others, health policies are shaped by religious beliefs that include the obligation to care for those in less favourable circumstances, including the sick.

From the moment of conception, every human being becomes part of the whole of mankind. The solidarity of others is our birthright because solidarity constitutes humanity. But every right must be balanced by a corresponding obligation. The right to solidarity would be an empty promise if it was not balanced by the obligation to show solidarity towards those in need, in circumstances 'beyond their control'.

Every health-care system is based on the solidarity of all people covered by it. The universality of the claim of every single human person to solidarity means that there cannot be a price tag on human health or life. At the same time, professional medical care is the result of specialisation, the accumulation of knowledge and skills, and full-time work. It comes at a cost. This cost is relative, being generated by demand and supply. This is the reason why medical care and its distribu-

tion can be described in economic terms.

Where there is demand and supply, there is also a market. In fact, when it comes to health care, there is more than just one market: the professional education market, the physician and nurses services market, the medicinal products market, and the health-care financing market. In each of them, supply and demand creates price. Every market player wants to obtain a profit by selling his products or services at a price that exceeds his costs.

In competitive markets, profit is an incentive that motivates new players to enter the market. By entering, they increase the supply of a particular product or service. Therefore, they have to lower the price in order to convince buyers to buy more then they did before. This happens until the profit is so low that it does not attract new players into the market. Long-lasting economic profit in a competitive market can only be achieved by constant cost-cutting and performance improvement ahead of industry competitors, allowing costs to be below the market-set price.

The problem is that the health-care market and its sub-markets are not competitive. There are significant barriers that block new players from entering the market. These barriers are created by legislation that follows the principle that human life has an absolute value, that it is priceless. Therefore, the aim of legislative regulation is to ensure the highest possible quality of health-care products and services. New players can overcome these barriers only at substantive costs: expensive education, research, technology, safety rules, data management, quality standards, etc.

From this point of view, it seems that the conflict between man-centred and profit-oriented health care is actually a paradox. We have markets that are heavily regulated in order to guarantee maximum protection for human life and health. However, it is this regulation that creates barriers to entering the market, thus limiting supply and preserving high profit margins.

It is also important to add that it is almost impossible to make a price estimate of the products and services deemed necessary for a particular population in a highly regulated non-competitive market. This is because this kind of market only generates distorted prices. The government may also try to examine the costs of market players and control the price. But although a regulated firm will not have an economic profit as large as it would in an unregulated situation, it can still make profits well above a competitive firm in a competitive market.

Government intervention is not the only factor that makes health care different from other areas. Another factor that is important in understanding these differences is the so-called 'third-party agent'. While the patient pays the price of the medicinal product or service, the physician acts as a third-party agent who makes purchasing decisions (e.g., whether to order a lab test, prescribe a medication, perform a surgery, etc.). The reason for this is the knowledge gap between a physician and a patient. This creates the problem of induced demand, whereby physicians sometimes base their treatment recommendations on economic, rather than medical, criteria.

The existence of legislative barriers makes the health-care markets largely uncompetitive. This means that there are fewer competitors. The absolute value of human life dictates that the quality requirements that constitute those barriers cannot be softened or removed. This means that the only way to increase competition is to increase the market. The creation of a single European market for health-care products and services could deliver exactly that. The Charter of Fundamental Rights of the European Union states that: 'Everyone has the right of access to preventive health care and the right to benefit from medical treatment under the conditions established by national laws and practices. A high level of human health protection shall be ensured in the definition and implementation of all the Union's policies and activities' (article 35).

The problem is that EU law in health care is limited in scope by the treaties to public health and cross-border health care. The former deals with a cross-Europe early warning system, approval for medicinal products and prosthetic aids, safety rules for the manipulation of human cells and tissues, clinical trials, dangerous substances in the environment, etc. The latter builds on the set of shared operating principles for health-care systems across Europe in order to create conditions of trust that underlie the principle of mobility.

According to article 168 of the Treaty on Functioning of the EU: 'Union action, which shall complement national policies, shall be directed towards improving public health, preventing physical and mental illness and diseases, and obviating sources of danger to physical and mental health. Such action shall cover the fight against the major health scourges, by promoting research into their causes, their transmission and their prevention, as well as health information and education, and monitoring, early warning of and combating serious cross-border threats to health'.

