



World Scientific News

WSN 72 (2017) 280-290

EISSN 2392-2192

Individual, societal and global consequences of technology development in the perspective of the encyclical *Laudato Si'* of the Pope Francis

Kamil Michaluk

Faculty of Humanities, Maria Curie-Skłodowska University, Lublin, Poland

E-mail address: michalukkamil@gmail.com

ABSTRACT

The development of the Catholic Social Teaching has never been the main task of the Catholic Church. However, the teaching always reflected the ratio of the Magisterium on the most pressing socio-economic issues. For instance, the encyclical *Laudato Si'* is devoted largely to the issues of sustainability and ecological economics. In this document, Pope Francis states that that only a sustainable economy can guarantee the full development of the man himself. The purpose of this paper is to present the consequences of technological developments in the encyclical of Pope Francis.

Keywords: sustainable development, technology, Catholic Social Teaching, production

1. INTRODUCTION

18th June 2015 became an important date for the Catholic Social Teaching due to the presentation of *Laudato Si'*, the second encyclical of Pope Francis. Though some leaks regarding the content of the pope's document had appeared earlier, the perspective of deepening ecclesiastical teachings on the issues of ecology and sustainable development appeared to be intriguing. Pursuing the exploratory aspirations of John Kenneth Galbraith: it was not the inability to find answers to the difficult questions regarding ecology earlier, because these questions had not been asked at all (Galbraith 1992: 19). So the long-awaited

and controversial text, maybe more appreciated outside the Church than inside the institution (Zięba 2016: 113-114). It goes well cooperation with the Catholic Social Teaching has a metaphysical and normative, and therefore evaluative quality also in terms of economy (Glapiński 2011: 246-274).

It is true though, that the encyclical is a fruitful source of issues which concern sustainable development and integral ecology issues to varying degrees. Nowadays, one of the burning issues has become the use of modern technology, so it will serve humanity in a balanced way – not only today but also for the future generations. The aim of this article is to present the attitude of the Catholic Church towards technological development in the individual, social and global perspectives. The base of the study is the encyclical *Laudato Si'* which is analysed in the perspective of the Church's general teaching.

2. MATERIALS AND METHODS

2. 1. Technology as a possibility or a threat. The perspective of a church

The *sustainable development* and broadly defined ecological economy stem from criticism of the assumptions made by neoclassical economics. In a modern perspective, they oppose to environmental and natural resources economics. At its root lies the belief that natural capital has different characteristics and cannot be valued with money the same way mainstream economics wants it (Pieńkowski 2008: 83). In a more sociological perspective, there is an opinion that, on the basis of “modernization”, there was a desire of exercising control over nature by scientific development, technology and rational management; constant technological development was to improve future generations by controlling nature but not by deepening the relationship with it (Pieńkowski 2008: 76). A failure of this idea can be perceived in the following phenomena: 1) the burden lying on the environment due to industrialization, 2) an insufficiency of the public sector in socialist and capitalist countries, 3) cultural, racial and ethnic differences which do not vanish facing the rational idea of development (Pieńkowski 2008: 76-77). The accumulation of negative effects of modernization has contributed in time to the transition to a new level often described as *reflexive modernization*: the time of debate about the threats provoked so far (Beck, Giddens, Lash 2009: 14-21).

In a longer perspective, it led to creation of the concept of a sustainable development which should be characterized by: 1) the necessity of changing the quality of economic development, 2) defence of natural wealth, 3) reorientation of technological processes and 4) management systems, 5) providing employment, feeding, energy and water, 6) integral connection of economy and ecology in the decision making process (Leśniak 2009: 69-70). Instead of depleting natural resources, the “humanization” of nature should take place (Strzeszewski 1985: 711).

This kind of thinking depended on a historical development that is dated back to the 70's (Waloszcyk 2004: 14) and was also a response to the consequence of a technological development. It experienced, in its own way, a dialogue with the Catholic social teaching, which needs to be especially mentioned here.

