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System analysis of the problem of workers' rights in the encyclical "Rerum Novarum" by Leo XIII

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Abstract

The article uses the method of system analysis to analyse the vision of society outlined in the encyclical "Rerum Novarum" by Leo XIII. The system analysis concerned the identification and problem analysis with elements of mathematical analysis (according to the Konieczny division). In the course of the analysis, used were the concepts developed at the Polish School of Cybernetics, the main representatives of which were Mazur and Kossecki. The basics of system analysis, autonomous systems were presented and the division into systems was made for further analysis. System energy/material processes in terms of energy, power and freedom factor of the systems as well as the information processes in terms of social norms were taken into account. As a result of the analysis, it was revealed that the system of social control proposed by Pope Leo XIII assumes primacy of ideological norms (Catholicism) and ethical norms, with simultaneous occurrence of economic and vital norms. The system of society proposed by Pope Leo XIII is coherent, resistant to disturbances and striving for effective expansion, and what is more, it solves

a given social problem. The weakness of that system is susceptibility to ideological indifference, weakening ethics and disturbing the process of ideological and ethical programming. The implementation of ideological and ethical norms into the society takes place mainly through the educational process. Further research possibilities and limitations of the tools used were also indicated.

Keywords
Catholic Social Teaching, cybernetics, Leo XIII, Polish School of Cybernetics, Rerum Novarum, sociocybernetics, system analysis, workers' rights

> *Another measure is to stir up mutual slander and clashes of friends against friends, the populace against the prominent people, and the rich among themselves. It is also characteristic of tyrants to make their subjects poor, both so that they cannot maintain a militia, and so that they are too busy looking after daily needs to have free time to get into conspiracies.*
> Aristotle, Politics[1]

Introduction

In the following article the author used the instruments of system analysis and the concepts developed at the so-called Polish School of Cybernetics (PSC) to analyse the worker question (also called the social issue) described in the encyclical "Rerum Novarum"[2] by Pope Leo XIII. Cybernetics, the PSC is a representative of, is a field of science dealing with the research of control processes.[3] Marian Mazur[4], whose key works – "Cybernetyczna teoria układów samodzielnych" [A Cybernetic Theory of Autonomous Systems], "Jakościowa teoria informacji" [A Qualitative Theory of Information] and "Cybernetyka i charakter" [Cybernetics and Character] – are recognized as the greatest achievement of Polish and perhaps also world cybernetics,[5] has been acclaimed one of the fathers of the Polish School of Cybernetics. The theories contained in those works were used and developed by Kossecki.[6]

The first subchapter describes the idea of system analysis, autonomous system and the distinction of the systems to be analysed. The second subchapter analyses the energetical processes in the

1. Politics V, 11, 1313 b, 16-21 (transl. J. Sachs).

2. The English text of the encyclical from the official website of the Vatican was used for analysis. The footnotes to the encyclical comprise the abbreviation RN (from "Rerum Novarum") and numbers according to the numbering in the English translation of the encyclical. The English text was used because there is no numbering in the official Latin text of the encyclical found on the Vatican website – see: Leo XIII, *Rerum Novarum*, www.vatican.va/content/leo-xiii/la/encyclicals/documents/hf_l-xiii_enc_15051891_rerum-novarum.html, (access 15.12.2022).

3. J. Kossecki, *Metacybernetyka*, Narodowa Akademia Informacyjna 2018, p. 9.

4. Ibidem, pp. 5–6.

5. P. Sienkiewicz, *Poszukiwanie golema*, Krajowa Agencja Wydawnicza 1988, p. 94.

distinguished systems in terms of energy, power and the freedom factor. The last chapter analyses information processes in terms of social norms of the distinguished systems.

System analysis

In order to somewhat clarify what system analysis is one should refer to the concept of a system, which is understood as "set of interrelated elements".[7] The way of dividing reality into parts and determining their relationship depends on the researcher and on the problem he decided to solve. However, system analysis is more than a description of a given phenomenon, or an analysis of systems,[8] although describing the initial state is an essential element of it. The article uses the Konieczny approach to system analysis, which distinguishes four types of system analysis:[9]

1. Identification analysis, which is aimed at describing a system, its elements and parameters, goals and tasks of both the entire system and its individual parts;

2. Problem analysis, which is aimed at elaborating a list of problems to be solved in a given system, their classification, presentation of the criteria and limitations of potential solutions;

3. Mathematical analysis, which is aimed at developing a decision algorithm used to resolve the problems identified in the preceding step of system analysis;

4. Quantitative-statistical analysis, which is aimed at statistical elaboration (collection of relevant data) of a system and its environment in terms of the parameters distinguished in the preceding steps.

