

And Apple Trees still have to be planted. Journeying together down the Road to Ecological, Social and Economic Responsibility

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The year 2017 marks the 500th anniversary of the Reformation and it will undoubtedly be an occasion for reflection on the spirituality and justice of creation as well as for consideration of our ecological, social and economic responsibility. In this connection a book published in Germany, which caused quite a stir, springs to mind. Its title *Then Let us Plant an Apple Tree*³⁴⁰ – a quote from Martin Luther – pinpoints the ecological and economic issues that will decide on mankind's future in the one global *oikos*. The science journalist, Hoimar von Ditfurth, chose the quotation over thirty years ago in deliberate reference to the reformer Luther, who is alleged to have said: 'If I knew the world was to end tomorrow, I would still plant an apple tree today'. Ditfurth's book is intended to stir its readers into action. He examines the destruction of the environment, the population explosion and the threat of a nuclear war and reiterates the warning issued over a decade earlier by the Club of Rome in its report on *The Limits to Growth* (1972)³⁴¹, over 30 million copies of which have been sold worldwide.³⁴²

Both the report on *The Limits to Growth* and the book *Then Let us Plant an Apple Tree* had a long-term impact on the environmental and peace movements in Germany at the end of the 20th century. It is heartening that, in the discussions at the time, the advocates of fun-

³⁴⁰ von Ditfurth, Hoimar, So laßt uns denn ein Apfelbäumchen pflanzen, Hamburg 1985.

³⁴¹ Meadows, Donella/Meadows, Dennis, *The Limits to Growth* 1972, Stuttgart 1987.

³⁴² The Club of Rome's report contained calculations showing that exponential growth in the world's population, industrialisation, environmental pollution, food production and resource depletion would result in the limits to growth being reached within a hundred years. Cf. also Lienkamp, Andreas, "Schöpfung und Ökologie in Gaudium et spes: Eine Relecture aus christlich-umweltethischer Perspektive", in: Böttigheimer, Christoph/Dausner, René (eds.), *Vaticanum 21: Die bleibenden Aufgaben des Zweiten Vatikanischen Konzils im 21. Jahrhundert*, Freiburg 2016, 586–612.

damentalist escapism (in the sense of ‘complacent ideological ethics’) did not hold sway. Instead, strategies in keeping with ‘responsible ethics’³⁴³ were devised to meet the ecological challenges of the present and to map out solutions for a sustainable economy in the future. In an age in which common business activities in the context of an overall economic policy can only be pursued responsibly if a global perspective is adopted (with a view to the category of ‘space’) and an inter-generational perspective taken (with a view to the category of ‘time’), the crucial question arises as to the nature of a green economy in which goods and services can be supplied without the externalisation of key cost factors (such as ecological costs) to other geographical regions or to future generations. This is precisely the issue Hoimar von Ditfurth raised in his widely-read book thirty years ago. The underlying concept here is the economic ‘polluter pays’ principle, which Pope Francis endorses in his Encyclical Letter *Laudato Si’*. What is at stake here ultimately is the exercise of inter and intra-generational responsibility in the economy and the provision of inter and intra-generational justice³⁴⁴ in the age of globalisation without detriment to the poor or to future generations, i.e. those who are unable to defend themselves.

Reconciling the environment and the economy

At the end of the day the issue at stake is how the economy and the environment can be harmonised in the one *oikos* in such a way that present and future generations can co-exist and survive. In his environmental encyclical *Laudato si’* Pope Francis says with regard to the issue of responsible economic activity that ‘the environment is one of those goods that cannot be adequately safeguarded or promoted by market forces.’³⁴⁵ Ottmar Edenhofer, Director of the Mercator Research Institute on Global Commons and Climate Change, agrees with the Holy Father: “The Pope is right. The markets will not protect the

³⁴³ Cf. Jonas, Hans, *Das Prinzip Verantwortung: Versuch einer Ethik für die technologische Zivilisation*, Frankfurt on the Main 1979.

³⁴⁴ Pope Francis has criticised individual countries for putting national interests above the global common good. Cf. Encyclical Letter *Laudato Si’* of the Holy Father Francis on Care for our Common Home, No. 169. Referred to hereinafter as LS, http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html (31.07.2017); Cf. Kruij, Gerhard, “Ein dramatischer Appell: Die Umwelt-Enzyklika des Papstes”, in: *Herder Korrespondenz*, No. 69 (2015) 7, 341–344, here 343.