The European Parliament and the Council can adopt: '(a) measures setting high standards of quality and safety of organs and substances of human origin, blood and blood derivatives; these measures shall not prevent any Member State from maintaining or introducing more stringent protective measures; (b) measures in the veterinary and phytosanitary fields which have as their direct objective the protection of public health; (c) measures setting high standards of quality and safety for medicinal products and devices for medical use'.

They can also adopt measures concerning the monitoring, early warning and combating of serious cross-border threats to health. There is just one obstacle: the EU must respect the responsibilities of the Member States for the definition of their health policies and for the organisation and delivery of health services and medical care, the management of health services and medical care, and

the allocation of the resources assigned to them.

In other words, primary EU law respects the principle that decisions are made by those who pay for their implementation. The EU can support, coordinate or supplement the actions of the Member States but it is not allowed to interfere.

Nevertheless in the year 2011, following three years of negotiations, a new directive on the application of patients' rights in cross-border health care was adopted. It allows individual patients to seek health care in a Member State other than the Member State of affiliation.

The chosen title 'Patients' Rights' refers to a concept that is much broader in scope than the reimbursement of cross-border medical treatment. This broader concept is primarily linked to the common principles framed for the obligations of the Member State where treatment is provided. These include quality and safety standards, access to the information necessary for informed choice (i.e. transparency), the means to complain and to obtain remedies (i.e. accountability), and compensation for harm and the transgression of privacy rights.

It is important to note that the limited scope of the directive made it possible for patients to circumvent the limits placed on certain medical operations in order to avoid waiting lists in their home state. Health-care financing bodies, whether private or public, usually introduce these limits in an attempt to cut costs. As they are not caused by the lack of capacity in domestic health-care facilities, their circumvention does not mean that the waiting list gets shorter. It only means that those at the bottom of the list can force the financing body to cover their requested operation as a priority while other patients have to wait longer.

Nevertheless, this directive could be a first step towards a single European health-care market. A market covering a population of 503 million would be large enough to stimulate competition between existing players in all segments of health care, offering them single set of rules by which they could operate in all EU Member States.

As a trained doctor and Catholic politician, I do not believe in health care that only focuses on profit. It should always focus on human life. This is also why I do not believe that the highest health expenditure, measured as a percentage of GDP, is a guarantee of good health care: it is not.

But it would not be wise to ignore reality. Unlike human life, health-care products and services have a price. They are, and always will be, sold for a profit. The size of the profit is one of the parameters telling us if the health-care system is efficient. A low profit in health care is an indicator of a competitive market and the result of a good policy.

To conclude, I would like to end where I started. The universal and absolute value of human life is a source of solidarity. Health care that is humane and fair has to respect the value of life and can be afforded only if based on solidarity understood as both rights and obligations. If we get this right, the remaining pieces will fall into place. ■

3. Supportive Welfare and Models of Care

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The current historical epoch has been characterised by an evident difficulty on the part of various systems of health-care and social welfare – and this process developed above all during the course of the second half of the twentieth century – to maintain their own equilibrium and to assure those forms of protection for which they were created, namely pursuing a universalist supply of rights to health and various forms of care.

It is certainly the case that the 'global' economic crisis which exploded in the years 2007-8 brought an acute worsening of a condition of latent suffering of the various models of welfare that existed at that time. Experts in social disciplines had been pointing to this for a large number of years.

However, it is worthwhile assessing these premisses in a systematic fashion and taking into account that the scenarios have similar elements as regards the causes of the crisis and different elements as regards their ability to face up to the various problems that emerged.

It should be remembered, first of all, that it is not possible argue that there has been an overall crisis of the system of health-care welfare. This is because of the very fact that in the world there exist welfare models of health care which are rather different from each other (it is generally acknowledged that amongst the almost two hundred countries that belong to the United Nation there are no two countries that have the same health-care system).

Furthermore, it should also be

taken into account that outside the continent of Europe it is rare to encounter, in the various States, the existence of a complete system of social protection which includes health-care protection.

Europe, albeit with rather differentiated approaches, constitutes in this field an authentic exception where citizens, through a formula that is more or less directly based upon the State to which they belong, enjoy widespread individual protection as regards the various 'risks' that weigh upon their lives.