Sustainable development was born from the general belief and self-awareness that we come close to the catastrophe because of two main reasons: overpopulation and the consequence of irrational technical and technological development. The component of a

general ecological crisis was supposed to be a kind of a “technical apocalypse” which was described by Christian Godin (Godin 2004: 45-56). Rachel Carson’s book titled *Silent Spring* became a symbol of a foreknown catastrophe (Carson 1962). The work, which presented the world in which the environment has become contaminated due to the use of pesticides, became an important cultural fact. The question – a symbol of ecological economy: how much is birds’ singing worth – is connected with it (Pieńkowski 2008: 83).

The proper pace of formulating *sustainable development* postulates was set by the efforts put into an international collaboration. Yet in 1968, Sithu U Thant, the Secretary-General of the United Nations, announced that there was only up to ten years to change the attitude towards economic development. The delay of the reaction might have resulted in irreversible changes to which it will be difficult to react (Waloszczyk 2004: 22-23). Publications, which described inappropriate use of technology as one of the causes of the crisis, started to appear more and more numerous. Among other factors, it stemmed partly from ideologies of contestation movements which appeared at late 60’s, very often carrying anarchist, pacifist and other differently understood slogans about the return to nature on their banners. In the history of science the era of neo-positivism has come to an end, the one which wished to bring all the science to physics and mathematical descriptions (Judycki 1998-1999: 27-31). Applied to economy and the technological development supporting it, it resulted in the mathematisation of the production processes and lack of attention for, among other things, its ecological perspective.

All that resulted in the fact that the wraith of technical apocalypse was taken into the account by mathematical modelling which was the underlying message of a famous but criticized report *Limits to Growth* from 1972. Among five main trends, the technological issues had a great contribution to 1) industrialization, 2) depleting non-renewable resources and 3) environmental degradation (Meadows 1973: 40-41). The concept of a *feedback loop*, in which the increase of one of the five factors intensified all the others and brought the perspective of global catastrophe closer, had a substantial role. Similarly, the threats resulting from unsustainable use of modern technology in well-known reports and programmes such as *Our Common Future* from 1987 and *Action Programme – Agenda 21* from 1992 was anticipated. Among the charges regarding the inappropriate use of technology, dominated those related to the overexploitation described from the perspective of its energy consumption, basing on non-renewable resources and a high level of environmental degradation.

Characterization of the attitude of the Church towards the aforementioned processes requires to return to the roots of this institution. First of all, the technological development, especially in its modern understanding (Pieńkowski 2008: 76-77), aims at some ways of altering nature. In the biblical perspective, the man was given dominion and the right to perform such actions, but more as a governor rather than a master of the world created by God (Martino 2005: 14). From a different perspective though, the transforming of the world in an uncontrolled manner evoked distrust. It is worth to mention that the biblical Israel was a nation of shepherds and nomads for a long time, interfering with nature in a possibly minimal way; it was in a symbiotic relationship with it. What is interesting, Cain from the Bible (and his descendants), who is a sort of personification of evil, was supposed to be a farmer and a blacksmith, and as a consequence, he was supposed to transform the world using the technology of his times (Eliade 1988: 118-119).

Also later experiences of the Church with the development of technology and the changes connected to it were not necessarily optimistic nor full of confidence towards cooperation. The issue in question is not only about *the Enlightenment's idea of progress* which was based on faith in humanity and served as an argument against the “dark” and “superstitious” religion (Wasyłuk 2012: 141). Crucial here was also an experience of the industrialization era and the creation of the working class. It was when the masses of people, who moved to the cities to work, broke away from the local village communities and both the ministries and social control connected with them. Secularization of the working class was a burning issue which contributed heavily to the birth of the Catholic Social Teaching (Kumor 1991: 293).