³⁴⁵ LS 190.

environment of their own accord or guarantee future generations the living conditions they need. That’s why economists insist that economic activities should not be pursued at the expense of future generations or to the detriment of third parties.³⁴⁶ But what might be the nature of an economic system which neither ignores nor demonises³⁴⁷ the laws of the market (which do not ‘fall from the skies’ but are, at best, formulated consciously or unconsciously on the basis of anthropological observations³⁴⁸ that in reality have mostly ‘coagulated’ unconsciously into convictions)? To ignore the laws of the market in escapist fashion or to demonise them on ideological grounds merely ducks the issue of responsibility for constructive economic management, since no attempt is made to really use or design the laws of the market in such a way that a framework for the development of a green economy can be established which will ensure present and future generations an acceptable living environment.³⁴⁹

Sustainability is a term which has been increasingly used in recent years with regard to the survival of mankind. It comes from the world of forestry and implies first of all that resources should only be used to the extent that they can be replaced. The term found its way into the development policy debate at about the time a United Nations commission headed by the former Norwegian Prime Minister, Gro Harlem Brundtland, mapped out long-term perspectives for an environmentally-friendly development policy in

³⁴⁶ Cf. Edenhofer, Ottmar, “Der Himmel gehört uns allen’: Ein Gespräch mit dem Klima-Ökonomen Ottmar Edenhofer über die UN-Konferenz und die Umwelt-Enzyklika *Laudato si’*”, in: *Herder Korrespondenz*, No. 70 (2016) 2, 17–21, here 18.

³⁴⁷ Cf. Mack, Elke, “Tötet die Wirtschaft wirklich? Katholische Wirtschaftsethik zwischen dem II. Vatikanum und *Laudato Si’*”, in: *Theologie der Gegenwart*, No. 58 (2015) 4, 303–316.

³⁴⁸ Talking to Ernst Ulrich von Weizsäcker, Daisaku Ikeda – President of Soka Gakkai International, a lay Buddhist association, and holder of the United Nations Peace Prize – had the following to say on this matter: ‘The basic model of human nature developed by the global market economy is that of the *homo oeconomicus*, i.e. the human being driven by the logic of profit and self-interest. And there can be no denying that this tendency does exist in people.’ (Daisaku Ikeda, quoted from: von Weizsäcker, Ernst Ulrich/Ikeda, Daisaku, *Was sind wir uns wert? Gespräche über Energie und Nachhaltigkeit*, Freiburg 2016, 21). This anthropological statement tallies with the results of research into altruism. Cf. Karylowski, Jerzy, “Focus of Attention and Altruism: Endocentric and exocentric Sources of Altruistic Behaviour”, in: Staub, Erwin/Bar-Tal, Daniel/Karylowski, Jerzy/Reykowski, Janusz (eds.), *Development and Maintenance of pro-social Behaviour*, New York 1984, 139–154; Hunt, Morton, *The Compassionate Beast: The Scientific Inquiry into Human Nature*, New York 1991; Renwick Monroe, Kristen, “A Fat Lady in a Corset: Altruism and Social Theory”, in: *American Journal of Political Science*, No. 38 (1994), 861–893.

³⁴⁹ Cf. Mack, Elke, op. cit.

the last quarter of the 20th century. The work of this commission coincided more or less with the publication of the book *Then Let us Plant an Apple Tree*. The commission's final document *Our Common Future*, also known as the Brundtland Report (published in 1987), revolves around the need for sustainable development. What made it special was that it put development policy objectives on a par with social and economic development targets. This was reflected in the formulation of Sustainable Development Goals³⁵⁰ to be achieved over a period of fifteen years beginning on 1 January 2016. The UN document can be seen as a key milestone in the identification of future prospects against the background of the ecological crisis in the age of globalisation.

Sustainable Development Goals (the official title is *Transforming Our World: The 2030 Agenda for Sustainable Development*³⁵¹) builds on the previous Millennium Development Goals, although the focus is now not just on social development but also, and in particular, on sustainability.³⁵² Apart from social and economic targets, special consideration is given to ecological aspects in the development goals. These goals highlight economic growth, the reduction of disparities in living standards, efforts to bring about equality of opportunity, the sustainable use of natural resources and the preservation of the global ecosystem. Account is taken of the aspects of food security and sustainable agriculture as well as of water and sanitation, energy, education, poverty eradication, health, climate change, environment/management of natural resources and employment.³⁵³ What is important, especially from the point of view of ethical responsibility, is that grand proclamations expressed in the form of non-measurable intentions, declarations of intent and general statements were dispensed with entirely. Instead, sustainable development goals were defined which are specific,

³⁵⁰ Cf. <http://www.un.org/sustainabledevelopment/sustainable-development-goals/> (10.12.2016).

³⁵¹ United Nations General Assembly, Seventieth Session, Transforming Our World: the 2030 Agenda for Sustainable Development, http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E (31.07.2017).

³⁵² United Nations, The Future We Want: Resolution adopted by the General Assembly on 27 July 2012, http://www.un.org/ga/search/view_doc.asp?symbol=A/RES/66/288&Lang=E (9.12.2016).

³⁵³ United Nations, Secretary-General's Initial Input to the Open Working Group on Sustainable Development Goals, <https://sustainabledevelopment.un.org/content/documents/1494sgreportsdgs.pdf> (31.07.2017).

demanding and realistic and, above all, measurable and bound to a specific deadline. A total of 169 global targets were formulated for the Agenda 2030. These are to be put into practice at the national level in the years to come.

