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SPECIFIC NATURE OF THE CONCEPT OF FOOD SECURITY AS A "WICKED PROBLEM"

Abstract

The aim of the article was firstly, to analyze a specific character of the food security's concept, and secondly, to present a large variety of stakeholders' positions dealing with the issue and their impact on economic and political dimensions. For this purpose a review in available studies and documents was made. The results show that a lack of the precise definition for the food security's concept creates different understandings, leading to various interpretations and divergent solutions. The reasons could be found in specifics of the food security's concept which is qualified as a wicked problem. Wicked problems refer to issues which are highly complex, have innumerable and undefined causes and are difficult to understand and frame. Therefore, caution is required when positions of stakeholders are estimating. Based on literature it can be stated that the productionist and environmental frames are dominant in the debate, resulting in potential conflicts and different claims about action to be taken. As a result, a clear political vision on the food security's concept is lacking. More holistic and coherent approaches are needed in order to actively form food security policies at the global and national levels in the future.

Keywords: food security, food availability, food accessibility, food utilization, food stability.

Introduction

Ensuring food security became a global issue during the Great Depression of the 1930s, and after the Second World War it even started to be treated as a political paradigm. The concept of food security enjoyed a renaissance again in the 1970s and in 2006–2008 with the increase in prices of fuels and agricultural produce respectively. The potential lack of food began to be perceived as a threat for further world development. Numerous global (e.g. FAO, World Bank), EU (e.g. European Commission) and government (e.g. UK's DEFRA) institutions and scientific centres[1] published myriads of voluminous reports, presenting various aspects of this problem and suggesting possible solutions.

Even a very brief overview of the reports and articles suggests that food security is treated in a very inconsistent and frequently diametrically divergent way. This indicates that the problem has not been clearly defined and that a number of interested parties are involved in solving the issue. Thus, the presented approaches tend to be subjective and attempt to impose an individual understanding of this concept so as to pursue one's own interests. The same applies also to such concepts as climate change or sustainable development. The scientific literature classifies such concepts as so-called wicked problems (Dentoni D. et al. 2012).

The aim of this paper is to show the specific nature of the concept of food security as one of wicked problems and the resulting divergent approaches and positions of various interested parties, as well as their impact on the economic and political sphere. The analysis is based on strategic documents of global organisations, EU and government institutions and the relevant literature.

Attempts at defining food security

The concept of "wicked problems" was first introduced to social policies by Rittel and Webber in 1973. These researches emphasised that in the case of such problems it was difficult to adopt a scientifically rational approach due to the lack of a clear definition and the various perspectives of stakeholders at the stage of formulating and solving the problem. A more general approach, going beyond social science, was proposed by Conklin (2006), who attributed the following characteristics to "wicked problems":

– they are not fully understood until after the formulation of a solution;
– every wicked problem is new and unique;
– they are never definitely solved and they have no stopping rule, i.e. no decision is ever reached as to whether to continue or stop a given problem on the basis of the present position and past events;
– solutions to wicked problems are not right or wrong;
– every solution to a wicked problem is a 'one shot operation', no repetition possibility.

[1] A comprehensive review of the relevant literature (Lang T., Barling D. 2012).

Given the specific nature of "wicked problems", they cannot be tackled by the traditional approach whereby problems are defined, analysed and solved in sequential steps. Therefore, Roberts (2000) identified the following strategies to cope with such problems:

- *an authoritative strategy*: the responsibility for solving the problem is vested in the hands of a few people. The reduction in the number of stakeholders reduces problem complexity, as many competing points of view are eliminated at the start. The disadvantage is that the selected group may not have an appreciation of all the perspectives needed to tackle a problem from various dimensions;
- *a competitive strategy:* attempts to solve wicked problems by pitting opposing points of view against each other, requiring parties that hold these views to come up with their preferred solutions. The advantage of this approach is that different perspectives can be weighed up against each other and the best one chosen. The disadvantage is that a confrontational environment is created in which it is emotions rather than knowledge that may play the decisive role and lead to adopting a bad solution;
- *a collaborative strategy*: aims to engage all stakeholders in solving the problem. Typically these approaches involve numerous meetings in which issues and ideas are discussed and a common, agreed solution is formulated. Asignificant disadvantage of this strategy is the long time needed to formulate a solution.