Although there were some initiatives or gestures made by subsequent popes from Leon XIII to Pius XII towards the appreciation of some positive aspects of technological development, a real breakthrough happened at the age of John XXIII and Paul VI. According to the constitution of The Second Vatican Council, titled *Gaudium et spes*: „(...) the development of production methods and the exchange of goods and services have transformed economy into an appropriate instrument of greater satisfaction of human family's needs” (*Gaudium et spes*, p. 63). Paul VI who declared that “development is the second name for peace” deepened this teaching in his encyclical *Populorum Progressio* from 1967. Some elements of his teaching regarding technology were frequently raised by John Paul II, but this was a topic for separate studies (Adamski 2015). It is worth mentioning here the statement made by Wojtyła included in *Fides et ratio* that “the man's vocation is chasing the truth which exceeds him. Without referring to it, everyone is left for the lawlessness of human verdict, and his existence as a person is perceived solely due to pragmatic criteria based on empirical knowledge and under the influence of wrong conviction that everything should subordinate to technology” (Jan Paweł II 1998: 5).

2. 2. The individual perspective

A significant impulse to consider the consequences of the unsustainable use of technology was the economic crisis from 2007. The pontificate of Benedict XVI, which covered the beginning phase of the crisis, was full of certain indications about the necessity of rethinking global economic relations. The main contribution of Pope Ratzinger in this topic was the emphasis of the need to connect both ethical and technological development. As he wrote in *Spe salvi*: „(...) we have become the witnesses of how, in wrong hands, the development can become and, in fact, has become a terrible development on the path of evil. If with the technological development there is no ethical formation of the man, the development of the internal self (...) it is not a development then, but a threat to the man and the world” (Benedykt XVI 2007: 22). In this document, he referred to the thought of Theodor Adorno that human technological development means progress “from sling to the atom bomb.”

When analyzing *Laudato Si'* of pope Francis, it is worth considering that his teaching continues the thoughts of his predecessors, but is more up to date and concrete. The unit, similarly to the unit in *Populorum progressio* by pope Paul VI, is surrounded by „(...) powerful and impersonal forces of politics, economy and technocratic paradigm” (Zięba 2016: 117). All in all, an inappropriate and unsustainable use of technological novelties to one's own advantage is, according to Pope Bergoglio one of the signs of “the culture of rejection” (Ambrogetti, Rubin 2013: 68-69). For a change: “the culture of dialogue” requires

interpretation of technological development in the personal perspective where it cannot be “a development for development”. One can search here for hermeneutics convergent with the one proposed by the theory of ecological economics (Pieńkowski 2008: 81-83).

The general solution proposed by the encyclical is so-called *integral ecology* or *human ecology*. It is supposed to connect social goals with both the economic ones and the care for environment, but in which a man takes the central role (Martyn 2008: 4). The element disrupting this balance is, according to Pope Francis, sin: “The violence which exists in human hearts wounded by sin is articulated also in the symptoms of illness which we see in soil, water, air and other living beings” (Francis 2015: 2). This issue is even more burning because through technology, humanity developed unheard capabilities and because of that his ability to „(...) transform things should be developed based on the primal purpose of the thing granted by God” (Francis 2015: 5).

An integral look at the human being, which is present here, is not surprising, yet it is concrete by specifying the main problems which affect the unit according to *Laudato Si'* when it comes to the issue of technological development. It is possible to differentiate 1) the belief in technological development as a *panaceum* or a “new religion”, 2) unbelievable acceleration of lifestyle and work, 3) consumerism (Francis 2015: 17, 19, 203). The first element, though glaring with its irrationality, is according to Pope, retreating. Although it is still up to date, there is a dominating feeling of disillusionment with its promises – this can be called “a development betrayed by modernism” (Pieńkowski 2008: 76). Also an equally important factor was “acceleration” which is not compatible in any way with the “slowness” of biological evolution.”

The term of consumerism was more developed, being the object of common criticism across the greatest religions of the world and very often means generating artificial needs (Kulik 2008: 141-146). The pope advocates that nowadays, freedom is understood more and more often as the “freedom of consumption,” which he defines as a “technocratic paradigm” (Francis 2015: 203). The last term may be understood as a situation in which „(...) Science and technology (...) determine their goals based only on their internal capabilities” (Scola 2010: 32). It has some heavy consequences due to the terrific level of consumption. The consumption in general is a quality of the few and serves the ones “having economic power”. If it was disseminated, „(...)the planet would not be even able to accommodate such amounts of post-consumer waste (...)”(Francis 2015: 50). An emerging elite of “new capitalists” is also being created and these are highly specialized managers. The middle class is vanishing in developed countries and there are situations when computerization and re-engineering constantly eliminate workplaces or lead to the radical deterioration of their conditions (Rifkin 2001).