The Encyclical Letter *Laudato Si'*

Pope Francis published his second encyclical letter at around the time the Sustainable Development Goals were agreed. In it he turns his attention to the social, ecological and economic challenges at the dawn of the third millennium. While *Laudato Si'* does address ecological issues at a crucial point, it cannot be reduced merely to an environmental encyclical. The time it was published is important for the way it should be interpreted, because it points to the context in which the encyclical needs to be read (and understood). Pope Francis' encyclical on Care for our Common Home, dated 24 May 2015, was published simultaneously in eight languages on 18 June 2015.³⁵⁴ The date was carefully chosen. On the one hand, it was shortly after the end of the G7 conference at Schloß Elmau in Bavaria in June 2015, at which the heads of government of the strongest economic nations reached an epoch-making agreement on the decarbonisation of the global economy. On the other hand, it was a few months prior to the adoption of the Sustainable Development Goals in New York in September 2015 and six months before the start of the UN Conference on Climate Change in Paris in December 2015.³⁵⁵ Pope Francis deemed it important, especially with regard to the UN Conference on Climate Change in Paris, that the environmental encyclical he had announced at the beginning of his pontificate in 2013 should be published in good time so that it might have an influence on the course of this crucial conference for the future of all mankind. Thus, at a press conference in mid-January 2015 during a trip to the Philippines, Pope Francis noted with regard to the pending encyclical: 'It is important that there should be a certain

³⁵⁴ The encyclical letter was presented in Rome by Cardinal Peter Turkson; the Orthodox Metropolitan of Pergamo, Giovanni Zizioulas; the German climate expert, Hans Joachim Schellnhuber; the president of the US Catholic Relief Services, Carolyn Woo; and the Italian primary school teacher, Valeria Martano.

³⁵⁵ Cf. Edenhofer, Ottmar/Flachland, Christian, "Laudato Si': Die Sorge um die globalen Gemeinschaftsgüter", in: *Stimmen der Zeit*, No. 140 (2015) 9, 579–591; Büker, Markus, "Eine gerechte Welt ist möglich: Laudato Si' – die Sozial- und Umweltenyzklika", in: idem (ed.), *Anstiftung zur Rettung der Welt: Ein Jahr Enzyklika Laudato Si'*, Aachen 2016, 2–3, here 3.

interval between its publication and the meeting in Paris so that it can make a contribution.³⁵⁶

In his encyclical *Laudato Si'* Pope Francis voices his concern regarding a responsible approach to creation and the development of a just world economic order giving all people in the common *oikos* a fair share of the global goods of the atmosphere and the water as well as the regional goods of the mineral resources, forests, etc.³⁵⁷ He strives for intra and inter-generational social justice and ecological responsibility. In his analyses – especially with regard to the debate on climate change – Pope Francis is very much abreast of the times, this being reflected, for instance, in the positive reception given to the encyclical in leading scientific journals such as *Nature* and *Science*.³⁵⁸

The fact that the perspective of the southern hemisphere is prominent in the encyclical *Laudato Si'* is due primarily to Pope Francis' commissioning of the President of the Pontifical Council for Justice and Peace, Cardinal Peter Turkson from Ghana, to prepare an initial draft. Turkson, who had been regarded as *papabile* in the election of a successor to Benedict XVI, had previously made himself a name by publicly denouncing the ecologically harmful methods used in the exploitation of mineral resources in Ghana and highlighting the consequences for the living conditions of those affected in Africa. Turkson had repeatedly pointed out that the deterioration of living conditions in Africa would have climatic and social effects on living conditions in Europe and America, since migration pressure from the countries of the South would heighten the impact on the countries in the North.³⁵⁹ Also involved in the elaboration of the environmental encyclical was Bishop Erwin Kräutler from Brazil. Active in the past

³⁵⁶ Pope Francis, quoted from: http://de.radiovaticana.va/news/2015/03/23/papst_feilt_an_seiner_zweiten_encyklika/1131395 (9.12.2016).

³⁵⁷ LS 13, 41.

³⁵⁸ Cf. the editorials 'Hope from the Pope' in *Nature* of 25 June 2015 and 'The Pope tackles sustainability' in *Science* of 19. September 2015. Edenhofer, Ottmar/Flachsland, Christian, op. cit., 580. Certain economic statements in the encyclical are problematical, however. In saying that 'the time has come to accept decreased growth in some parts of the world, in order to provide resources for other places to experience healthy growth' (LS 193), Pope Francis is inferring that there is a causal connection here which economists cannot explain. Cf. Bormann, Franz-Josef, "Die Enzyklika *Laudato Si'*: Eine Aufforderung zum Umdenken?", in: *Pastoralblatt*, No. 68 (2016) 8, 240–247, here 244.