Outside the old continent, albeit with some isolated examples, it is very difficult to encounter models of universal care, and one only has to consider here the difficulty that is encountered – within the politics and the public opinion of the United States of America – by the hypothesis of achieving in that great country a system of health-care protection that is extended to all citizens.

The crisis in models of traditional welfare appears to be more marked in those countries which, in entrusting the whole system of funding, planning, government and organisation of the system to great apparatuses of public administration, were the protagonists of the 'golden period' of the welfare state which developed between the 1940s and the 1970s.

As early as 1974, Professor Victor Fuchs published the first edition of a work entitled 'Who Shall Live?' and posited an imminent crisis both of the health-care models managed by the State and of those entrusted solely to the laws of the market, as was the case of the United States of America.

Both models were characterised by evident intrinsic limitations correlated in one case (the European systems of statist public welfare) with intolerable levels of inefficiency and a waste of resources, and, in the other, with an unsustainable social inequality that was inherent in the domination of commercial economic interests.

The predictions of Fuchs were destined to turn out prophetic and this to the point that at the present time the American system is the subject of a deep and controversial revision promoted by President Obama. The European universal systems, which are of a public-statist approach, are also the subject of deep structural revisions.

The case of Italy constitutes, in this scenario, a condition that is completely singular because it remains, despite everything, strongly anchored in a public-statist model of government that has generated judgements which vary according to the different approaches as regards assessment.

Indeed, currents of thought exist that see the Italian system as one of the 'best in the world'. These boast of the positive view of the World Health Organisation which in the year 2001 classified this system in second place after the French system because of the extension of the envisaged protection to all Italian citizens. Furthermore, Bloomberg Business today sees the Italian model as one of the least expensive in the world when it comes to the health indexes of the population (overall mortality, child mortality, life expectancy at birth, etc.).

However, when the assessment moves on to the subject of the measurement of the results of treatment, or an analysis of the contents that are really offered to citizens, the judgements change and important critical elements emerge that should be taken into consideration. Different kinds of evidence emerge that point to an increasing inadequacy of the system when it comes to conserving intact its original vocation.

Very recent data have reported that in Italy people are forced to endure long waiting lists in order to gain access to public services, and they are often forced to resort to private services, not least through the channel of the '*intra moenia*' professional freelance service that is provided within state hospitals.

Almost one Italian family in every two forgoes treatment; in 41.7% of family units at least one person every year has to go without a health-care service (data taken from the 'Assessment of Sustainability of Italian Welfare' of Censis and research carried out by consumer associations for the *Ania-consumatori* Forum).

In addition, citizens pay out of their own pockets 18% of the total expenditure on health-care, a sum equal to 500 euros a head each year. Last year 32.6% of Italians paid for health-care or welfare services 'beneath the counter' (a level which reaches 41% in some areas of the South of the country).

The judgement expressed by independent international agencies appears to be rather severe as regards the protection of the rights of Italian citizens with respect to access to care and treatment, waiting times, and the availability of innovative medical products. In addition, we should not forget the imbalances and the differences that exist between the various regional territories.

The Euro Health Index placed Italy in the twenty-second place in the year 2014 of the twenty-eight countries that had been examined (Europe and Canada).

One encounters here an alarm that was already launched some years ago by the then Prime Minister, Mario Monti, who at a conference in Genoa expressed his concern (cf. *Corriere della Sera*, 27 November 2012) that in the near future 'the sustainability of the National Health Service might not be assured'.

A large part of the world of national politics declaimed against this statement and also sought to calm citizens through a special study commission of the Senate. This commission concluded that the system was 'sustainable as regards what we want to sustain' and, whatever the case, was one of the 'least expensive' of those in place in the most advanced countries of the world.

In reality, the protection of the rights of European citizens appears today to be more assured by those countries which established from the outset, or have gradually implemented, a model of subsidiarity that is increasingly adhered to and extensive.

This is the case of the middle European models that dominate the rankings – which have already been cited – of the EHCI (together with the traditional Scandinavian models which are prevalently based on a public-statist approach but also characterised by a level of corruption of the public adminis-

tration which cannot be compared to other less virtuous realities).

