

The food crisis: its causes and consequences

Written by Andrey Alexakha

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ANDREY ALEXAKHA, MAR 24 2011

The article *Food 'Security': the need for a new framework for analysis* by Monika Barthwal-Datta, published on this site on 28 February, argues that an analysis of the current food crisis should first and foremost be based on a theoretical framework. The model I have proposed in my book *Introduction into Progressology*[1] provides such a framework. The possibility of expanding on the full model is constricted by the scope of this publication. Therefore, only the basic tenets are laid out in this article.

The model is based on the law of diminishing returns on land, which is one of the central elements of the classical theory of political economy. The returns of labour and capital are the focus of classical economists because they analyse the law from the point of view of a landowner, whose primary interest is the maximisation of profit. In the post-world war era, the law was reconsidered by Ester Boserup. Her analysis was performed from a wider perspective, and came to the conclusion that the intensification of agriculture led to the diminishment of labour productivity. Hence, population growth is a cause of development in agriculture.[2] In economic theory, the law of diminishing returns may be considered as a special case when two factors of production (land and capital) are fixed, while the third factor (labour) is increasing. In this case the returns to the factor will be diminished.[3] Before the industrial revolution, the intensification of agriculture occurred mostly through the expansion of the labour input, thereby diminishing labour productivity. Certain increases in the capital may occur because of land redistribution, for instance. But the growth of output from one area of land was mostly obtained by increasing the labour input. Only after the industrial revolution did the input of capital start growing as well as the labour productivity with use of synthetic fertilisers, pesticides, farm vehicles and machinery.

In preindustrial society, the intensification of agriculture would begin only after the population density would have exceeded the *critical population density*, or the highest possible population density within a given stage of intensification of land use. Firstly, exceeding the critical population density leads to famine. As far as the land of every country is limited, it may be considered as a *reservoir* which possesses the capacity equal to the critical population density multiplied by area of the country. *The reservoir is full* when the population density is equal to the critical density. Further population growth leads to the shortage of the means of subsistence. In order to increase farm commodities, the population should intensify agriculture, but as a consequence the labour productivity will diminish. Therefore, with every stage of intensification of land use the population is compelled to be more disciplined, hard-working and persistent so the *level of development of population* will grow as a consequence.

From this theoretical perspective, the level of development of the population represents its ability to solve life problems. These problems may be solved on different levels. For example, the problem of water supply may be solved with the bucket and the well, but it may also be solved with a water-pipe. The more complicated people's labour activity, the higher their level of development. Their level of development corresponds to their *level of needs* and *standard of living*. In the long run, the population lives under the convenient standards of consumption only. Of course, people may want a better life, but to live better they have to work harder. The choice of harder and longer work for the sake of a better life is determined by higher levels of development. The standard of living includes not only material means of subsistence, but the organisation of society. The higher the level of development of the population, the better social life is organised.

The filling of the reservoir is accompanied by the growth of social tensions, because the means of subsistence are no

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more sufficient. After the intensification of agriculture, social tensions subside. But sooner or later further intensification of agriculture becomes impossible for natural or economic reasons. In this case, the filling of the reservoir will be the *last one*. In preindustrial society, the peasantry were the prevalent portion of population, and all of society depended on them. When the reservoir filled up, the peasantry faced deadlock. Previous ways of solving basic life problems (i.e. the intensification of agriculture) became impossible, and new methods of problem-solving were still unknown. All of society searched for a way out of the deadlock. In such conditions, a revolution begins. I have to mention that the proposed model defines *revolution* as *social disturbance caused by the filling up of the reservoir*. For example, the English revolution in the middle of the 17th Century, the French revolution at the end of the 18th Century, and the Russian revolution at the beginning of the 20th Century— all were revolutions of the same nature.

Regardless of the revolutionary slogans, the population always tried to raise its standard of living by political means, specifically through revolution. According to the proposed model, this is impossible because the standards of living could only rise in conjunction with the level of development. Usually such methods (expropriations, egalitarianism, the fixing of prices and so on) give only momentary relief from social pressures, but destroy economies and lead to the further decline of living standards. Gradually, the population becomes disenchanted with the revolution as a means to improving life. At the same time, political struggle and civil war encourage anarchy and criminality, and society seeks order at any cost. This paradox usually culminates in personal dictatorship and the repression of all the revolutionary liberties achieved.