³⁵⁹ Patzek, Martin, *Laudato Si' – Ein neuer Sonnengesang? Franz von Assisi und der Bischof von Rom*, in: *Pastoralblatt*, No. 68 (2016) 1, 17–23, here 20.

on behalf of the original inhabitants and in defence of the Amazon rain forest, he was honoured for his dedication and commitment with the Alternative Nobel Prize. Pope Francis has also included in his encyclical (the final version of which bears his personal signature – not least in its clear-cut formulations) numerous statements made by bishops' conferences around the world. He quotes from declarations made by bishops' conferences in Argentina, Asia, Australia, Bolivia, Brazil, Canada, the Dominican Republic, Japan, Latin America and the Caribbean, Mexico, New Zealand, Paraguay, the Philippines, Portugal, South Africa and the United States.³⁶⁰

Worthy of note is the audience to which the pontifical encyclical is addressed. In *Laudato Si'* Pope Francis speaks not just to all Catholics or all Christian believers, but also to 'every person living on this planet'³⁶¹ in order to 'enter into dialogue with all people about our common home.'³⁶² ³⁶³ In *Laudato Si'*, Pope Francis is guided in methodical terms – this being a further indication of his personal signature – by the familiar three-step method of looking, judging and acting, which has been regarded as a key principle for methodical structuring in Christian social ethics ever since the publication of the encyclical *Mater et Magistra* by Pope John XXIII.

Laudato Si' consists of a preface, six chapters and a spiritual conclusion.³⁶⁴ In Chapter One³⁶⁵, the Pope addresses the world's environmental problems before going on in Chapter Two³⁶⁶ to interpret them in the light of the Gospel and in Chapter Three³⁶⁷ in the context of his understanding of globalisation. In Chapter Four³⁶⁸,

³⁶⁰ The fact that Pope Francis draws exclusively on statements made by national or continental bishops' conferences can be explained by the absence of any prior systematic treatment of climate change in any apostolic exhortation. Cf. Edenhofer, Ottmar/Flachsland, Christian, *Laudato si'*: Die Sorge um die globalen Gemeinschaftsgüter, op. cit. 580.

³⁶¹ LS 3.

³⁶² *Ibid.*

³⁶³ Cf. Patzek, Martin, *Laudato Si' – Ein neuer Sonnengesang? Franz von Assisi und der Bischof von Rom*, in: op. cit., 20.

³⁶⁴ The encyclical concludes, as is appropriate for the target audience, with a prayer for our earth which can be said inter-denominationally and a final Christian prayer (not in favour of but in surmounting anthropocentrism) in union with creation.

³⁶⁵ Chapter One: What is Happening to our Common Home (LS 17–61).

³⁶⁶ Chapter Two: The Gospel of Creation (LS 62–100).

³⁶⁷ Chapter Three: The Human Roots of the Ecological Crisis (LS 101–136).

³⁶⁸ Chapter Four: Integral Ecology (LS 137–162).

Pope Francis develops ethical guidelines before dealing in Chapter Five³⁶⁹ and Chapter Six³⁷⁰ with motivations for action and (in some cases astonishingly specific³⁷¹) options for action.³⁷² Here he ties environmental issues very closely to economic questions and issues of justice, appealing to everyone to be conscious of the global challenges facing mankind at the start of the third millennium. ‘The urgent challenge to protect our common home includes a concern to bring the whole human family together to seek a sustainable and integral development, for we know that things can change. ... Particular appreciation is owed to those who tirelessly seek to resolve the tragic effects of environmental degradation on the lives of the world’s poorest.’³⁷³ Pope Francis confronts all those who refute any change in the climate, describing its denial as an expression of hidden power interests. This earned him fierce criticism from the United States, for example.³⁷⁴ Pope Francis points out that poor people, above all, are affected by the consequences of climate change, because their means of subsistence are largely dependent on natural reserves and ecosystemic services such as agriculture, fishing and forestry.³⁷⁵ Moreover, he sees the impacts of water scarcity, air pollution and the loss of biodiversity in particular on the marginalised, since these go hand in hand with increasing migration flows and wars even.³⁷⁶

³⁶⁹ Chapter Five: Lines of Approach and Action (LS 163–201).

³⁷⁰ Chapter Six: Ecological Education and Spirituality (LS 202–246).

³⁷¹ The formulation of specific options for action has led to this passage in the encyclical being discredited by some as ‘naive eco-romanticism’. In actual fact, however, Pope Francis is not concerned with providing an approach to resolving the global ecological challenges along the lines of a cause-and-effect assessment. Such an insinuation fails to recognise that, in drawing up the encyclical, Pope Francis drew on the competent advice of renowned consultants (e.g. representatives of the Potsdam Institute for Climate Impact Research) and, in describing the ecological challenges, took due account of the scientific state of the art. As regards his specific proposals for action, Pope Francis is concerned rather to show by way of example how each and every one of us can assume personal responsibility for the environment rather than to simply point a finger at others (institutions, systems, players, etc.).

³⁷² LS 180, 211.

³⁷³ LS 13.

