

## **REFORM OF THE PONTIFICAL ACADEMIES OF SCIENCE: ISSUE OF HUMAN LIFE AND THE ENVIRONMENT**

### **EXECUTIVE SUMMARY**

The Catholic Church has a long history of advancing knowledge and obtaining the insights of science in order to better pursue Her religious mission. The Pontifical Academy of Science (PAS) and the Pontifical Academy of Social Sciences (PASS) were established by 20<sup>th</sup> century popes to contribute to this important task. Recent joint work of both academies has focused on issues of environmental protection and human health and development. These topics raise issues beyond strictly scientific matters and enter the realm of policy, ethics, and morality.

In considering environment and human development, the academies appear to draw on a secular culture and mindset that overlooks, and in some cases opposes, the Church's moral perspective and principles. This tendency comes sharply into view as a persistent focus on reduction of human fertility and population, which emerges frequently as a recommended "solution" to a range of problems. This situation has become a systemic and urgent.

In recent years, several scholars, some PAS members and invited speakers, have publicly endorsed the idea of population reduction through abortion and/or contraception as a means of achieving what they call environmental sustainability. In a 2014 PAS event, PAS member Partha Dasgupta advocated for expanded access to birth control facilities in order to reduce fertility rates in sub-Saharan Africa. Later that year, Prof. Jeffrey Sachs used his platform at a PAS event to encourage leveraging the moral authority of the Catholic Church to support his UN Sustainable Development Goals which are closely tied to — or actually incorporate — population-reduction programs. Both of these endorsements were published in official PAS documents. The Church does not share these goals, but the Church's voice in the forum where these ideas are raised has been weak or silent.

Recent activities of PAS and PASS promoting human population and fertility reduction do not appear to take account of current demographic realities of low fertility in most of the world and near stable birth numbers overall. Large parts of the world are now experiencing severe challenges from aging (lack of young) or declining human populations, but the programs to reduce fertility are still promoted in urgent terms. Scholarship needs to be based on accurate perception if it is to be useful.

It is the sincere hope of the signers of this document that the ecclesial authorities responsible for the integrity of the PAS and PASS and the consistent teaching of the Catholic faith will carefully and prayerfully consider the problems we have identified and the recommendations we have made. Because of the gravely serious nature of the problems identified herein, the reality is that leaving these issues unaddressed could be disastrous; human lives, and more importantly, immortal souls, are at great risk.

## STATEMENT OF THE ISSUE

### **The Catholic Church and Science**

1. The Catholic Church is an institution founded by Christ to teach and proclaim the Gospel, to administer the sacraments for the growth in holiness of its members, and to bring about the redemption of the world in Christ.
2. The mission of the Church is to make disciples of all nations, baptizing them in the name of the Father, and of the Son, and of the Holy Ghost (Mt. 28:19). As this sacred mission is fulfilled throughout the world, the social, economic and political character of nations is transformed by the action of God's grace. However, Our Blessed Lord made clear that there is a distinction between the mission of the Church and the works of civil authority (Mk. 12:17, Mt 22:21). The Church's role is not "... to propose concrete political solutions, which would lie altogether outside the competence of religion – but rather to help purify and shed light upon the application of reason to the discovery of objective moral principles."<sup>i</sup>
3. In carrying out Her mission, the Church has always sought out and valued the genuine insights and specialized knowledge of science and scholarly work in general.
4. To assist in obtaining scientific knowledge for human betterment and the greater glory of God, the Church fostered the development of the university. Starting centuries ago, popes sponsored a scholarly academy to bring the latest insights of various sciences to Her attention.
5. The current Pontifical Academy of Science (PAS, established 1936) and Pontifical Academy of Social Science (PASS, established 1994) are advisory groups charged with providing empirical findings to the Church without regard to the religious background (or lack of such) of its members. Expertise in religion, philosophy, or theology is not a criterion for appointment to the PAS, and these subjects are not particular competencies of their work<sup>ii</sup>.
6. The PAS is composed of 80 members nominated by existing members and appointed by the Holy Father. Existing PASS members nominate ordinary academicians who are appointed by the Holy Father, and who serve until age 80, when they may be appointed by the Holy Father as honorary academicians based on competencies in the social sciences and of their moral integrity. The PAS has a mandate in six areas, including fundamental science; Science and technology of global problems; Science for the problems of the developing world; Scientific policy; Bioethics; and Epistemology. PAS claims "... complete freedom in method and research..." as a "source of objective information upon which the Holy See and its various bodies can draw."<sup>iii</sup>
7. Recent popes have taken a keen interest in questions of policies and actions related to the environment, most recently expressed in Pope Francis' encyclical *Laudato Si'*<sup>iv</sup>