One of the most essential messages which were included in *Laudato Si'* in the individual aspect concerning technology is the belief that the impact on its use has an “inappropriate anthropocentrism.” The Earth, which according to pope is going to look more and more like a “composition of the impurity” – will continue to deteriorate as long as its catastrophe will be comprised of many individual and rash decisions. A sense of having no influence of local actions on global issues was articulated the most by Pope Francis during his sermon on Lampedusa in July 2013, when he said that: „(...) we ask for forgiveness of our indifference towards many brothers and sisters, we ask for forgiveness for those who closed themselves comfortably in their own prosperity which deadens the heart; we ask for forgiveness for those who created situations which lead to those dramas by their decisions in a

global scale” (Francis 2013). The solution to those dramas was to be a necessity of individual choices, education – a sort of “ecological conversion” in a moral way. There is no chance to change the general situation without voluntary sacrifices in terms of excessive consumerism and, as a consequence, the use of technology necessary for its creation. “Culturisation of the knowledge about sustainability (Janikowski 2009: 21).

2. 3. Social level: production, work, innovations

An important element raised by Pope Francis in *Laudato Si'* is the issue of more ecological and consequently better production. In the context of sustainable development it should be called as a “balanced” or simply “cleaner production” and defined as creating goods and services which: “1) use processes and systems not polluting the environment (limiting environmental pollution), 2) saving energy and materials, 3) is realistic in terms of economy, 4) safe and not hazardous for human life, 5) and socially and creatively profitable for all the working people” (Anuszevska 2011: 30). One can see here a chase after the impossible ideal of “closed production.” It is certain though that these warnings cannot form a postulate of endogenous development (Krzysztofek, Szczepański 2002: 14), but there is an emphasis on a strong local character of the given place.

According to Francis, one should start with the fact that “Paradoxically, modern anthropocentrism resulted in putting technical factors beyond reality” (Franciszek 2015: 115). It leads more to magnification rather than preventing “the culture of rejection.” Despite this, in the encyclical there is a thought presented in a slightly utopian way that „(...) The closed production model which could provide resources for everyone and for future generations and which requires maximal use of renewable resources, limitation of consumption, maximization of effectiveness, reuse and recycling has not been achieved yet.” (Francis 2015: 22). Though the pope identified the risk not in the lack of creativity or the slowness of work on “clean production,” but also in connecting technology and finances. It appears that the pope shared lack of faith displayed by Jeremy Rifkin towards the concept of “permeating of technology” to the poorer societies with time. (Rifkin 2001: 31).

One its symptoms may be the loss biological diversity and destruction of ecosystems which are an easy way of minimization of production costs. The other element is the temptation to unify production and treating the rules of free market in a way in which “the strongest takes it all.” The problem is presented differently when taking into account the erosion of social capital or increasing stratification between the ones earning the most and the rest of the society. This subject was raised in a famous book by Joseph Stiglitz (Stiglitz 2015). The alternative might be the creation of “social economics sector” (Rifkin 2001: 29), in which the emphasis is made not only on the economic results, but also the necessity to create workplaces. The necessity to diversify production in this case must be adopted to local reality; the concentration of soil and whole economic sectors usually has a negative impact on the society’s quality of life (Francis 2015: p. 129).

One of the most radical tones of the encyclical which was impossible to be accepted by the mainstream economy was the idea that humanity might have faced the necessity to slow down the production pace and search for other places of investment. In this perspective overproduction is also a problem and the “production bubble” becomes something resembling the “economic bubble”: „(...)The production is not always rational and is very often linked to economic variables giving value to the products which is not corresponding to reality. It very

often leads to overproduction of some articles and unnecessary ecological damages (...)” (Francis 2015: 189).