It appears that when it comes to food security the last of the above-mentioned strategies is wide spread. This view is supported by the number of initiatives taken in recent years by various institutions, organisations and companies.[2] As noted by Dentoni et al. (2012), we are dealing with a very traditional approach characterised by the lack of understanding of the specific characteristics of the problem of food security, especially with respect to agribusiness companies. The abovementioned authors believe that significant organisational changes are needed, in particular holding a dialogue involving not only stakeholders from the food chain, but also from outside of this chain. These might include non-governmental organisations and scientific centres dealing with different scientific disciplines. On the other hand, the majority of agribusiness companies cooperate mainly with their industrial competitors in order to harmonise standards or approve the practices used.

The numerous attempts already taken at defining food security prove how difficult this concept is to define. The most widely cited definition is the one proposed by FAO, albeit it is also subject to constant changes: "food security is when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (Pieters H. et al. 2012). Such a broad understanding of food security made it necessary to include four dimensions in the analysis of this concept:

[2] An interesting overview of this subject (Food security... 2013).

- *food availability* – when a sufficient amount of food of a specific quality is ensured through all forms of domestic agricultural production, imports and food aid. Agricultural land availability and efficiency of a given agricultural sector are instrumental in ensuring these conditions;
- *food accessibility* – guaranteeing individuals the possibility of acquiring food that satisfies their nutritional needs. In this case consumers' income is also important, as well as the prices of foods and the other goods and services;
- *food utilization* – reflects the ability to make effective use of food in a way that enables satisfying nutritious needs, access to clean water and adequate sanitary conditions and health protection;
- *food stability* – refers to the above-mentioned dimensions and their duration.

In 2009, the definition of food security was additionally supplemented by social aspects during the World Summit on Food security. It was concluded that people may not have food security ensured as a result of the prevailing cultural and social norms, even if they have access to food in economic terms.

The FAO's definition was created based on the way of thinking dating back to the 1930s and 1940s, when it was believed that a combination of science and technology plus capital investments would cause a rise in food production. Food security will thus be ensured if the increase in food production will be accompanied by its better distribution and reduction of food losses and waste, which in turn will decrease the prices of food and increase its accessibility. This point of view is clearly visible in the current FAO's interpretation, whereby a comprehensive approach to better land, agriculture, technologies, investment and food aid management will produce the best results (Price volatility... 2011). This approach gives, however, rise to allegations that it fails to take into account a number of other aspects, including the psychological needs of people or the confidence in food and its producers that has been often stressed recently. In particular in developed countries, where subsequent crises or food scandals are more and more frequent, confidence is becoming an important element of food security. Therefore, Rocha (2008) identifies five layers of defining food security: availability, accessibility, adequacy, acceptability and agency, referred to as the '5 A's'.

As noted by Mooney and Hunt (2009), it is possible to find a consensus between the different approaches to food security and to identify three basic consensus frames. Each of them has its own specific keywords which characterise it and generates a specific type of action taken by stakeholders:

- hunger-related interpretation – food security is perceived through the angle of the problem of famine in the world;
- society-related interpretation – food security is treated as an important element of society's development;
- risk-related interpretation – food security serves to minimise the risk with respect to the sensitivity of the food system in "normal accidents" (e.g. a disease) and "intentional accidents" (e.g. agri-terrorism).

The above attempt at categorising the understanding of food security stems from the concept of framing[3] and its use in political marketing to consciously shape and use interpretative frames with respect to known social events (Pluwak A. 2009). An analysis of the issue perceived as above goes beyond the scope of this article, brining one's attention, however, to the possible mechanisms of interpreting the same social phenomena depending on the identified objectives, notably the political ones.