8. In the last few years, the Pontifical Academies have sponsored a series of meetings on themes of the environment, including biological extinction, human health and the environment, and integral human development<sup>v</sup>.
9. Increasingly, as their work on environmental topics has become a more prominent part of their agenda, the Pontifical Academies have broadened the topics of assessments and reports into normative issues of which environmental policies *should* be adopted.
10. However, science cannot “prove” moral positions. Scientific instruments, measurements, or models cannot prove that human persons have rights — that they should be treated in a certain way and not be abused in other ways. That’s not what science is supposed to do. Such questions are in the realm of religion and morality.

### **The Pontifical Academies and Population Policy**

11. In general, there is a notable relationship between policy-related recommendations that emerge from the academies and the social consensus of the modern, highly secular culture of research institutions their members are drawn from. This narrow culture, afflicted with worrisome signs of intolerance of diverse viewpoints and genuine debate, cannot be relied on to provide the full scope and depth of thinking which the Church needs in addressing the moral aspects of environment/human development policies.
12. A prominent theme that can be found in the works of experts consulted by the Pontifical Academies has been a consistent, even zealous, tendency to identify “excessive” human population as the fundamental cause of environmental problems. Even some Academy documents reflect these ideologies. In simplified media accounts of this issue, the near-term prospect of a rapid increase in human population is often cited as a sort of final stage of environmental destruction. However, widely available information from reliable demographic studies and reports demonstrates that the recent level of births globally is very nearly stable now and likely to decline further for some time to come<sup>vi</sup>.
13. Many societies, widely distributed across the Earth, have reached such low fertility levels that the loss of cultures, which are a significant heritage of the entire human family, is a very real possibility.
14. Manifestations of the extraordinarily low and unsustainable human fertility levels in much of the world already are obvious regarding issues such as economic stagnation, unsustainable future financial obligations for debt and old-age retirement, lack of resources to care for the dependent elderly, and the challenges of dealing with large scale population replacement by the influx of new people.
15. The charitable works of the Catholic Church extend all the way back to the origins of the Faith and are rightly regarded as a one of the Church’s major contribution to human civilization. However, the implied message in some of the Academies’ human development

and environmental recommendations is that in order to foster true environmental protection, the Church needs to endorse a state role to reduce population *per se* as a social responsibility. A misunderstanding of paragraph 2372 of the *Catechism of the Catholic Church* has even been cited as a justification:

“I want to say that also in the *Catechism of the Church* it says...the state has a responsibility for its citizens’ well-being. In this capacity, it is legitimate for it to intervene to orient the demography of the population.”<sup>vii</sup>

### **Justifying Population Reduction through Human Development and Environmental Protection**

16. Recognizing that the concept of eliminating future human life to foster environmental protection in general is an unattractive prospect at best, international organizations increasingly make recommendations that are an integrated mix of human development and environmental goals. A large share of what is described as integral or sustainable human development is targeted at the few remaining areas of above replacement level fertility, especially sub-Saharan Africa.<sup>viii</sup>

17. Many prominent organizers and speakers at Academy conferences have a consistent record of advocating for methods of population control, including abortion, contraception and sterilization, in direct contravention of clear Catholic moral teaching. Examples of the advocacy of illicit approaches to population reduction can even be found in documents published by the Pontifical Academies themselves. For example:

“There can be no question but that empowerment of women, a desirable end in itself, lowers fertility, other things being equal. There can also be no doubt that access to birth control facilities would help matters (Royal Society, 2012). But other things are not equal, and there are features of African societies that encourage high fertility.”<sup>ix</sup>

18. The Pontifical Academies routinely state that they are independent (self-selecting) bodies that do not speak for the Church, thus properly allowing them to pose interpretations of facts that can be at variance with established Church teaching. But clearly, they often count on ambiguity or confusion in the public on this critical point to suggest moral legitimacy for their proposed societal policies and measures.