It is a paradox that specifically our country, Italy, which created one of the greatest exponents of the principle of subsidiarity, Don Luigi Sturzo, had to wait until the end of the year 2001 to witness the appearance of the noun 'subsidiarity' in its Constitutional Charter. Up to that moment, this charter did not appreciate the value and the strength of a society organising itself in an autonomous and supportive form but remained the prisoner of a statist vision. This vision was the offspring of the liberal and anti-clerical State of the nineteenth century and advanced uninjured, from this point of view, through the Fascist dictatorship as well.

The principle of subsidiarity, which for that matter is a central feature of the social doctrine of the Church, captures in itself the great capacity to bring back responsibility to the level of communities and individuals themselves and to free up resources, initiatives and enthusiasms at the service of the common good and shared values, thereby overcoming the limitations of a dominating bureaucracy and inflated state apparatuses.

The whole of the movement of faith-based hospitals can take on a role of a responsible and acknowledged partner in pursuing goals and tasks of a 'public value' when the organisation of the state has to recognise the strategic value of an alliance with the non-profit making world.

Non-profit making organisations are able to generate within society positive dynamics and offer to the common good the strength and the motivations of the essential reasons on which they are based.

They know how to be nearer to communities and interpret in a more direct and authentic way the needs that exist. They can also interpret a public role that is more motivated than the apparatuses themselves of public administrations.

Obviously enough, they are not immune to limitations, to defects and to possible misalignments when we take into account the reasons for their foundation. However, they possess the advantage of identifying with the reasons for their existence and these coincide with a goal of explicit service to the community.

In this sense, they can at times offer guarantees of civil engagement and responsibility that are greater than those of the public administrations themselves which at times can fall into a search for electoral consensus rather than pursuing their own institutional purposes and the protection of the common good and shared interests.

Obviously enough, human limitations can also compromise the best original insights and in short time lead to the disappearance of the credibility and greatness of historic works and institutions. However, an intelligent approach lies specifically in a capacity to read situations rapidly, understand the development of scenarios, and constitute witness within society.

The experience of the Foundation that I represent can be read from this point of view, in its capacity to fuse different histories and origins, to equip itself with a model of management and governance that are advanced in character, to place itself at the service of the general public in a transparent and responsible way, and to understand the profound transformations that are underway in our society and in the needs and the expectations of people. ■

Conclusions and Recommendations

MSGR. RENZO PEGORARO
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It is not easy to end and sum up an event that has been so involved and complex. It is not my intention to have 'the last word' but, rather, it is my wish and hope that I will bring together what has emerged in order to relaunch the subjects that have been addressed, looking forward with confidence to developments that follow on from what has been discussed at this international conference.

This has been an intense and stimulating congress and one rich in information, observations, and prospects for future action. Its guide has been the new encyclical of Pope Francis: *Laudato si'*.

This international conference, as was observed at its opening by H.E. Msgr. Zimowski, has taken place on the fiftieth anniversary of the Second Vatican Council and the thirtieth anniversary of the institution of the Pontifical Commission for Health Care Workers which later became a Pontifical Council.

This congress has addressed one of the 'signs of the times', namely the questions connected with the environment and social questions, and contemporary challenges, in order to develop a culture of the shared home, of *salus*, and of welcoming.

In an attempt to set out in systematic form some provisional conclusions and recommendations which emerged during the course of the international conference, we may identify three fundamental steps: 1) seeing and listening; 2 interpreting and assessing; and 3) changing and acting.

1. Seeing and Listening

Recognising the importance of dialogue with the natural sciences and the social sciences is of fundamental importance if we want to know the characteristics, the dimensions and the gravity of the contemporary ecological and social crisis.

Reference was made to climate change, to grave economic inequalities, and to health problems for frail individuals.

The appeal of Pope Francis was strongly heard: 'hear both the cry of the earth and the cry of the poor' (LS, n. 49).

Therefore, first of all: *to know and be aware of these grave questions* which call on the Church, all religions, all institutions, and the whole of humanity.

Seeing and listening so as to understand, at a deep level and in truth, the problems that exist and the challenges that lie ahead of us.