After the revolution, population growth gradually compensates for the population's losses and the reservoir is filled once more. But this time, the redundant rural population begins to get involved in industry and trade. At this stage, the main impediment to the country's industrialisation is the low level of needs of the mainly rural population, which likewise has a low level of development. In these circumstances, exports are of great importance. But the section of the population engaging in non-agricultural labour is growing incrementally. The more complicated labour of the people forms higher levels of development and higher levels of needs, respectively. Therefore, the demand for goods is increasing, but simultaneously the population demands more political and economic liberties. Dissatisfaction with the regime is growing, especially among the educated classes. When the economic situation worsens, dissatisfaction seizes the lower social stratum too. In these circumstances, the regime may fall—but genuine democracy is impossible because of the still low level of the population's development.

The people cannot make the right political decisions. They want politicians to raise the standards of living through political means. Because it is impossible, the political situation in the country becomes unstable for a long time. The society fluctuates continually between dictatorship and anarchy, but the dictatorship becomes more and more oppressive, while anarchy weakens. There is a populist democracy when the people vote for politicians who promise to raise the standards of living quickly. Usually it is impossible, and politicians print money in great amounts to fulfil their promise. In such countries, the budget's deficit is high and inflation soaring. A genuine democracy may be established as soon as agricultural work represents no more than 10% of the labour force. These are the principal theses of the proposed model. In this basis, it might be possible to predict the development of any underdeveloped country if sufficient information is available. Now, I would like to present an analysis of the contemporary situation in the world, from the point of view of the proposed model and to make some prognoses.

There is no doubt that the uprisings in Middle Eastern countries have been provoked by a food crisis. The most important features of the current food trade is the fact that the main exporters of grain are the most developed countries (USA, Canada, Australia, France, Germany) and the countries which could be considered as relatively developed (Argentina, Russia, Ukraine). In these developed countries, the level of population development is high, so the level of necessities is correspondingly so. Therefore, in these countries the share of food in total expenditures is low (15-20%), the birth rate is low and, by extension, population growth is also low (0-0,6%). In underdeveloped countries, meanwhile, the share of food in total expenditures is 50-65% and above, while birth rates are 1,2% in Asia, 1,4% in Latin America and 2,6% in Africa.[4] So in the long run, food prices increase as a result of population growth in underdeveloped countries. This explains why the price of meat (the food mostly consumed in rich countries) lags far behind the prices of grain, sugar and oil—which are the staple foods in underdeveloped countries.[5]

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Food crises are not casual; they present themselves as an important part of development. During the last 15 years from which data is available (1990-2004), the world's cereal production has grown by 19%^[6] while the overall population has grown by 21%.^[7] To reach parity between the supply of cereals and the demand of cereals, the prices of grain have to grow enough to create incentives for investment in agriculture in developed countries. At the same time, the rise of food prices creates an incentive for the decline of birth rates in underdeveloped countries. Hence, every food crisis has as a consequence the increase of output of grains, and the diminishing of natural increases of population. But food crises have other consequences.

In the countries where revolutions happened and authoritarian regimes were established long ago, high food prices created conditions for future social disturbance. This is typical of Middle Eastern countries. In these countries, the reservoirs were filled long ago, but the level of development there was not high enough for demographic transition because the share of agricultural labour was circa 20-30%. Due to their lucrative exports in oil and other mineral resources, and also the tourist trade, Middle-Eastern countries could afford to import food in large amounts. For example, Egypt imports about 36% of all the wheat its population consumes, making up fully 30% of the population's diet. Furthermore, in other countries of the region, their past revolutions led to the appearance of a considerably well-educated social stratum. For these people with high levels of economic development and literacy, the current authoritarian regimes are unacceptable. When food prices reach their highest level, discontent seizes the lower social stratum and social unrest begins. It is interesting that social disturbances in the Middle East and North Africa almost always begin in January, when wheat prices reach their peak. So it was on the 26th of January 1951 that the revolution in Egypt began. In those years the social disturbances spread to many other regional countries: in 1952 there were uprisings against French rule in Tunisia and Morocco, in 1954 in Algeria. In the late 1970s and early 1980s, while food prices still were high, social disturbances occurred in Morocco, Egypt and Algeria. The Iranian revolution also began in January 1979.