19. Despite qualified denials or selective silence of some participants in the activities of Pontifical Academies, fertility reduction persistently figures in reports and conferences, sometimes implicitly in the very perspective taken on an issue. This is particularly so in the use of terms for conference titles and reports that include environmental protection and human development goals or strategies. In general, there is an unwillingness to take full responsibility for what is actually being pursued or advocated – population limitation under many forms, including under various forms of inducement or coercion by morally objectionable means.

20. A key theme in recent examination and recommendations of environmental and human development topics has been “sustainability” or “sustainable development.” These somewhat ambiguous terms have less credibility in scientific ecology than in the global social or economic policy arena. Significantly, a number of advocates of sustainable development insist that downward manipulation of human reproduction through abortion and incentivized contraception are essential components of sustainability.<sup>x</sup>

### **Advocating Sustainable Development Goals to Endorse Population Reduction**

21. Many of these problematic issues are reflected in the position and influence in the Pontifical Academies given to Dr. Jeffrey Sachs, whose promotion of population reduction is found in nearly every aspect of his work. In particular, as the primary architect of the Sustainable Development Goals of the United Nations, he is one of the leading designers and advocates for population reduction targeted toward the poor. A number of quotes from Sachs’ book, *The End of Poverty*, underline this point.<sup>xi</sup>

A) Sachs applauded the contraceptive measures implemented in Bangladesh to reduce high fertility rates:

“The jobs for women in the cities and in rural off-farm microenterprises; a new spirit of women’s rights and independence and empowerment; dramatically reduced rates of child mortality; rising literacy of girls and young women; and, crucially, the availability of family planning and contraception have made all the difference for these women. There is no single explanation for the dramatic, indeed historic, reduction in desired rates of fertility: it is the combination of new ideas, better public health for mothers and children, and improved economic opportunities for women. The reduced fertility rates, in turn, will fuel Bangladesh’s rising incomes. With fewer children, a poor household can invest more in the health and education of each child, thereby equipping the next generation with the health, nutrition, and education that can lift Bangladesh’s living standards in future years.” (page 14).

B) Other passages from his book show that his entire blueprint for reducing poverty is the reduction of fertility rates:

“Modern contraception has contributed to a dramatic reduction in total fertility rates, from a world average of 5.0 children per woman in the period 1950 to 1955 to 2.8 children per woman in the period 1995 to 2000. Family planning programs have played an enormous role in providing advice and information, advocating and assisting in the empowerment of women, and promoting modern contraception, although many other factors (women’s literacy, women’s entry into the nonfarm labor force, reduced child mortality, and urbanization) have played important roles. The United Nations Population Fund (UNFPA) was established in 1969 to help coordinate this effort, and it currently operates in 140 countries. It has helped to spur a massive increase in the use of modern contraceptives among couples in developing countries, rising from an estimated 10 to 15 percent of couples in 1970 to an estimated 60 percent in 2000. This program has been an example of scaling up par excellence, but the unmet needs are still massive, since funding for contraceptive availability in the poorest countries is far below needed levels.” (pages 279-280)

“As mothers find improved economic opportunities out of the house-hold and off the farm, the time expense of raising children (in terms of lost wage income) rises as well. And, of course, as households are able to obtain modern health services, including family planning and modern contraceptives, they are able to follow through on their changing desires about family size. All of these factors explain why most of the world has achieved a marked reduction of total fertility rates and a sharp slowdown in population growth. This phenomenon has not yet come to rural Africa, where the enabling conditions—child survival, girls' education, women's job opportunities, access to water and modern cooking fuels, and access to family planning and contraception—are not yet in place. The investments to end extreme poverty in Africa (and elsewhere) are the very same investments that will produce a rapid and decisive drop in fertility rates in a short period of time.” - (page 342)

22. Strikingly, a number of current models for the implementation of sustainable development with which the Pontifical Academies have associated themselves incorporate illicit programs for population reduction. In this regard, it is notable that population reduction/elimination is often mixed with true humanitarian goals in recommendations across fields as diverse as natural resource management, human health, and economic reforms. The Sustainable Development Goals, and their predecessors, the Millennium Development Goals, all follow the same model established in Dr. Sachs' book. The Sustainable Development Goals currently include spreading contraception as a means of reducing fertility rates.

Goal 3.7 “By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programs.”

Goal 5 “Implementation and accessibility of the Sexual and Reproductive Health Rights to women and girls globally.”