An identification and problem analysis shall be carried out in the article. However, using the mathematicised theoretical patterns developed within the Polish School of Cybernetics will allow to propose operationalisation for researching a given society from the viewpoint of employer-employee problems, thus also tackling issues associated with mathematical analysis.

The following systems may be distinguished in the text of the encyclical:

- worker, workman, poor, proletarian,[10]

- employer, rich, wealthy,[11]

6. J. Kossecki, *Metacybernetyka*, op. cit., pp. 5–6.

7. M. Mazur, *Cybernetyka i charakter*, Państwowy Instytut Wydawniczy 1976, p. 438.

8. P. Sienkiewicz, *Analiza systemowa. Podstawy i zastosowania*, Bellona 2014, pp. 46–47.

9. Ibidem, pp. 50–51.

10. E.g. RN 2.

11. E.g. ibidem.

- family,[12]

- Church, ecclesiastical institutions,[13]

- labour associations, workingmen's unions, artificers' guilds,[14]

- state,[15]

- agitators, socialists.[16]

As a next step of the analysis it should be identified how those systems are interrelated (whether they have a common part or are elements of other system or other systems are their elements, etc.), and then, as far as possible, determine the relations of each type of system with each of the distinguished ones and with the environment that is always there. It should be noted that the divisions of systems should be a functional one, that is it should be kept in mind what function does a given system perform.[17]

Mazur defined an autonomous system as a system capable of controlling its own actions and of acting to prevent the loss of this capability.[18] In order to have such properties, a system must be composed of the following subsystems:

- receptors – subsystems receiving information from the environment,

- correlator – a subsystem for processing and storing information,

- power supply – a subsystem receiving energy from the environment,

- an accumulator – a subsystem for processing and storing energy,

- effectors – subsystems for interacting with the environment,

- homeostat – a subsystem for system's self-control (maintaining functional equilibrium), which interacts with correlator and accumulator.

12. E.g. ibidem, 12–14.

13. E.g. ibidem, 16, 53.

14. E.g. ibidem, 48-49, 54.

15. E.g. ibidem, 4.

16. E.g. ibidem, 2, 4–5, 14.

17. P. Sienkiewicz, *Analiza systemowa...*, op. cit., p. 35.

18. M. Mazur, *Cybernetyka i charakter*, op. cit., p. 163.

In order not to lose the self-controlling ability, any autonomous system has to explore the environment and exert impact thereon, for which it needs energy. Examples of autonomous systems are both man[19] as well as society, i.e. an autonomous supersystem, the elements of which are autonomous systems.[20] On the basis of the above, it should be considered that the systems distinguished from the encyclical are autonomous systems, and therefore all the conclusions concerning an autonomous system also apply to them.

One of the keynote issues dealt with in "Rerum Novarum" is the powering the system such as both a workman and his family. From formal viewpoint of energy and information it does not matter whether man himself or the group he is a member of is analysed. A worker (head of family) will be treated as a subsystem of the family (especially as an effector and power supply, which interacts with the environment in such a way so as to obtain energy for the entire system of family as he is obliged to do[21]). It should be noted that single person households are not families, though for the needs of the analysis will be treated as prospective families. Thanks to that it will be possible to get a broader picture of the society without the need to use additional simplifications, which will allow for drawing more extensive diagnostic and prognostic conclusions.

Analysed will be also the relations of the family with other distinguished systems, i.e. ecclesiastical institutions, labour associations, the state and the Church. It would seem that family could be recognised as a subsystem (element) of state, which is confirmed also by Pope Leo XIII, who claimed that the family is "a part of the commonwealth",[22] whereas on the other hand the pope notes that man precedes the state and cannot be absorbed by it,[23] but also that such a property is possessed by family,[24] whose paternal authority cannot be absorbed by the state.[25] On this basis, the state (state institutions) will be treated as a system equivalent to the family but performing a different function – as a guide an coordinator of social life.[26] It is also bothersome to recognise subordination of the family to the Church, since not every family is its member. What is more, the states (the people that make them up) as well as labour associations and ecclesiastical institutions (sic!) may be affiliated with the Church, wholly or only partially (depending on the will of their members). Disjointedness in the division of the society into systems may be attained by classifying the Church hierarchy as an ecclesiastical institution and putting it at the same level as the family and state institutions. Also labour associations will be classified as ecclesiastical institutions owing to similar cybernetic properties in the context of the problems dealt with in the encyclical. The ecclesial aspect will not be lost given the detailed nature of the analysis of the information processes further on in the article. Summing up,