The 2011 Arab Spring initiates a new period of development for Middle-Eastern countries. Since this crisis began, old authoritarian regimes have come to an end, but the political situation in many countries remains unstable. The educated people in these countries actually want more liberties and democracy. But the main portion of the population simply wants their leaders to raise their standards of living through economic policies. As we have seen, this is impossible. Hence, frequent changes of governments, high budget deficits and inflation are inevitable.

At the same time, the position of Islamic fundamentalism has been weakened. Islamic fundamentalism is an ideology born from Middle-Eastern revolutions, and this phenomenon is not unusual. In Europe the ideology of revolution possessed a religious character, in the Netherlands in 1570s and in England in the 1640s. The peasantry in England as well as in Middle-Eastern countries believed that life had become so bad because people had forgotten God's laws. Now in the Middle-East the level of development has become high enough for people to understand that economic problems are in the secular sphere, though some displays of Islamic extremism are possible. For the world market, political instability in the region means first and foremost high oil prices. It is possible that oil prices will remain high until the next economic crisis, around 2017-2018.

But the food crisis does not only influence the Middle East. Let us consider the possible consequences in other regions. The reservoirs of many countries of Sub-Saharan Africa are quite far from being full to the brink. In this region, the largest slice of the population (55-90%) works in agriculture. Agriculture is extensive; much land is used as forest-fallow and natural pasture. Therefore, the level of development of the population remains low, and the share of food in total expenditures is 50-70%, while the birth rate is the highest in the world. In these countries, the low GPP per capita results from the low level of necessities of the population and nothing can be changed until the reservoirs are filled. In those countries which possess rich mineral resources (Namibia, Botswana, Gabon, Congo) the GPP per capita is relatively high, but the level of development of the general population may raise in the long run only through the creation of employment in industry and through free, quality education.

In Latin America the population's level of development is relatively high. In all of these countries, the reservoirs became full a long time ago and revolutions have occurred. Agricultural work varies between 13% (Brazil) and 42 % (Bolivia) of the population's employment. The lower the figure, the higher the level of development. Therefore, the food crisis may influence some political disturbances in Bolivia, Ecuador, Peru, and in the countries of Middle

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America. But in general the food crisis in these countries will cause the acceleration of development.

In Asia, the food crisis (if not the current one then the next one) will cause particularly heavy consequences for Bangladesh and India. The most capacious reservoirs in the world are cradled in the Ganges basin. Bangladesh is in the Ganges – Brahmaputra Delta and is the most densely populated area in the world. The population of Bangladesh stands at 162 million, and population density is around 1127 people per km². Indian states on the Ganges basin are also very populous. West Bengal has a population of 90 million; Jharkhand, 27 million; Bihar, 100 million; Uttar Pradesh, 194 million. In Bangladesh, around half of the population engages in agricultural work. In India, that figure is 56%. Moreover, the Indian share of food in total expenditures is about 50%, and circa 54% in Bangladesh. In India the reservoirs of states along the Ganges basin are the next to be filled; in Bangladesh it is already full. So revolution in these countries is inevitable. In 2006, revolution occurred in Nepal, the country with the smallest reservoir capacity in the region. The terrorist attacks of Muslim fundamentalists in Pakistan are a result of the filling up of reservoirs in arid parts of the country, while in more fertile parts the reservoirs are not yet full. The possible ideology of revolution in India and Bangladesh will most likely be Maoism, the current ideology of Naxalists. But some kind of nationalism is also possible. If the current food crisis is prolonged enough, then disastrous consequences in the region are inevitable.

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Written by: Andrey Alexakha
Written at: Dnipropetrovsk University
Written for: Dr. Sviatets
Date written: 11 March 2011