### **The Church Does Not Share Goals with Population Reduction or Elimination Programs**

23. Given the involvement of the Pontifical Academies in these topics, a highly problematic situation has been created in which an apparent goal is to convince the Catholic Church to give moral authority and weight to the adoption and implementation of the SDGs. This will inevitably include their morally objectionable components. There is a clear and present danger to the salvation of souls throughout the world by implying that there can be a common interest between the Church's social teaching and secular humanitarian goals which include morally illicit reduction of human fertility rates and population. Dr. Sachs has said<sup>xii</sup>:

“I personally believe that the social doctrines of the Church offer a global inspiration on these issues, across the major religions. I refer to Church social teachings that, in my mind, are fundamentally in line with Sustainable Development and the SDGs.” ... “In the final analysis, we do not face an economic, technological, or financial crisis. We face a moral crisis. If we can rally our spirit, the rest will follow. As Pope Francis has powerfully put it, we face the “Globalization of Indifference”. **The SDGs (and other global objectives) can help us to over-come that indifference.** By engaging global society through clear global goals, and by infusing those goals with **a shared moral underpinning**, humanity in our time can step back from the environmental precipice. We can achieve prosperity, social trust, and a safe planet. Indeed,

any other course of action would threaten our very survival. Our course must be one of hope, cooperation, compassion, and positive action.”

24. In recent meetings, the Pontifical Academies of Science and Social Sciences have included invitations to prominent political figures. While this is a perfectly legitimate thing to do when the subject warrants it, the recent increase in the role of political figures in Academy conferences runs the risk of politicizing what are intended to be scientific events.
25. A particular concern is the dominant to exclusive selection of politicians whose moral attitudes and philosophies are in direct conflict with Catholic teaching. Catholic lay faithful find it difficult and disturbing for public officials or office seekers who work directly, persistently, and vigorously against Church teaching on grave matters of life and family to be given a platform at a Vatican-sponsored event. A number of recent examples illustrate this point. At the most recent PAS event, political figures Jerry Brown, Kevin de Leon, Scott Peters, and Lise Van Susteren were all given a platform to speak.

A) During his 2010 campaign for governor of California, Jerry Brown said, “I have also been an uncompromising champion of a woman's right to choose.” In 2013, as Brown signed a bill into law that expanded access to abortion by allowing nurses to perform non-surgical abortions, he wrote "This provides good value for patients of modest means."

B) Kevin de Leon, currently running for US Senate, highlights on his campaign website his support for federal funding for the largest abortion retail chain in America, Planned Parenthood Federation of America. He has a 100% rating from Planned Parenthood, NARAL Pro-Choice America, and the California Abortion and Reproductive Rights League. In 2015, de Leon said, “Planned Parenthood is the most trusted women’s health care provider in this country, and has provided safe high-quality care to both women and men for nearly 100 years.”

C) Scott Peters has co-sponsored several bills in the US House of Representatives that would expand access to abortion and contraceptive birth reduction. Representative Peters took the extreme step of voting against the Pain-Capable Unborn Child Protection Act, which would have prohibited abortions after 20 weeks gestational age.

D) Lise Van Susteren, a psychiatrist, ran for the US Senate in Maryland in 2005. During her campaign, Van Susteren provided strong and persistent support for abortion as a legal right, and said she holds "a special contempt" for politicians who have blocked the expansion of embryonic stem-cell research.

The Catholic lay faithful, anxious to conform their lives to the teachings of Christ and the Church, could well ask why such individuals are being given a platform in the Vatican to influence others to live in opposition to the Gospel of Life.

### **Protecting Vulnerable Human Life and Protecting the Environment**

26. The legitimate concerns of the Pontifical Academies regarding the environment and the needs of human development reflect a welcome attempt to fulfill a stated PAS goal of “Achieving a role for science which involves the promotion of justice, development, solidarity, peace, and the resolution of conflict.” However, the trajectory of work by the

academies has gradually but persistently injected a population reduction goal or bias into its analyses and reports. This has created a confrontation with a fundamental orientation of the Church toward the value of human life. As Pope Benedict states in his 2009 Encyclical *Caritas in Veritate* (44):

“The notion of rights and duties in development must also take account of the problems associated with *population growth*. This is a very important aspect of authentic development, since it concerns the inalienable values of life and the family. To consider population increase as the primary cause of underdevelopment is mistaken, even from an economic point of view.