19. Ibidem, pp. 167–168.

20. J. Kossecki, *Metacybernetyka*, op. cit., p. 93.

21. RN 13.

22. Ibidem, 7, 35.

23. Ibidem, 7, 35.

24. Ibidem, 12–13, 35.

25. Ibidem, 14, 35.

26. Ibidem, 32–35.

Volume 8 Issue 3 (2022)

Volume 8 Issue 3 (2022)

the society has been divided into systems, such as the family, ecclesiastical institutions together with Catholic labour associations, the state (state institutions), and the groups of socialists and agitators. Employees and employers will not be analysed as independent systems, but as subsystems that could be classified as elements of each of the abovementioned four systems. The point of reference for the analysis will be the family.

Energy, power and freedom factor vs the labour issue

For an autonomous system to be able to exist and function, it has to process energy. Energy processed in a unit of time is the power of a system. It may be described with the following formula: $P=\frac{E}{t}$, where P is power, E – energy, and t – time. Attention should be given to the interpretation of these variables. Mazur claimed that the power of a system may be expressed in watts, but this is not the sole possible interpretation, since energy may be also treated like e.g. machines, friends or entitlements.[27] The analyses of the Polish School of Cybernetics assume a certain dose of freedom in interpreting energy, and thus also the power of a system. In the case of the energy of such system as the family, it may be interpreted as the family budget, family wealth and expressed in a currency, may be additionally correlated with the purchasing power of the currency or expressed in any other form which has been developed empirically or theoretically as long as it reflects the energy processes available in a given unit of time for such system as the family.

The power of a system may also be written as, $P = P_0+P_r+P_s$ where P is total power, P_0 – idle power, P_r – working power, and P_s – free power.[28] The idle power of a system is the power needed for the system to exist. For instance, in the case of man it is the adequate quantity of food, water and heat in a given time unit without which man shall die. Working power is the power (energy in a time unit) that should be used in order to acquire energy for maintaining idle power. Examples of such power spending is gainful employment, hunting, robbery, etc. In order to survive man has to work to acquire energy[29] (e.g. in the form of money, which will be exchanged for food). Free power is the power left in a system after idle power and working power have been used. In order to adequately interpret the problem of the power of a system, also the issue of accumulated energy should be raised. Energy does not need to be acquired and used instantaneously in a given unit of time. Thanks to the accumulator it is possible to store it and spend it afterwards. In the case of man, the energy such as food and water may be store in the body solely for a relatively short time, and thus the problem of accumulated energy may be left out in this case. On the other hand, such an autonomous supersystem as the family may store energy, interpreted e.g. as family wealth, for years, generations or centuries. Therefore, the

27. M. Mazur, *Cybernetyka i charakter*, op. cit., p. 225.

28. Ibidem, pp. 238–239.

29. RN 8.

Volume 8 Issue 3 (2022)

energy in a given unit of time will be increased by the unused free energy from the preceding unit of time of the family's existence (since in the preceding unit of time the unused free energy from all the previous units of time of the family's existence was accumulated).

It also seems important to describe the issue of savings. If a given family does not save, its accumulated energy equals 0. It is interesting to consider a scenario when a family lives e.g. on credit. Mazur described credit as a source of sociological power.[30] It seems, however, that such an approach to this topic is a simplification. From the viewpoint of energy processes, total power must never be lesser than idle power. It is so also in the case of living on credit. Free energy cannot be negative. Therefore, what is credit linked with? It seems that taking a loan is like subjugating to the control (that is transferring a part of the ability to control from the homeostat of the family to an external organiser) by the system of the lender as regards spending of a portion of one's energy in a certain timeframe in exchange for emergency energy at a given moment for the borrowing family. It seems that it is possible to link the arising obligation with the need to spend additional working power by the system of the family for the duration of the loan. Such interpretation would be in line with the proposition that if a system is unable to expend an adequate amount of working power in order to acquire idle power, it strived at disintegration, which becomes a fact if the system is unable to assure at least its idle power. Thus, if the family is unable to repay the loan, its functional equilibrium – the ability of control oneself and adequately influence the environment - becomes disrupted. Therefore, credit is indeed a source of sociological power, as Mazur had it, but at the same time is linked with an increase of the working power of the system of the borrower (and his family) in a certain timeframe