³⁷⁴ LS 54, 135, 188; cf. Kruij, Gerhard, “Ein dramatischer Appell: Die neue Umwelt-Enzyklika des Papstes”, in: Herder Korrespondenz, No. 69 (2015) 7, 341–344, here 341; Tuschen, Stefan, “Wieder die blinde Technikgläubigkeit: Kulturwandel statt Klimawandel”, in: Bölker, Markus (ed.), Antstiftung zur Rettung der Welt: Ein Jahr Enzyklika *Laudato Si’*, Aachen 2016, 4–7.

³⁷⁵ LS 25.

³⁷⁶ LS 57.

It is perhaps debatable whether the poor are worst affected by global climate change and the worldwide increase in air pollution. However, that poverty and ecological issues, especially climate protection, are closely intertwined is made dramatically apparent by the living conditions of people in China, India and other countries that have witnessed rapid economic growth. People in these countries suffer from local air pollution caused by the energy emissions connected with economic growth. Thus Pope Francis pleads in his encyclical for a responsible approach to the climate and the atmosphere, which he regards as ‘a common good, belonging to all and meant for all.’³⁷⁷ He advances similar arguments with respect to the oceans.³⁷⁸

Clearly, it is not the task of an encyclical to produce scientific findings³⁷⁹ (but certainly to respond to them) or to postulate political strategies. Rather it should formulate objectives, specify norms and criteria and suggest attitudes. Be that as it may, the date of publication of the encyclical does highlight the political context in which it should be read. The international community of states had already agreed on preventing excessive global warming by limiting it to two degrees Centigrade above the pre-industrial level. The report of the Intergovernmental Panel on Climate Change says that, if this target is to be achieved, global cumulative emissions of carbon dioxide must be limited to around one thousand gigatonnes. Just how ambitious this target is can be seen from the fact that around 35 gigatonnes of carbon dioxide were emitted in the year 2013 alone. In other words, in 2013 alone 3.5 percent of the total amount of space available for the absorption of carbon dioxide in the ‘atmospheric storage space’ was used up. This is all the more alarming in that, despite all the commitments to climate protection, annual global emissions have continued to climb. Normative speeches are, therefore, clearly no use unless a responsible policy is formulated and implemented which sets out clear-cut, measurable targets with a specific deadline – and ensures that they are met. All the more significant, therefore, are the words found by Pope Francis – at the right time – immediately before the Paris Climate Conference, in the context of which they must be read.

³⁷⁷ LS 23.

³⁷⁸ LS 174.

³⁷⁹ Cf. Bormann, Franz-Josef, “Die Enzyklika *Laudato si’*: Eine Aufforderung zum Umdenken?”, in: op. cit., 244.

Turnaround in the Age of Decarbonisation

The international community appears to be in a dilemma as a result of the dramatic increase in air pollution and the concomitant climate change. On the one hand, there are ever more vocal warnings about the use of nuclear energy, since even its peaceful use in the wake of Sellafield (Windscale)³⁸⁰, Harrisburg³⁸¹, Chernobyl³⁸² and Fukushima³⁸³ is seen as being associated with incalculable and potentially devastating risks for present and future generations. On the other hand, climate researchers previously vehemently opposed to the peaceful use of nuclear energy have recently come out in its favour in the light of the imminent climate changes, since the consequences of rising carbon dioxide emissions now strike them as more serious than the risks associated with the use of nuclear energy. This should not be seen as a premature plea for the use of nuclear energy, however, but rather as a warning signalling the dramatic nature of the present situation. Germany is now confronted by a dilemma in its energy supply, for instance. Nuclear power plants are to be phased out by 2022. A public debate is now under way about how the energy so far generated in nuclear power plants can be replaced by wind and solar power. At the same time there are plans 'to fill the electricity gap caused by the shutdown of nuclear power plants with the help of fossil fuels. That has not attracted a great deal of public attention, but it is a fact nonetheless.'³⁸⁴

Coal, indeed, is experiencing a worldwide renaissance, despite the fact that carbon dioxide emissions pollute the air and fuel climate

³⁸⁰ Sellafield (formerly Windscale) is the site of a nuclear complex erected in north-west England after the Second World War. In 1957, fire broke out in one of the reactors of the reactor core resulting in radioactive radiation in an accident that was assessed as 'serious'. This was only one of several accidents at the nuclear reactor. The renaming of Windscale as Sellafield is regarded as a measure to relieve the nuclear site of its Windscale image and give it an unsullied name (and a clean image).

³⁸¹ Harrisburg (United States) was the site of the Three Mile Island nuclear power plant, where a core meltdown in Block 2 in 1979 resulted in almost a third of the reactor core being fragmented or melted down.

³⁸² It was in Block 4 of the nuclear power plant in Chernobyl (Ukraine) that the world's first-ever design basis accident (DBA) occurred when the reactor exploded and the graphite used as a moderator caught fire.