27. In the encyclical *Laudato Si'* Pope Francis identifies a logical contradiction of mobilizing concern for vulnerable life on the planet while at the same time advocating the elimination of vulnerable human life in its early stages:

“Since everything is interrelated, concern for the protection of nature is also incompatible with the justification of abortion. How can we genuinely teach the importance of concern for other vulnerable beings, however troublesome or inconvenient they may be, if we fail to protect a human embryo, even when its presence is uncomfortable and creates difficulties?” (LS 120)

28. In direct contradiction with the population control agendas of several current PAS members and many PAS speakers and participants, Pope Francis made clear in *Laudato Si'* that:

“Instead of resolving the problems of the poor and thinking of how the world can be different, **some can only propose a reduction in the birth rate**. At times, developing countries face forms of international pressure which make economic assistance contingent on certain policies of “reproductive health”. Yet “while it is true that an unequal distribution of the population and of available resources creates obstacles to development and a sustainable use of the environment, it must nonetheless be recognized that demographic growth is fully compatible with an integral and shared development”. [28] **To blame population growth instead of extreme and selective consumerism on the part of some, is one way of refusing to face the issues.**” (LS50)

“Christian thought sees human beings as possessing a particular dignity above other creatures; it thus inculcates esteem for each person and respect for others. .... **Our relationship with the environment can never be isolated from our relationship with others and with God.**” (LS119)

## **CONCLUSIONS**

29. The Catholic Church exists for the salvation of souls. She has a long history of sponsoring and conducting scientific research, education, and human advancement. The Pontifical Academies of Science and Social Sciences are useful institutions and provide a valuable forum for dialog with the Church about the latest and most advanced findings on difficult and challenging issues as well as knowledge of exciting discoveries.

30. Since the time immediately after her foundation by Christ, the Church has always described Herself as “... one, holy, Catholic, and apostolic ...” In secular terms, this is manifested as a worldwide, unified, yet multicultural institution that professes and teaches a common Faith. These are attractive characteristics for those wishing to leverage global issues or effect change on a global scale.
31. The world faces a number of serious challenges from issues relating to the environment. Resolving these challenges and providing the conditions for human life to thrive is both an issue of scientific, technical, and social/economic expertise and a matter of human capacity, will, and morality. Secular efforts to address such challenges always face the question of the moral and ethical guidance to be followed, and indeed the ever-present temptation to suspend moral and ethical principles in pursuit of quick results for what is perceived to be a larger good. Even programs aimed at addressing humanitarian needs can contain unjust, ineffective, or morally unacceptable elements. Globally organized programs of human development and environmental protection or management have been particularly prone to this problem.
32. A chronic problem in the operation of the academies recently has become acute. The Pontifical Academies, in their focus on issues of global environmental challenges and human development, have been importing secularist values, perspectives, and philosophies into their documents and statements, making it appear as if the Church was morally uncertain and is holding open different views on core teachings at the heart of Gospel teaching on matters of grave importance. The Church cannot accept, especially implicitly, that humanity can contracept and abort its way to a healthy environment, economy, or society.
33. **The problem is not the secularist scientists or economists of the Pontifical Academies as much as it is the Church supervision of the Academies. The membership of the Academies do not offer moral expertise. Yet the leadership of the Pontifical Academies consistently engages in selective invitation of experts who are leading advocates of morally problematic approaches, and provides a privileged forum for their views, which inevitably carries an implied endorsement by the Church. This pattern confuses Catholic lay faithful and those who observe the Church from the outside, and needs to be reformed before a virtual counter magisterium is set up under the sponsorship the Church Herself.**
34. By contrast, the Catholic Church, by Her very nature, must always fulfill Her unique role as a protector of innocent human life. The Church did so, against the consensus of the international scientific, technical, and policy elites of the day, in the 1994 Cairo International Conference on Population and Development. In our time, Church leaders face the same temptation to remain silent on matters related to population control in order to preserve the good opinion of scientific, technical, and economic cultures that generally hold the Church’s mission in low regard. If this were to happen, Church leaders would then place human dignity and freedom at risk, most especially regard for the value of unrepeatable, individual human persons.

## **RECOMMENDATIONS**

35. This statement and the following recommendations are being offered in respectful accord with paragraph 899 of the *Catechism of the Catholic Church*:

“The initiative of lay Christians is necessary especially when the matter involves discovering or inventing the means for permeating social, political, and economic realities with the demands of Christian doctrine and life. This initiative is a normal element of the life of the Church.”