Savings, understood as energy, may be processes into a different type of energy in order to preserve their properties for powering the system, which may change overtime. Although the Polish School of Cybernetics has never occupied itself with reflecting on a change of the "quality" of energy as a result of its very storing in the accumulator, this issue is tackled by Leo XIII, who noted that savings may be secure e.g. by investing them in land.[31] For instance, such economic processes as inflation, deflation, setting currency exchange rates by central banks, etc. may change the value of money and thus also the energy of the family. Similarly, deterioration of a property or unsuccessful (successful) investment may over time change the energy in the accumulator without any physical addition of energy/matter. Perhaps linking the problem of energy with the information processes (treating the "quality" of energy as certain information) together with the process-based approach will allow to uncontradict the approach of the Polish School of Cybernetics.

30. M. Mazur, *Cybernetyka i charakter*, op. cit., p. 225.

31. RN 5.

Using the terms referring to the power of a system it is possible to derive the freedom factor: $s=\frac{P_s}{P_s+P_r}$. If the free power of the system equals 0, the freedom factor will also equal 0, while the entire power will be spent on acquiring the energy needed to maintain the existence of the system, that is cover the idle power and the working power. When the working power equals 0, the freedom factor equals 1, which means that the system has so much energy that it does not need to strive for it since it is sufficient to cover idle power, and what is more – there is leftover free energy, which may be at a given time used as free power for any other operations of the system.[32] Mazur also notes that working power may be wholly and partially covered by another system, i.e. originate from the outside of the analysed system. In such case it is called sociological power versus physiological power, which comes from within a given system.[33]

With a view to the freedom factor and source of free energy, three extremal types of families may be distinguished. In the first one, the freedom factor is close to 0, which means that the work of family members offers revenues that are sufficient solely for survival. Mazur described this situation as slavery, since the system lacks free power to improve its condition.[34]

Another type is the family in which free energy is close to 1, while working energy is covered from internal resources of the system (energy stored in the accumulator), thus it is physiological power. An example of such family is the family of an employer, who owns capital, machines, buildings, land, etc., which he can rent out or use for increasing his wealth (accumulated, unused free energy). Thanks to his resources he may use them to create conditions for gainful employment of other systems.

The freedom factor of the third type of the family is also close to 1, but free energy come from the outside (it is sociological energy). An example may be a family which subsists only and exclusively on assistance from other systems (e.g. social welfare, charity). Noteworthy, it is a different case than taking a loan, since this type of assistance does not involve any obligations, i.e. does not contribute to an increase the working power of the system in the future. Such a situation may be associated with the Pope's observation that common ownership would take away from people an incentive for working, causing conflicts and poverty.[35] From the viewpoint of energetical processes, the situations of common ownership and ample welfare benefits are identical, since in both cases the system is fully dependent on an external system (covering entire working power), so the family's remaining in such condition would also generate conflicts and poverty.

32. M. Mazur, *Cybernetyka i charakter*, op. cit., pp. 239–240.

33. Ibidem, p. 225.

34. Ibidem, p. 240.

35. RN 15.

Volume 8 Issue 3 (2022)