Sensitive areas in the debate on food security

The concept of food security, due to its broad and imprecise definition, offers ample room for free interpretation of its meaning and potential consequences for various economic and political spheres. This leads to numerous tensions caused by a different understanding of this concept and by a sense of threat to the interests of specific stakeholders. This is apparent if only in stressing the important role of agricultural households and agricultural sector in ensuring food security. Often, this is the basic argument cited when allocating significant public resources to supporting agriculture. Most countries create ministries for agriculture, and only a few have ministries for food issues (e.g. Germany). It tends to be forgotten that agricultural holdings constitute only one of the links of the food chain. Indeed, the functioning of the entire chain needs to become more effective if we are truly aiming at ensuring food security. It is, however, easier to talk about isolated problems and boast of solving those than to make efforts intended to tackle the imbalances of the entire food chain that is very complicated in its nature.

When talking about the food chain links, it is worth mentioning a kind of paradox that we are dealing with in the case of large corporations trading in food. It is these companies that identified the directions of changes well and actively joined the promotion of sustainable development and food security. In 2002 Danone, Nestle and Unilever, followed in the subsequent years by Kellogg's, Kraft, McDonalds, PepsiCola and Sara Lee, created the Initiative for Sustainable Development in Agriculture (*Sustainable*... 2008). In 2010, at the World Economic Forum in Davos, large food companies agreed on a road map for global agriculture (*Realizing*... 2010). This shows how the lack of clearly defined direction of action and leadership of world and/or governmental institutions may be quickly exploited by the different stakeholders for their own purposes.

The changes in the consumption pattern lead to numerous tensions in the debate on food security. In particular in developed countries the process of tran-

[3] In the psychological meaning 'framing' should be defined as a cognitive phenomenon, being an integral part of the categorisation process, where external incentives, such as new information, become defined and classified to the categories of previously gained experience. Owing to the possibility of exploiting the manipulative character of framing, it has become especially popular with public discourse players, such as politicians or journalists. Before this concept was transformed, however, framing had initially been used by cognitive science and sociology.

sition from the limited amount of food, conditioned by the seasonality and local availability, to an unlimited choice, dependant only on the price and ability of traders, is visible (Burch D., Lawrence G. 2007). These changes affect the public health (e.g. intensification of lifestyle-related diseases) and exert a strong pressure on the natural environment (e.g. a more intensive use of soil and water, greenhouse gas emissions). As a result they may lead to a significant increase in the costs of ensuring food security. For that reason increasing importance is being given to the so-called "soft instruments" such as labelling food products. A label is intended to convince the consumer that the product he or she chose has been manufactured in line with the environmental or ethical standards.

The problem of ensuring food security in developed countries is rarely related to the lack of food (a different question is whether it is right since 16 million of Europeans benefit from food aid). There is increasing talk of quality rather than quantity of food. Another point of view is represented by developing countries. Approximately 1 billion of starving people around the world indicates the importance of this problem (*Price volatility...* 2011). The divergent approaches to food security presented by developed and developing countries give rise to another area of tensions visible in the political and economic sphere, and especially in trade relations. A question thus arises whether it is possible to create global food security, and if so, how to achieve this and which institutions should fulfil this objective?

These questions may be extended to such issues as who and in what way influences the changes in the complex world food system, as well as to reflections slightly more philosophical in nature: what do societies want and what role does food play in defining their development process? A good example is the frequently cited dilemma between 'consumership' and 'citizenship'. Consumers are usually interested in buying good quality and healthy food at a low price. Citizens, on the other hand, should understand the need of spending more on food given the fact that such assets as e.g. clean water used in the agricultural production are financed from public resources. This is a continuation of the discussion that has been taking place for several centuries now and was started by Malthus in the 18th century on how to adjust the food system to the needs of the world that is becoming more and more urbanised (Paarlberg R. 2010).