36. In that spirit, we offer the following recommendations to address the issues identified in the preceding statement. We anticipate that implementing such reforms of the Pontifical Academies of Science and Social Science will materially assist the essential contribution of the Catholic Church regarding the serious issues of proper care of creation and of true human thriving within it:

- A. Re-establish the proper relationship between science *per se* and the religious mission of the Church. Disavow any ethical shortcuts in addressing environmental challenges. Discontinue the consideration of integral development/environmental policies that are intrinsically disordered in their view of human dignity and worth.
- B. Regain trust with Catholic scholars by opening the dialogue to the full range of perspectives on environmental problems, particularly policies/solutions. Prove that one does not have to renounce the Faith to produce science valued by the Church.
- C. Reform the standards for selection of scholars to participate in PAS and PASS events so that notorious advocates for matters or positions in direct conflict with the Church’s moral teachings are not provided a platform to advance such goals.
- D. Focus on the need to understand, incorporate, and better apply empirical information on the current, actual state of human demographic trends in the work of the Pontifical Academies rather than alarmist assumptions of past decades.
- E. Reform the management of the Pontifical Academies to see that future problems of biased consideration of topics of broad social importance are avoided, and especially that the Church lives out Her mission in all Her work with integrity and is not available to be used, even indirectly, for ethically questionable purposes no matter what the consensus of noted figures in secular culture.

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## REFERENCES

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<sup>i</sup> “According to this understanding, the role of religion in political debate is not so much to supply these norms, as if they could not be known by non-believers – still less to propose concrete political solutions, which would lie altogether outside the competence of religion – but rather to help purify and shed light upon the application of reason to the discovery of objective moral principles.” Pope Benedict XVI. 17 September 2010. Address to Representatives of the British People, Westminster Hall

<sup>ii</sup> (e.g. see: <http://www.pas.va/content/accademia/en/about/goals.html>,  
<http://www.pass.va/content/scienze-sociali/en/about/goals.html>)

<sup>iii</sup> <http://www.pas.va/content/accademia/en/about/history.html>

<sup>iv</sup> ([http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco\\_20150524\\_enciclica-laudato-si.html](http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html))

<sup>v</sup> (e.g. <http://www.pas.va/content/accademia/en/publications/acta/acta24.html>;  
<http://www.pas.va/content/accademia/en/events/2017/extinction/statement.html>)

<sup>vi</sup> “While the number of births projected globally between 2015 and 2030 is only slightly larger (3 per cent) than the number of births that occurred worldwide between 2000 and 2015, there are important differences across countries and regions.” In: United Nations, Department of Economic and Social Affairs, Population Division (2015). Population 2030: Demographic challenges and opportunities for sustainable development planning (ST/ESA/SER.A/389).

<sup>vii</sup> (<http://www.catholicworldreport.com/2017/09/21/what-happened-at-the-vaticans-bio-extinction-conference/>)

<sup>viii</sup> <https://sustainabledevelopment.un.org/intergovernmental/csd>

Also: <https://sustainabledevelopment.un.org/index.php?page=view&type=400&nr=1329&menu=35>

<sup>ix</sup> (<http://www.pas.va/content/dam/accademia/pdf/es41/es41pas-acta19pass.pdf>)

<sup>x</sup> e.g. *Access to safe abortion: an essential strategy for achieving the Millennium Development Goals to improve maternal health, promote gender equality, and reduce poverty*

(<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.694.1864&rep=rep1&type=pdf>)

Also: [www.ipas.org/~media/Files/lpas%20Publications/MDGFLY3E11.ashx](http://www.ipas.org/~media/Files/lpas%20Publications/MDGFLY3E11.ashx)

<sup>xi</sup> Jeffrey D. Sachs. 2005. *The End of Poverty Economic Possibilities for Our Time*. The Penguin Press, New York. ISBN 1-59420-045-9.

<sup>xii</sup> Sustainable Humanity, Sustainable Nature: Our Responsibility Pontifical Academy of Sciences, Extra Series 41, Vatican City 2014 Pontifical Academy of Social Sciences, Acta 19, Vatican City 2014

[www.pas.va/content/dam/accademia/pdf/es41/es41-sachs.pdf](http://www.pas.va/content/dam/accademia/pdf/es41/es41-sachs.pdf)