³⁸³ A DBA or 'major accident' (Level 7 event classification on the International Nuclear Event Scale) also occurred in Fukushima (Japan) in 2011, when there was a core meltdown in three reactor blocks and large amounts of radioactive material were released.

³⁸⁴ Ernst Ulrich von Weizsäcker, quoted from: von Weizsäcker, Ernst Ulrich/Ikeda, Daisaku, Was sind wir uns wert? Gespräche über Energie und Nachhaltigkeit, op. cit., 89.

change. Pope Francis, too, writes in *Laudato Si'*: 'We know that technology based on the use of highly polluting fossil fuels – especially coal, but also oil and, to a lesser degree, gas – needs to be progressively replaced without delay.'³⁸⁵ The reference made by Pope Francis to decarbonisation is now the focus of a debate about how to ensure mankind's common survival on earth. Together with other prominent climate researchers, Ottmar Edenhofer, therefore, advocates the global taxation of carbon dioxide emissions or the introduction of global trading in carbon credits. Like Hoimar von Ditfurth, who denounced the externalisation of economic costs in his bestseller of thirty years ago, Ottmar Edenhofer calls for a price to be put on carbon dioxide emissions so as to provide incentives for carbon dioxide-free technologies. Furthermore, he warns that the use of fossil fuels is associated with costs and that revenues must be generated in order to improve living conditions for people in the southern hemisphere. 'Investments would be possible that would benefit the very poor. The supposed conflict of interest between the eradication of poverty and climate protection could be largely mitigated'³⁸⁶, says Edenhofer, who has elsewhere described the encyclical *Laudato Si'* with its linking of ecological, social and economic issues as an 'encyclical for justice'.³⁸⁷

In *Laudato Si'* Pope Francis likewise advocates carbon credits trading³⁸⁸, although he also calls for economic incentives and the incorporation of environmental costs.³⁸⁹ Ernst Ulrich von Weizsäcker, President of the Wuppertal Institute for Climate, Environment and Energy until the year 2000 and Co-President of the Club of Rome since 2012, favours additional technological measures to speed up the development of efficient high-voltage transmission lines and the installation of smart grids. In the political field he calls for statutory efficiency regulations and a policy to

³⁸⁵ LS 165; Cf. Kruij, Gerhard, "Ein dramatischer Appell: Die neue Umwelt-Enzyklika des Papstes", op. cit., 342.

³⁸⁶ Edenhofer, Ottmar, "Der Himmel gehört uns allen", op. cit., 18.

³⁸⁷ Edenhofer, Ottmar, "Entstellte Erde: Der Papst sagt: Gewalt gegen Natur ist auch Gewalt gegen Menschen: Wir beenden sie nur, wenn wir Gemeingüter schützen", in: Die Zeit of 25 June 2016.

³⁸⁸ LS 171, 190.

³⁸⁹ LS 194, 195; cf. Kruij, Gerhard, "Ein dramatischer Appell: Die neue Umwelt-Enzyklika des Papstes", op. cit., 344.

overcome the cheap energy mentality encouraged by the subsidising of energy consumption.³⁹⁰

Just how close the links are between the environment and the economy and the 'haves' and 'have-nots' is apparent from a look at the target of decarbonisation. While Pope Francis concedes that factors such as volcanism, changes in the earth's orbit and the solar cycle may possibly contribute to climate change, he points to a very solid scientific consensus that global warming and the rise in sea levels can be attributed, in particular, to the strong concentration of greenhouse gases (carbon dioxide, methane, nitroGen. oxides and others).³⁹¹ However, if decarbonisation is to be a priority target, given the limited 'atmospheric storage space' for carbon dioxide, a dilemma will inevitably arise, since numerous fossil resources around the world are sequestered in soils. To pursue a sustainable climate policy, four-fifths of the coal and one-third of the oil and gas must remain sequestered in soils. But this will have immediate economic consequences. 'It will devalue the assets of the owners of coal, oil and gas.'³⁹² Hence it is all the more important that Pope Francis should have drawn attention in *Laudato Si'* to the fact that the climate is 'a common good, belonging to all and meant for all' and issued a reminder that ownership (of fossil resources) entails an obligation (towards the climate as a common good).³⁹³ He thus implicitly harks back to Thomas Aquinas' teachings on property ownership, according to which God left his creation to all people.

Worldwide Reception

The environmental encyclical *Laudato Si'* has elicited a very wide-ranging response. The American president, Barack Obama, has emphasised the aspect of inter-generational ethical responsibility in the encyclical, saying that 'the United States of America must set an example for others in its endeavours to end environmental pollution while fostering clean energies and energy efficiency and engaging in responsible management of our natural resources.'³⁹⁴ The German

³⁹⁰ Cf. von Weizsäcker, Ernst Ulrich/Ikeda, Daisaku, Was sind wir uns wert? Gespräche über Energie und Nachhaltigkeit, Freiburg 2016, 89.

³⁹¹ LS 23.