Pope Leo XIII recognises as optimal the situation whereby each system strives at attaining the freedom factor different from either 0 or 1, which corresponds with Mazur's statement that it is in between those two extremes that the system is capable of making a change (when $s>0$) and improve its situation (when $s<1$).[36] Closing the wealth gap between the rich and the poor will mitigate conflicts between those classes.[37] The Pope also underlines the value of work, which may contribute to owning land[38] and improve it.[39] Work has always accompanies man, even before the original sin, after which is has become penance for sins and painful necessity,[40] which was, however, accepted by Jesus Christ Himself, who spent a great part of His life as a Carpenter.[41] Therefore, the families with the freedom factor close to 0 should increase it through work and savings to gain greater material independence (associated with energy) and ensure sustainability and freedom for the family (functional equilibrium and internal control) at the times of fortuitous adversities.[42] The Pope frimly defends private ownership, in particular the right to own land.[43] In turn, the systems with the freedom factor close to 1 should devote a part of their power to working for others, and should treat his wealth as a lease given from God.[44] Thus the burdens imposed on employee by employers should not be excessive so that the employee could spend time with his family[45] and have time to practice their religion,[46] which is linked with increasing the free power of the employee at the expense of the free power of the employer. What is more, members of the families (rich and poor)[47] that enjoy free power should avoid associations that are dangerous to religion,[48] at the same time engaging themselves in Catholic associations, religious orders and other institutions, which directly intervene in behalf of the poor[49] and workers with advice,[50] as well as through care over youth and the elderly, and providing for them (energy covering a part of the working power) in the event of sicknesses and accidents, and if a worker dies – caring for his widow and children.[51]

It is worth noting that searching for a specific value or their bracket for the optimum of the freedom factor is an open task and seems a significant challenge for the Catholic Social Teaching in close collaboration with economics and psychology (for instance when comparing the issue of family energy with the Hobfoll conservation of resources theory or the issues of wellbeing. This issue is important since the freedom factor may objectivise the problem of slavery[52] by transferring it from the field of rhetoric to the field of social sciences and theology.

36. M. Mazur, *Cybernetyka i charakter*, op. cit., p. 240.

37. RN 47.

38. Ibidem, 9.

39. Ibidem, 10.

40. Ibidem, 17–18, 44.

41. Ibidem, 23.

42. Ibidem, 13.

43. Ibidem, 10.

44. Ibidem, 22.

45. Ibidem, 20.

46. Ibidem, 36.

47. Ibidem, 55.

48. Ibidem, 54.

49. Ibidem, 29.

50. Ibidem, 55.

51. Ibidem, 48, 58.

52. See: M. Mazur, *Cybernetyka i charakter*, op. cit., p. 240.

Social norms and the labour issue

A social norm will be understood as a rule of human behaviour which has been developed in the process of people getting adjusted to the need of the society.[53] In other words, a social norm is recognised as reactivity of such supersystem as the society to a given type of stimulus,[54] i.e. the ratio of a system's response to a given type of stimulus to the strength of this stimulus.[55] Social norms may be divided into cognitive (associated with the cognitive process) and decision-making ones (associated with the decision-making process). Moreover, decision-making norms may refer to:[56]

- fabric of the society (vital norms) – referring to the quality and quantity of "human fabric" in the society; associated with pleasure, group position and position in a group;

- energy of the society (economic norms) – referring to energy in the society, i.e. the economy; associated with effectiveness and profit;

- structure of the society (constitutive norms):

    - goals of the society (ideological norms) – associated with compliance with a given ideology (understood as a theoretical system);

    - ways of realising goals of the society:

        - under external pressure (legal norms) – with a predominant use of such energy stimuli as sanctions; associated with legality;

        - under inner pressure (ethical norms) – using only information stimuli; associated with moral good.

Social institutions are associated with a certain system of social norms,[57] and thus it will be possible to analyse the systems distinguished from the encyclical from the viewpoint of their responsiveness to stimuli.

The duties of the family as such can be found in the encyclical. In a large measure, they concern vital norms, since a significant goals of marriage and thus the family is to multiply.[58] Then, it should

53. J. Kossecki, *Cybernetyka społeczna*, Państwowe Wydawnictwo Naukowe 1975, p. 59.

54. J. Kossecki, *Metacybernetyka*, op. cit., p. 151.

55. Ibidem, p. 140.

56. Ibidem, pp. 155–176; J. Kossecki, *Cybernetyka społeczna*, op. cit., pp. 75–77.

57. J. Kossecki, *Cybernetyka społeczna*, op. cit., p. 77.

58. RN 12.

be stresses that according to the author of "Rerum Novarum" there should be economic norms at play in the family associated with attaining independent means of subsistence, which has been more broadly described when reflecting on the energetical processes. The main purpose for the family and thus also its members is to attain truth and goodness through virtuous living, contemplating spiritual matters and praising God,[59] that is also ideological and ethical norms.