The issues concerning human work also become a problem of the nowadays world. From the times of John Paul II, who dealt with this topic in his encyclical *Laborem exercens*, some factors have changed and some processes – accelerated. One of those processes was the issue of automation considered as a factor deepening the employment crisis. As it is increasingly often stated: “the technological development results in the fact that greater and greater part of the income goes to the fund owner. Even if the workplaces were created at the same pace as automation destroys them, the economy would still suffer from lack of demand. This is a fundamental fact, overlooked in a public debate until now” (Lowitzsch 2016: p. 1.) Pope Francis identified a similar problem here: „(...) But the orientation of economy resulted in a some type of technological advancements intended to decrease the production costs by eliminating workplaces and replacing people with robots (...)” (Francis 2015: 128). The production, which at the expense of maximization of income limits man’s right to dignity which is given to him by work is not acceptable or appropriate from this perspective. A man has a right to make a living through his work and also have a real impact on the reality of the Earth.

Much careful statements can be found towards innovations – especially genetic engineering. They largely comprise of the evaluations present in the Catholic Social Teaching, for instance, the ones made by Stanisław Kowalczyk regarding the ethos of scientific work: „(...) Scientific work is also not neutral in the ethical aspect, it is not carried out <<beyond good and evil>>. The pragmatic results of science have an enormous meaning in lives of individuals and whole societies, so the ethos of scientists is indispensable” (Kowalczyk 2010: 21). There is a dominating necessity of religious respect towards “the integrity of creation” – experiments are possible only when they save or improve human life (Francis 2015: 130). Even the slightest interference has an impact on the ecosystems. There is a necessity for planned action especially if the development and its economization display the tendency to e.g. tillage homogenization.

When it comes to genetic mutations, the problem is not their existence, but a rate unparalleled in nature (Francis 2015: 133). The issue of transgenic grains was given as an example as they allow for the improvement of production on barren soil, but lead to the changes in the structure of economy and unforeseen consequences. One can enumerate, for instance, progressive social stratification or the risk of destroying the environmental resources which are especially important for the developing countries.

2. 4. Global perspective – “A common home”

When analysing *Laudato Si’*, one can have an impression of reluctance towards contemporary international economic relations, defined as “a structurally wicked system of trading relations and properties.” The problem is in a broader sense perceived as an alliance of technocracy and economy at the expense of politics; the developing countries are suffering from it the most (Francis 2015: 20, 46). The leading aim of development which can be described as sustainable should be instead the reduction of poverty in the country and on a global scale (Krzysztofek, Szczepański 2002: 19).

The activities of international corporations, which were criticized in a famous book by Naomi Klein in a very sensational and unfavourable light (Klein 2014), is the topic of analysis going beyond economy. For instance, Zygmunt Bauman noticed that “a large portion of the

authority of effective work which used to be in hands of a modern state, transfers now to global (and in many elements exterritorial) space – which gets out political of control. Meanwhile, politics, and so the ability to decide about the direction and goals of action – cannot operate effectively on a planetary level, because – as previously – it stays local” (Bauman 2007: 8). Contemporary international economic model is even characterized by the fact that “(...) some economic sections have a greater authority than the whole countries (...)” (Francis 2015: 196). It contributes well to the neoliberal rhetoric of full of reluctance towards state authorities (Morawski 1998: 113). At the same time, the voices mentioning the reconstruction of the public sphere and expansion of some functions of the state against the imperfections of the market become more and more audible (Klein 2016: 114-121).

“Global effectiveness” of corporations and their aspirations to maximize the profits are heavily based on their use of state-of-the-art technologies; they also use their influences in local governments to gain access to rare materials (like in the case of internationalization of Amazonia) (Francis 2015: 38). The pope stresses the fact that economic growth is not the crucial factor when it comes to changing other elements of the social system, that is not only politics and culture, but also environmental issues (Krzysztofek, Szczepański 2002: 16).