³⁹² Edenhofer, Ottmar, "Der Himmel gehört uns allen", op. cit., 19.

³⁹³ LS 89.

³⁹⁴ Barack Obama, quoted from Publik-Forum Extra of 26 June 2015. On the controversial

Environment Minister, Barbara Hendricks, has emphasised both the ethics of responsibility with a view to the economically poor as well as the connection between the economy and the environment: We must 'listen to the lamentations of the poor as well as to the sighs of the earth'.³⁹⁵ Cardinal Reinhard Marx has called the encyclical 'a strong signal for creation'.³⁹⁶ The website of the Green Party has gone so far as to publish 'five quotes showing that the Pope is a Green'.³⁹⁷

Statesmen and women are called upon to clearly back a consistently environmentally-friendly policy. Recognition also need to be given to the witness of innumerable men and women who are not prepared to wait for statutory provisions or regulatory mechanisms (and then respond passively to them) but who, as social pioneers, have developed a new consciousness of social and ecological justice; they advocate a new awareness of sobriety and a new definition of the quality of life (and thus play a proactive role).³⁹⁸ The younger generations, in particular, are attempting to respond to the greed that accompanies environmental destruction by developing alternative lifestyles. They already live what Pope Francis refers to as 'a prophetic and contemplative lifestyle, one capable of deep enjoyment free of the obsession with consumption.'³⁹⁹ And it 'will be necessary to convince the masses that happiness can be achieved without a pursuing wasteful way of life.'⁴⁰⁰

The Encyclical in the Context of International Agreements

At least as important as the statements of politicians and the pursuit of new lifestyles on the part of individuals are the binding international agreements on climate protection. Following the pub-

reception of the encyclical in the United States cf. Kruij, Gerhard, "Ein dramatischer Appell: Die neue Umwelt-Enzyklika des Papstes", op. cit., 341.

³⁹⁵ Hendricks, Barbara, Publik-Forum Extra of 26 June 2015.

³⁹⁶ <http://www.dbk.de/presse/details/?presseid=2833&cHash=a9e442212ee740934ea9c97086b838cc> (31.07.2017).

³⁹⁷ <https://www.gruene.de/themen/klima-schuetzen/5-zitate-die-zeigen-dass-der-papst-ein-oeko-ist.html> (31.07.2017).

³⁹⁸ Cf. Kämpchen, Martin, "Lob der Einfachheit: Eine geistige Vision", in: Stimmen der Zeit, No. 139 (2014) 5, 326–334.

³⁹⁹ LS 222.

⁴⁰⁰ von Weizsäcker, Ernst Ulrich, quoted from: von Weizsäcker, Ernst Ulrich/Ikeda, Daisaku, Was sind wir uns wert? Gespräche über Energie und Nachhaltigkeit, op. cit., 63.

lication of *Laudato Si'*, the United Nations adopted the Sustainable Development Goals in September 2015 which are designed to harmonise the economy with the environment. December 2015 then saw the Paris Climate Conference, which Pope Francis hoped to influence by means of his encyclical and where the Paris Protocol was agreed that entered into force on 4 November 2016 – its rapid ratification serving as an indication of the urgency of global climate protection. The Paris Protocol will thus follow on from the Kyoto Protocol which expires in 2020. These international agreements are important to create a reference framework for national action which, in turn, forms a frame of reference for the profit-based activities of business enterprises and all players in the market.⁴⁰¹

In principle, there is nothing to be said against activities pursued for financial gain, provided they are designed to achieve advantages for all, especially the poor and the marginalised; provided they are geared to the benefit of future generations in the sense of the 'responsibility principle' formulated by Hans Jonas; provided they aspire to the common benefit of all living beings⁴⁰² on the planet symbiotically linked to each other by the biological cycle; and provided neither the costs nor the risks of commercial activities are heedlessly unloaded on other beings (living on the earth now or in future).⁴⁰³ The principle which must be consistently applied is that those who wish to secure a profit for themselves and others must take due account of all the social and ecological costs (and risks) involved in their production costs and that they must not pass them on either to people living now or to future generations (and only to a limited extent to other beings living now or in the future).

⁴⁰¹ The Senegalese moral theologian, Alfred Waly Sarr, among others, has recently pointed out that every consumer bears ecological responsibility as a market participant. Cf. Waly Sarr, Alfred, "Unsere ökologische Verantwortung", in: *missio konkret*, No. 4 (2014), 9–10, here 10.

⁴⁰² This raises the question of the role played by anthropocentrism and the Christian image of mankind. It might be the case that the one-sided theological concentration on questions of soteriology has meant that, in the reception of the Niceno-Constantinopolitan Creed formulated in 381 A.D., the emphasis was placed initially on faith in Jesus Christ the Redeemer and only later on a belief in the Creator of Heaven and Earth, to which representatives of a 'theology of natality' have latterly drawn attention. Cf. Ibrahim, Isis, *Geschaffen zum Leben: Entwurf einer (Schöpfungs-)Theologie des Geborensseins*, Freiburg 2015. All the more important, therefore, are the statements made by Pope Francis on a God who loves the whole of creation as well as his remarks on creation spirituality.