The norms present in state institutions are legal norms. Pope Leo XIII writes that state statutes should be based on the law of nature and thus support and defend with all the authority of the law the right to own private property,[60] which has been additionally confirmed in the divine law,[61] as well as purchasing and using it.[62] Excessive taxation and other public levies are counter to the right of property.[63] What is more, the state that steps in the paternal authority destroys the unity of the family by countering the law of nature.[64] This means that legal norms in the state should be in accordance with economic norms,[65] which is not obvious given the fact that there have been systems in which economic norms were not compliant with legal norms, which turned businessman into potential criminals. An example of such system was the People's Republic of Poland – state ruled by communists after World War II.[66] The Pope stresses also the need fortify moral virtues and justice,[67] the basis of which should be wellbeing,[68] which means that the legal norms of the state should be also in agreement with ethical norms, which are superior to economic norms. The public authority should step in to resolve a social situation as a last resort, whenever there is no other way to deal with abuses or threats,[69] like e.g. incitement to revolt or pilfering,[70] counteracting unemployment caused by onerous and badly paid work,[71] limit worktime through appropriate rest depending on the type of work, sex and age of a worker.[72] Given the fact that some of these problems involve many details (e.g. amount of leisure, health protection at work, etc.), state institutions should leave the regulation of those issues to labour associations.[73] Such associations should have the right to exist providing they are not aimed against morals and the good of the state.[74]

The teaching of the Church requires that the worker is seen not only as a source of profit, but first of all a human being,[75] which should be reflected in fair remuneration for work.[76] This indicates superiority of ethical and ideological norms over economic ones, which is visible also in the Pope's indication of the ultimate purpose of man and the way of attaining it through virtue and merits, which are "common inheritance of men" of both the rich and the poor alike.[77] What is more, the Church educates the society by instilling ethical and ideological norms.[78] In turn, ecclesiastical institutions and labour associations should focus on both health (vital norms), well-being[79] (economic norms), ad-

59. Ibidem, 40.

60. Ibidem, 38.

61. Ibidem, 11.

62. Ibidem, 13.

63. Ibidem, 47.

64. Ibidem, 14.

65. Ibidem, 32.

66. J. Kossecki, *Elementy nowoczesnej wiedzy o sterowaniu ludźmi. Socjotechnika, socjocybernetyka, psychocybernetyka. Skrypt dla oficerów policji*, Wydział Zarządzania i Administracji Akademii Świętokrzyskiej im. J. Kochanowskiego w Kielcach 2001, p. 153.

67. RN 32.

68. Ibidem, 32–33.

69. Ibidem, 35–36.

70. Ibidem, 38.

71. Ibidem, 39, 42.

72. Ibidem, 41.

73. Ibidem, 45.

74. Ibidem, 51–52.

75. Ibidem, 20.

vice[80] and information about erroneous ideas[81] (cognitive norms), and first and foremost on spiritual matters[82] (ethical and ideological norms). The Pope believes that the statutes of such associations (legal norms) should be unfettered by the state owing to the dynamics of the reality[83] It should be added that Catholic associations are duty bound to invite also other workers, even those from the circles that are unfriendly to Catholicism.[84]

Of importance is also the description of norms associated with socialists and other agitators. The promise people freedom from pain and trouble, an undisturbed repose, and constant enjoyment.[85] They perceive the means to materialise their promises in doing away with private property[86] and omnipotence of the state in lieu of the authority of the family.[87] This means that socialists utilise vital, economic and legal stimuli (in the form of primacy of the state law over ethics). Such manipulation leads to stirring groups (systems) against each other,[88] which is specially successful in case of those individuals who are dominated by vital, economic or legal norms. Conflicts may result in a change of ideological norms of wealthy and poor families, as well as all other systems so that their purposes become divergent. As a result of the weakening of ideological norms, ethical norms are also weakened.[89] The Pope described the negative effects of weakening ideological norms in the following words: "Hence, to fall away from its primal constitution [of society – note K.Z.] implies disease; to go back to it, recovery."[90] The ideological norms of socialists are different from those of Catholics.