The productive vs environmental approach to the understanding of food security

The above-mentioned dilemma between 'consumership' and 'citizenship' reflects two fundamental approaches to the understanding of food security, i.e. the productive and environmental approach. The former one is visible in the constantly repeated imperative, popularised by the FAO's Director-General J. Diouf (2008), that the food production needs to be doubled by 2050 so that the world can feed the then population of 9 billion people. The global food security may

thus be ensured only when the agricultural production of specific agricultural products is increased by further intensification of this production, liberalisation of the global food system and use of biotechnology. According to Tomlinson (2013), this imperative is based on incorrect methodological premises.[4] Nevertheless, it led to popularising the policy of "new productivism", expressed if only in the fashionable nowadays concept of sustainable intensification, promoting the production of larger amounts of food with lower or maintained at the current level use of agricultural land. In this context food security is treated as one of the most important objectives of the Common Agricultural Policy (CAP), stimulating production and productivity increase in agriculture. It is believed that the European Union is under a moral obligation to supply more food to the world so as to avoid yet another food crises like the one of 2007-2008. The most frequently cited future challenges include: food price volatility on agricultural markets, overcoming dependency on imports of certain products (e.g. protein-rich feeds for livestock) and climate change. The proposed solution for ensuring adequate food supply on a EU and global scale is a strong first pillar of the CAP, supporting growth in agricultural production and productivity. These actions should be treated as a form of public goods provision, which justifies granting compensation in the form of direct payments. In this approach to food security other public goods are accepted, but they should not lead – firstly – to decreased agricultural production, and secondly – they should be financially compensated to farmers. Moreover, if additional requirements decrease competitiveness of EU farmers, the same requirements should be applied to farmers from outside of the EU (Burch D., Lawrence G. 2007).

A different understanding of the concept of food security is presented in the environmental approach, according to which traditional CAP focuses too much on increased food production, not paying attention to a negative impact of intensive farming on natural environment. Thus, according to supporters of this concept, CAP should be directed to activities, such as farmers providing environmental services, which should be an integral part of EU agriculture. In the long term, fundamental conditions for retaining of production capacities of the agricultural sector include: productive land, clean water in sufficient volume and biodiversity. Thus, in this case food security is connected with strict observation of sustainable agricultural practices.

Climate changes and degradation of natural environment are mentioned as primary challenges. It is interesting that these issues are mentioned in both concepts. But while in the production one they are treated as a risk with a negative impact on food production (natural catastrophes, plants and animals failing to adapt to higher temperatures), in the environmental one it is the increase of agricultural production that is considered to be the cause of climate change and

[4] More on the topic (Tomlinson I. 2013),

environment degradation. This is demonstrated by irrational use of natural and energy resources, intensive use of pesticides and artificial fertilisers, degradation of ecosystems and emission of greenhouse gases. According to supporters of this concept, Common Agricultural Policy has not been modified enough to minimise the risks mentioned in the future. Therefore more "green" instruments should be introduced, support for farmers should be targeted better, innovative solutions should be promoted and the "polluter pays" principle should be put in place[5].

The beginnings of the approaches to understanding of food security presented above could be identified in the Malthusianism doctrine, which – despite criticism from the moment of its creation – began to develop intensively in the period between the wars in 20th century (K. Wicksell, W.S. Thompson, F. Notestein and others), and became particularly popular in the the first dozen of years following the Second World War. It was connected with the so-called population explosion in colonial and liberating countries. There were concerns at the time that an "excessive" increase of population could threaten the survival of not only populations of developing countries, but of entire humanity. In "The Population Bomb" published in 1968, P.R. Ehrlich predicted that within ca. 15 years from the publication of the book, there would be a global demographic catastrophe connected with famine. In 1972, the first report of the Club of Rome „The limits to growth" was published, which predicted exhaustion of the capacity of our planet to sustain the forecast global population within around 100 years. In 1981, *Global 2000 Report to the President, 1980*, commissioned by the US President Jimmy Carter, was drafted. Its conclusions stated that in case the present trends continues, the world in 2000 would be "more crowded and polluted, less environmentally stable and more prone to distortions that the world we live in today" (Paarlberg R. 2010).