2. Interpreting and Assessing

In the light of Christian Revelation we are called *to discern* so as understand to the full the meaning of the creation and the dignity and the responsibility of man who was created in the 'image and likeness of God, male and female He created them'. We thus return to the anthropological question: who is man? What is his correct relationship with the creation? In order to overcome the negative tendencies of the dominant technological paradigm of limitless dominion over the creation and over man himself, the approach of an *integral ecology* which sees the relationship that exists between the various environmental, economic, social and cultural ecologies is of fundamental importance.

3. Changing and Acting

The international conference discussed *ecological conversion*, that is to say the transformation of hearts and minds in order to promote new forms of behaviour and new lifestyles.

It also addressed the problem of *social inequalities and the responsibilities of companies*: speculation in fundamental goods must be avoided so that the health and the lives of very many people, above all the poorest are not threatened.

Reference was also made to the importance of an *ecological spirituality* founded on reconciliation, solidarity, joy and peace.

The *fundamental role of education* which concerns everyone – schools, families, the catechesis, the media – was also recognised.

Also recognised was the need for greater attention to be paid to *resources such as water*, the source of life which is an indispensable good for everyone but which can also become a threat because of floods following climate change or because little care is demonstrated by man to local areas.

Reference was also made to *fair and sustainable health-care systems* so as to achieve true care for everyone.

All of this becomes *recommendations and commitment*.

All of this requires new concrete operational forms as well as trust and hope. At n. 244 of *Laudato Si'* Pope Francis says: 'In the meantime, we come together to take charge of this home which has been entrusted to us, knowing that all the good which exists here will be taken up into the heavenly feast. In union with all creatures, we journey through this land seeking God…Let us sing as we go. May our struggles and our concern for this planet never take away the joy of our hope'.

I would like to end repeating the following important recommendation: act with commitment, with the joy of hope!

Conclusions and Recommendations

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Before offering some conclusions and recommendations, it seems to me to be necessary to make three initial introductory statements: a) it is certainly not easy in fifteen minutes to summarise this international conference which has lasted two days and a half; its multidisciplinary and very complex character makes this even more difficult; b) despite everything, an attempt will be made to offer a transversal reading, emphasising certain relevant points, naturally enough running the risk of not being complete; c) the presentation of the questions and issues involved is addressed through a theological, anthropological and relational vision with the need to maintain the vertical dimension and the horizontal dimension of Christian reality which are addressed together.

A. Conclusions

1. First of all, those taking part in the international conference expressed their deep gratitude to Pope Francis for his encyclical *Laudato si'* (*LS*). This was seen as a special gift and a challenge for the whole of humanity. An appreciation of the general subject that was chosen, which is of contemporary relevance and attractive to the utmost, was also to be observed. The contemporary relevance of the subject and the interest in it was confirmed by the numerous presence of participants from all over the world.

2. The contribution of the Pontifical Council for Health Care Workers over the last thirty years in the field of the culture of life and in the field of care for sick people, in particular through the foundation of the Pontifical Academy for Life, the *Charter for Health Care Workers*, the World Days of the Sick, and the Good Samaritan Foundation, was very much appreciated at the international conference.

3. The international conference emphasised the continuity and the discontinuity of challenges to life and to human dignity. To the multiple crimes and attacks against human life and its dignity, which were already listed in *Gaudium et Spes* (n. 27) and taken up in *Evangelium Vitae*, have been added, unfortunately, ones that are increasingly new and more sophisticated and which do not only damage man but also the whole of the creation. The contemporary relevance of this vision fifty years on has been confirmed by Pope Francis: 'Yet it must also be recognized that nuclear energy, biotechnology, information technology, knowledge of our DNA, and many other abilities which we have acquired, have given us tremendous power…an impressive dominance over the whole of humanity and the entire world. *(LS*, n. 104).

4. The contemporary relevance of *Evangelium Vitae* after twenty years and its messages for action at a personal, community, social, political and legislative level was emphasised. The fundamental lines of the theology of life of Benedict XVI, which have a Christocentric, Trinitarian, ecclesiological and pneumatological character, were also described. These lines echo in the gospel of creation, are expressed in *Laudato si'*, and aim at 'service of life, especially human life' (*LS*, n. 189). In the view of Pope Francis, 'The work of the Church seeks not only to remind everyone of the duty to care for nature, but at the same time "she must above all protect mankind from self-destruction"' (*LS*, n. 79).