The alliance of technology and economy mentioned before has led to the crisis in politics which, according to Bauman, should indicate a new developmental logic. Also, the sustainable development alone should contribute to retaining cultural legacy of nations on an international level (Kiepas 2009: 196). But the highly specialized elites decrease the political participation of the society to gather funds required by the economic development (Morawski 1998: 87). Technological advantage of the Northern hemisphere and the institutions connected with it are the source of further enlargement of the differences or oppressive activities – while in reality it has a debt towards the South (resources, “green lungs” of the globe). Emission limitations (internationalization of the costs) and trading with them may also stress the inequalities: the developing countries should be called for fighting against poverty and only later – global warming. However, this idea does not get a hearing in the world in which „(...) economic empires still excuse the current global system where speculation and pursuance of financial profit prevail (...) what is defenceless and fragile such as environment, stays this way against the interests of idolized market which become an absolute rule (...)” (Francis 2015: 56).

3. CONCLUSIONS

One should realize that the teaching of Pope Francis will be probably excavated in the context of the Church’s assessment of technological development along with the moral evaluation of its use. In the case of *Laudato Si’* one deals with a fairly unexpected and bold concretization of the Church’s teaching about the analysed topic. The author paid close attention especially to the element of analysis and definition of the problems rather than searching for easy and “technical” solutions to those issues which is a traditional element of the pope’s teaching.

With its huge and overt reluctance towards neoliberalism, technology is presented in the document as a wasted chance. An important element of the message is a warning of its disconnection from the human needs and full commercialization. The renouncement of the technological determinism means seeking new and fairer solutions in terms of production

while maintaining an intergenerational justice. Above all, such a presentation of these problems is an evidence of internationalization of the Church and progressive disappearance of eurocentrism.

References

- [1] Adamski. K. (2015). *Władza i technika*. Świdnica.
- [2] Ambrogetti F., Rubin S. *Jezuita Papież Franciszek. Wywiad rzeka z Jorge Bergoglio* (2013). Kraków.
- [3] Anuszczyńska Izabela (ed.), *Wzorce zrównoważonej produkcji w działalności przedsiębiorstw*. (2011). Warszawa.
<http://www.parp.gov.pl/files/74/75/76/479/12633.pdf> [Retrieved: 10.04.2016].
- [4] Bauman. Z. (2007). *Płynne czasy. Życie w epoce niepewności*. Warszawa.
- [5] Beck. U. Giddens. A. Lash. S. (2009). *Modernizacja refleksywna*. Warszawa.
- [6] Beck. G. Parke. H. (2015). *Agenda 21*. Rio de Janeiro.
<https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf> [Retrieved: 01.03.2017].
- [7] Benedict XVI. (2007). *Spe Salvi*. Rome. http://w2.vatican.va/content/benedict-xvi/en/encyclicals/documents/hf_ben-xvi_enc_20071130_spe-salvi.html [Retrieved: 01.03.2017].
- [8] Carson. R. (1962). *Silent spring*. Boston.
- [9] Eliade. M. (1988). *Historia wierzeń i idei religijnych*. Warszawa.
- [10] Francis. (2013). *Visit to Lampedusa*. Rome.
http://w2.vatican.va/content/francesco/en/homilies/2013/documents/papa-francesco_20130708_omelia-lampedusa.html [Retrieved: 10.04.2016].
- [11] Francis. (2015). *Laudato Si'*. Rome.
http://w2.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html [Retrieved: 10.04.2016].
- [12] Galbraith. J. K. (1992). *Ekonomia w perspektywie*. Warszawa.
- [13] Glapiński. A. (2011). *Meandry historii ekonomii*. Warszawa.
- [14] Godin. Ch. (2004). *Koniec ludzkości*. Kraków.
- [15] Janikowski. R. (2009). *Kultura osiąg zrównoważonego rozwoju*. In: R. Janikowski, K. Krzysztofek (ed.), *Kultura a zrównoważony rozwój*. Warszawa.
- [16] John Paul II. (1998). *Fides et Ratio*. Rome. http://w2.vatican.va/content/john-paul-ii/pl/encyclicals/documents/hf_jp-ii_enc_14091998_fides-et-ratio.html [Retrieved: 10.04.2016].
- [17] Judycki. S. (1998-1999). *Epistemologia XX wieku. Przegląd stanowisk*. Roczniki Filozoficzne, Vol. 46-47.