Thus Malthusianism, originally referring to disproportions and shortages resulting from excessive reproduction and insufficient productivity of land and resulting insufficient supply of food, was enriched with new components under the Neo-Malthusian doctrine, i.e. risks to humanity resulting from shrinking raw material resources and increased pollution of natural environment.

Other examples of understanding food security

While discussing various concepts of understanding of food security, several others should also be mentioned, which – though not as popular as the production or environmental one – are also present in the debate. The table presents the percentage support of stakeholders for the concepts in question, taking into

[5] Polluter pays principle – responsibility for environment in the area of prevention and mitigation of damage to animals, plant, natural habitats, water resources, as well as damage on land. It is the task of competent authorities to make sure that an economic operators causing damage to natural environment pays for necessary prevention and mitigation measures (Directive 2004/35/EC of the European Parliament and the Council of 21 April 2004).

account the questionnaire study carried out by Candel et al. (2014).

The regional approach emphasises the differences in ensuring of food safety depending on the area (region) considered. Supporters of this concept (Consultation... 2011) do not promote the pursuit of self-sufficiency however, but rather focus on significance of rural areas, less economically developed regions or small farms to ensuring food security. In their view, in certain regions the market does not compensate farmers for their efforts, making them unable to produce at the level of global prices and compete with others. However, discontinuation of agricultural production could lead to depopulation of these regions, negative impact on food security, as well as to a modification of social and cultural nature of a region. Therefore CAP, treated as a tool for ensuring food security, should undergo a substantial change. The policy so far has been based on historical criteria, primarily promoting large farms. It puts new Member States in a substantially worse competitive position. Therefore, funds under the Common Agricultural Policy should be redistributed towards supporting small and medium farms, particularly in less economically developed regions. It is interesting that within this understanding of food security increasing of food production is not treated as the most effective solution. It is believed that it is not the quantity of food, but access to it and its distribution that are a significant problem in economically weaker regions.

Table 1

Support for different concepts of food security depending on the origin of stakeholders

The concept of food security	Support for a specific concept (%)	Type of stakeholders
Production	37.3	Agricultural and chemical industry, agricultural organisations, other producer and processor organisations, Member States, political groups of the European Parliament, scientific communities, others
Environmental	32.7	Environmental and nature protection organisations, health organisations, agricultural and business organisations promoting sustainable development, political groups of the European Parliament, others
Regional	8.2	Local authorities, regional development organisations, agricultural organisations
Food sovereignty	7.3	Organisations promoting food sovereignty, trade unions, political groups of the European Parliament
Developmental	5.5	Free trade organisations, religious organisations, NGOs, scientific communities
Free trade	4.5	Organisations of producers and processors of food, trade organisations, political groups of the European Parliament, Member States
Combination of various ones	4.5	Member States, political groups of the European Parliament, European Commission

Source: Candel et al. (2014).

Understanding the concept of food security as the pursuit of food sovereignty is an approach similar to the regional one, but more radical. Its supporters focus on the right of people to access to food and to decide, which model of food production they prefer, with the focus on local and regional self-sufficiency. In their view the concept of food security is used by governments, large scale agribusiness and trade to support their neoliberal interests (Fairbairn M. 2012). They point to a contradiction in the position of the European Commission, which on one hand speaks about the need to retain food security in the EU, and on the other about strengthening competitiveness of the agricultural sector in the international arena. This will lead to increased dependence of the EU on situation in global markets and as a consequence it will negatively affect, sooner or later, EU food security. Solutions should be sought in reformulation of CAP towards supporting consumers and farmers rather than agri-food industry. Food should be produced locally, which shall guarantee its high quality, taking into account social, cultural and environmental specificity of a given area. Support should be provided to farmers from small farms and active farmers providing "green" services to the society.