5. During the international conference stress was placed on the central value of human life as 'a gift which must be defended from various forms of debasement '(*LS*, n. 5) and on the close connection of the question of the environment with an anthropological vision of man. This something that Pope Francis has emphasised: 'There can be no ecology without an adequate anthropology' (*LS*, n. 118). Those who respect man also respect the creation. And vice versa: those who damage the creation, are also ready, and will be ready, to destroy man as well.

6. Against the contemporary 'technocratic paradigm' (nn. 106-114) which exploits and discards man, especially those who are poor, weak and sick, one must oppose the 'culture of care' (n. 231) which bends down to the other and invites us to 'cultivate and steward' our earthly garden through work (nn. 124-129).

7. The international conference gave voice to the challenges of the Pope and his cry in favour of human dignity and the creation. It encouraged a friendly handshake between man and things, which have become rivals; it sought to replace the 'throwaway culture' with a new lifestyle marked by Christian altruism, by simplicity, by humility and by sobriety. Against the selfish anthropocentrism of post-modern contemporary man with his needs to buy, to possess and to consume objects, obsessed by the technocratic paradigm which is dominant and aggressive, the international conference sought to sensitise people's hearts and to invite people to change their lifestyles.

8. It appreciated the efforts, the creativity and the witness of individuals, volunteers, groups, associations and institutions in the field of the promotion and the protection of a 'healthy world'.

9. The international conference invited people to be convinced witnesses to life and hope. Emphasis was laid on the Christian experience as regards the creation, according to which 'all the creatures of the material universe find their true meaning in the incarnate Word, for the Son of God has incorporated in his person part of the material world, plant-

ing in it a seed of definitive transformation' (*LS*, n. 235).

10. Those who serve others imitate Christ and he will reward them generously. This knowledge, which recognises love that has been received gratuitously, motivates people to act generously and responsibly.

11. The international conference addressed a broad scientific subject and addressed certain burning topics for man and nature at the level of their interconnection. In particular, the well-known method applies to these fields: see, understand, respond. Scientific knowledge invites us to understand, to analyse and to approach things well in competent, professional and responsible action.

B. Recommendations

1. There is a need to accept and promote theological anthropology which assures respect for the hierarchy of being: God as the Creator, man as the summit of creatures and of nature which is a gratuitous gift for him to steward and to develop in line with the Lord's project for the creation.

2. A more effective defence and promotion of human dignity, the common good, subsidiarity and solidarity. In other words, a more effective promotion of the social doctrine of the Church.

3. A mobilisation of our own consciences and the consciences of other people in favour of the culture of life, of *salus* and of welcome. What is expected of me, of my family or of my community? What can I do? How can the consciences of other people be woken up?

4. The importance of prayer, of Sunday rest and of joy to praise the Lord for being able to distance oneself from work and be aware of the Christian life. Reference was also made to the need for ascesis and fasting in order to defeat evil.

5. The urgent need for a 'courageous cultural revolution' that uses scientific knowledge and technological opportunities for integral development which has a truly human face (cf. *LS*, n. 114).

6. Proposals: 'less is more' and 'a return to simplicity' (*LS*, n. 222). These, in a nutshell, are invitations to a new lifestyle at an individual, community, institutional, national, international and world level.

7. Justice is legislation and access to drinking water and public health for everyone. The need for listening and dialogue at all levels – the personal, the business, the institutional, the political and the international.

8. The environment and man are interdependent. Hence the need for the development of environmental medicine, an environmental pharmacology and environmental pharmokinetics

9. Patient, innovative and courageous formation in places of education in relation to ecology: places such as the family, schools, Christian communities, national and international institutions, and so forth.

10. Having the courage to put into practice the solidarity and the charity of the Good Samaritan in caring for the sick, the weak and the poor.

11. Working together, joining forces, cooperating closely and drawing up more effective strategies for the culture of the life or the 'culture of care' (*LS*, n. 231).

12. 'No' to mediocrity and superficiality in acting but 'yes' to generosity in the eyes of the Father who sees everything.

13. A Christological outlook towards Christ, the new Adam, which leads to hope, to trust and to reconciliation with God, with ourselves and with the creation.

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