Conclusion

Despite the fact that the encyclical "Rerum Novarum" was written in the late 19th century, its analysis shows that the vision of the society outlined by Leo XIII continues to be topical and modern. Using the instruments of cybernetics, it may be concluded that the Pope's proposition should resolve the discussed issue of the misery of workers. The Pope recommends uplifting human motivations from energy/material (associated with vital, economic and legal norms) to information motivation (associated with ethical, ideological and cognitive norms) both as regards families, state institutions and labour associations. What is more, the Pope recommends striving at the greatest possible energy/material autonomy (associated with energy) of families and associations. Such configuration of social norms (predominance of ethical and ideological norms with co-existing vital and economic norms) is also called dynamic information system of social control with the predominance of ethical and ideological motivations, which in a large measure is based on indirect control by instilling ethical and ideological norms in the society (mainly through the process of education). Thanks to this the system consumes little energy and is highly capable of restoring functional equilibrium. The entire

76. Ibidem.

77. Ibidem, 23–25.

78. Ibidem, 26–27.

79. Ibidem, 57.

80. Ibidem, 55.

81. Ibidem, 57.

82. Ibidem.

83. Ibidem.

84. Ibidem, 61.

85. Ibidem, 18.

86. Ibidem, 4.

87. Ibidem, 14.

88. Ibidem, 19.

89. J. Kossecki, *Cybernetyka kultury*, Państwowy Instytut Wydawniczy 1974, pp. 113–114.

90. RN 27.

Volume 8 Issue 3 (2022)

effort of the society is subordinated to ideology (in the case of "Rerum Novarum" – Catholicism) and ethics. In addition, such society is highly resistant to economic and military crises, and legal coercion, though is susceptible to ideological indifferentism, weakening ethics and disturbances of the process of ideological and ethical programming (e.g. by the socialist agenda). The same type of social system was present also in ancient Rome.[91]

The analysis revealed that it is worth developing the instruments associated with the Polish School of Cybernetics, e.g. by exploring the issue of a change of the "quality" of energy over time, which will make it possible to research the systems in their dynamics (process approach). It also seems that the practice of the Catholic Social Teaching should put more emphasis on the significance of cognitive norms, which are dealt with in the encyclical only occasionally. Further analyses of the topic may be deepened by carrying out mathematical and statistical analysis and analysing concrete systems in reality (e.g. concrete states in a given time bracket). It is also possible to deepen identification and problem analysis from the viewpoint of other cybernetic parameters, such as e.g. dynamism of character of such systems as the family, state and ecclesiastical institutions, control processes or determination of the relation of ideological norms to cognitive norms, and legal norms to ethical norms on the basis of other doctrinal texts of the Church.

It is also worth examining whether at present there happen to be situations whereby both employee and employers (and their families) have the freedom factor equal to 0, and as a result of social processes free power has been transferred to state institutions. Such a situation would make the state subject also to the duties of the employer, i.e. should strive at reducing its free power for the benefit of entrepreneurs and workers. Also moral responsibility for the poverty of both social groups would be transferred onto state institutions – that is the officials and decision-makers.

91. J. Kossecki, *Cybernetyka społeczna*, op. cit., pp. 363–368.

Bibliography

Aristotle, *Politics*, transl. J. Sachs, Focus Pub. 2012.

Kossecki J., *Cybernetyka kultury*, Państwowy Instytut Wydawniczy 1974.

Kossecki J., *Cybernetyka społeczna*, Państwowe Wydawnictwo Naukowe 1975.

Kossecki J., *Elementy nowoczesnej wiedzy o sterowaniu ludźmi. Socjotechnika, socjocybernetyka, psychocybernetyka.*

Skrypt dla oficerów policji, Wydział Zarządzania i Administracji Akademii Świętokrzyskiej im. J. Kochanowskiego w Kielcach 2001.

Kossecki J., *Metacybernetyka*, Narodowa Akademia Informacyjna 2018.

Leo XIII, *Rerum Novarum*, www.vatican.va/content/leo-xiii/la/encyclicals/documents/hf_l-xiii_enc_15051891_rerum-novarum.html, (access 15.12.2022).

Leo XIII, *Rerum Novarum. Encyclical of Pope Leo XIII on Capital and Labor*, https://www.vatican.va/content/leo-xiii/en/encyclicals/documents/hf_l-xiii_enc_15051891_rerum-novarum.html, (access 15.12.2022).

Mazur M., *Cybernetyka i charakter*, Państwowy Instytut Wydawniczy 1976.

Sienkiewicz P., *Analiza systemowa. Podstawy i zastosowania,* Bellona 2014.

Sienkiewicz P., *Poszukiwanie golema*, Krajowa Agencja Wydawnicza 1988.