The overview of different concepts of food security should also mention the understanding of this notion in the context of CAP's impact on developing countries. In this so-called developmental approach, it is believed that the EU agricultural policy has a clearly negative impact and limits these countries in obtaining autonomy and self-sufficiency in the area of food security. According to the supporters of this approach (Consultation... 2011), the European Union should not only guarantee food security to itself, but also bear greater responsibility for consequences of its activities in the international arena. What raises most controversy is large support for EU farmers and difficult access to the EU market, which contributes to easy placement of cheap EU products in the markets of developing countries, Africa in particular. EU's demand for imported high protein feeds for livestock is mentioned as a second important problem. The result is that countries depending of this import rearrange their structure of agricultural production accordingly, damaging local communities and natural environment. Elimination of barriers hindering development of developing countries is considered to be the best solution, while in a critical situation consent should be given for use of instruments protecting these markets and the agricultural sector.

The approach promoting free trade as an opportunity to ensure food security is very close to the developmental approach. Similarly to the developmental one, it pertains to global security and focuses on a long term perspective. According to the supporters of this concept, free trade provides all farmers across the world with opportunities to enter every market and makes it possible for consumers to buy food cheaply. However, contrary to the developmental approach, in their view markets of developing countries should be protected only in special conditions. Global food security shall be ensured when governments and international organisations manage to eliminate instruments distorting intentional trade. Therefore, in case of CAP, payments coupled with production, export subsidies

and other market instruments with a negative impact on competitive position of other countries and agricultural producers should be dropped. Liberalisation of trade is perceived not as a threat to the EU market, but as an opportunity ensuring new sales markets (Candel J. et al. 2014).

In the conclusion of the overview of various approaches to the concept of food security it should be emphasised that they rarely function in a pure form. Most of the time we deal with their different combinations. For example, in Poland we see a combination of the production approach with environmental and regional ones. In European Commission's positions in turn – a combination of production, environmental, regional and developmental ones. The analysis of reasons for this situations falls outside of the scope of this article, but could make an interesting topic of subsequent studies.

Summary

The analysis of different approaches to food security clearly shows that there are different understandings of this notion. It results from the absence of a clear definition, which gives grounds to diverse interpretations and pursuit of often completely divergent solutions. Taking into account the literature of the topic, one should conclude that the situation stems from the specificity of the notion of food security, which could be included in a category of "wicked problems". Given the specific nature of "wicked problems", they cannot be tackled by the traditional approach whereby problems are defined, analysed and solved in sequential steps. The knowledge of nature of such problems enforces substantial prudence when interpreting positions of individual stakeholders and drawing conclusions.

Mechanisms driving of "wicked problems" functioning cause a situation, where despite consensus on recognition of food security as one of the most important global and domestic priorities, divergent strategies and directions of action are proposed. Support for some of them contradicts others, giving rise to conflicts already at the stage of understanding the concept itself, not to mention its implementation. This diversity of approaches results in a situation, where each of interested parties can find something for itself. It has got its good sides, as the problem itself gets a general support, irrespective of views of stakeholders. However, its multidimensionality calls for a holistic rather than a unilateral approach, in order to identified common areas and synthesise individual approaches. The question is whether it is possible, taking into account the specificity of the problem and the fact that the crucial stakeholders limit themselves to talking about the need to retain food security, stopping short of actively creating solution, which would facilitate it.

This paper is limited to outlining the problem of the absence of a clear definition of food security and resulting difficulties in formulation of a uniform position on activities taken to ensure it. There is a need to carry out further research assessing this phenomenon, and then looking at the possibility to draft a coherent strategy for ensuring food security at national and global levels.

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