⁴⁰³ Cf. Voges, Stefan, "Tiere müssen drinnen bleiben: Zum prophetischen Ort der Tiere in den Städten", in: *Bibel und Kirche*, No. 71 (2016) 4, 240–241.

Bearing the Social and Ecological Costs

On the road to an ecological and economic balance, great care must be taken to prevent the externalisation of ecological and social costs. For this to happen, the necessary legal framework must be in place. Methods must then be developed to properly identify the ecological and social costs so that in future better account can be taken of them in price calculations for the provision of services. In addition, methods must be developed which put a price on the identified ecological and social costs – initially for the goods. However, this should not take the form of an additional tax (as was the case recently with the 'ecotax'HoweHo) designed to consolidate ailing public finances.⁴⁰⁴ On the contrary, they should make a contribution to an ecological and social balance.

Those concerned at the dawn of the third millennium with the exercise of responsibility and contributions to effective environmental protection (and not merely demonstrating their individual environmental attitudes in public) will find much to think about in the encyclical *Laudato Si'*. Standard responses will not be sufficient for them, however. Their ecological and social convictions will oblige them to work out economically viable methods of proceeding. It is now far from enough to stick Greenpeace stickers on your car with a famous statement by the legendary Indian Chief Seattle – one which he probably never even made. Instead, there is a need to identify and accept the real social and ecological costs and to devise political and economic regulatory instruments. 'Warnings' about alleged planned-economy tendencies are completely out of place in view of the crisis of neo-liberalism and a capitalist system devoid of any sense of responsibility. To quote Pope Francis once again: 'The environment is one of those goods that cannot be adequately safeguarded or promoted by market forces.'⁴⁰⁵

Then Let us Plant an Apple Tree

The shaping of an ecological, economic and social future is the paramount challenge we face at the beginning of the third millennium.

⁴⁰⁴ One of the reasons for the 'debts' governments are obliged to 'service', which in many countries inhibits development is that, in the past, politicians have not acted in a responsible inter-generational manner but rather at the expense of future generations. They have quite simply sinned against the future. It may also be a problem inherent in democracy in view of the short-term necessity of winning elections.

⁴⁰⁵ LS 190.

It is a task to which religions can make a valuable contribution thanks to their spiritual approach⁴⁰⁶, albeit in an age which has recently been dubbed 'post-factual'⁴⁰⁷ because – given the complexity of social challenges⁴⁰⁸ in a multi-optional age – a growing and ever more vocal minority responds to the complexity of this reality by adopting an escapist approach and basing its understanding of reality not on empirically verifiable facts, but rather on emotions, media presentations and fictitious projections. Is it really possible to pave the way to an ecologically, socially and economically responsible future in a 'post-factual' age? While a sceptical response may be understandable it is not really helpful. In view of the challenges that will decide our future, there is in all likelihood no alternative to 'the principle of hope'⁴⁰⁹. Thus, Pope Francis writes in his encyclical: 'Although the post-industrial period may well be remembered as one of the most irresponsible in history, nonetheless, there is reason to hope that humanity, at the dawn of the twenty-first century, will be remembered for having generously shouldered its grave responsibilities.'⁴¹⁰ Or, to quote Martin Luther: 'If I knew the world was to end tomorrow, I would still plant an apple tree today'.

⁴⁰⁶ Cf. also Koordinationsrat der Muslime (KRM), Umweltschutz: Moscheen setzen sich ab: Publication on the Day of the Open Mosque, 3 October 2013, Cologne 2013.

⁴⁰⁷ The term 'post-factual' refers to the fact that, in political and social discussions, emotions are increasingly becoming more important than facts. In December 2016 the term 'post-factual' was voted 'Word of the Year' by the Gesellschaft für deutsche Sprache (German Language Society). Cf. <http://gfds.de/wort-des-jahres-2016> (11.12.2016).

⁴⁰⁸ Cf. Ernst, Andreas, "‘Unser Gehirn ist nicht mitgewachsen’: Umweltzerstörung, Hunger, Finanzkrisen: Der Psychologe Andreas Ernst über die Frage, ob manche globalen Probleme zu groß und kompliziert für den Menschen sind", in: Die Zeit of 3 June 2015, 16–17.

⁴⁰⁹ Cf. the book of the same name by Ernst Bloch (The Principle of Hope, Studies in Contemporary German Social Thought (Book 1), MIT Press, 1995). In the foreword Bloch writes: 'The point is to learn hope. Its work does not renounce, it is in love with success rather than failure.' In his book entitled 'The Principle of Responsibility' Hans Jonas contradicts Bloch's views. Given the challenges we face at the start of the third millennium, a synthesis of the approaches of Bloch and Jonas is probably needed.

⁴¹⁰ LS 165.