- [18] Kiepas. A. (2009). *Technika jako kulturowy czynnik zrównoważonego rozwoju*. In: R. Janikowski, K. Krzysztofek (ed.), *Kultura a zrównoważony rozwój*. Warszawa.
- [19] Klein. N. (2014). *Doktryna szoku*. Warszawa.
- [20] Klein. N. (2016). *To zmienia wszystko. Kapitalizm kontra klimat*. Warszawa.
- [21] *Pastoral constitution on the Church the modern world Gaudium et spes*. (1965). Rome. http://www.vatican.va/archive/hist_councils/ii_vatican_council/documents/vat-ii_const_19651207_gaudium-et-spes_en.html [Retrieved: 10.04.2016].
- [22] Kowalczyk. S. (2010). *Etyka- zagrożenie wolności nauki?*. Annales. Etyka w życiu gospodarczym. Vol. 13, Issue 2.
- [23] Krzysztofek. K. Szczepański. J. (2002). *Zrozumieć rozwój*. Katowice.
- [24] Kulik. A. (2008). *Życie na kredyt. Generowanie sztucznych potrzeb w społeczeństwie konsumpcyjnym*. In: S. Partycki (ed.), *Kultura a rynek*. Vol. 2. Lublin.
- [25] Kumor. B. (1991). *Historia Kościoła*. Vol. 7. Lublin.
- [26] Leśniak. J. (2009). *Wizja zrównoważonego społeczeństwa*. In: J. Błażejowski (ed.), *Zrównoważony rozwój*, Gdańsk.
- [27] *Limits to Growth*. (1972). New York. <http://www.donellameadows.org/wp-content/userfiles/Limits-to-Growth-digital-scan-version.pdf> [Retrieved: 01.03.2017].
- [28] Lowitzsch. J. (2016). *Przyszłość gospodarki zależy od tego, do kogo będą należały roboty*. <http://www.obserwatorfinansowy.pl/tematyka/makroekonomia/przyszlosc-gospodarki-zalezy-od-tego-do-kogo-beda-nalezaly-roboty/> [Retrieved: 10.04.2016].
- [29] Martino. R. R. (2005). *Kompendium Nauki Społecznej Kościoła*, Kielce.
- [30] Martyn. W. (2008). *Ekologia w polityce*, Zamość.
- [31] Morawski. W. (1998). *Zmiana instytucjonalna*. Warszawa.
- [32] *Our Common Future* (1987). New York. http://www.sswm.info/sites/default/files/reference_attachments/UN%20WCED%201987%20Brundtland%20Report.pdf [Retrieved: 01.03.2017].
- [33] Pieńkowski. D. (2008). *Ekonomia ekologiczna a ekonomika środowiska i zasobów naturalnych. Epistemologia „napięcia”*. Optimum. Studia Ekonomiczne. Vol. 38, Issue 2.
- [34] Rifkin. J. (2001). *Koniec pracy*. Wrocław.
- [35] Scola. A. (2010). *Doświadczenie człowieka. U źródeł nauczania Jana Pawła II*. Lublin.
- [36] Stiglitz. J. E. (2015). *Cena nierówności*. Warszawa.
- [37] Strzeszewski. Cz. (1985). *Katolicka Nauka Społeczna*. Warszawa.
- [38] Waloszczyk. K. (2004). *Ku ekorozwojowi*. In: J. Krzyżanowski (ed.), *Zrównoważony rozwój*, Warszawa.

- [39] Wasyluk, P. (2012). *Oświeceniowa idea postępu. Przedmiot wiary czy wiedzy?* In: B. Banasiak, A. Kuczera (ed.), *Festiwal filozofii*, t. 4, *Demokracja, tolerancja, oświecenie*, Olsztyn.
- [40] Zięba. M. (2016). *Papieska ekonomia*. Kraków.

(Received 24 March 2017; accepted 18 April 2017)