

Ecological Perils in Erstwhile USSR: Some Facts and Figures

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ABSTRACT Until recently, researches on Soviet Socialist economy were carried out to measure gross production and productivity (its increase or decline) both in industrial and agricultural sectors over short and long spans of time period, and these were compared with capitalist countries like USA. But in a more recent period, the researches on the Soviet socialist economy have also started to take into consideration the relationship (in terms of rate and volume) of the Soviet, or for that matter, socialist economy with environmental pollution and degradation. The aim of this paper is to present a preliminary review of some recent literature on Soviet environmental situation in the context of a socialist economy. Our reading of the literature shows that rapid environmental pollution had taken place in the former Soviet Russia and the major information on this aspect of the socialist USSR have come from the Soviet source itself, during the period of glasnost and perestroika. At another level, it has been found that the socialist Soviet Russia not only had increased its energy use (e.g. fossil fuels) at a very high rate but sometimes higher than that of capitalist countries like U.S.A. The same story runs in case of Soviet agriculture and it is illustrated with a specific case of cotton production *vis-a-vis* desertification of the Aral Lake in Soviet Central Russia. All these can be explained by the centralized nature of Soviet planning which according to some recent ecological theory is 'ecologically unsound' as it tried to control everything from a single centre.

INTRODUCTION

The success of socialist Soviet Russia lay primarily not in technological achievement but in reducing inequality among different social segments by a system of centralised production and distribution under rigid government control. Until recently, researches on Soviet socialist economy were carried on to measure gross production and productivity both in industrial as well as agricultural sectors over the years and its comparisons with capitalist countries (Bergson, 1978; Ellman, 1989). But in

more recent period the researches on the Soviet socialist economy have also started to take into consideration the relationship of the Soviet or for that matter, socialist economy with environmental pollution (Bernstam, 1991; Carlson and Bernstam, 1991). This enquiry again roughly coincides with 'glasnost' and 'perestronkia'. Along with academic researches, information of alarming rates of environmental degradation in former Soviet Russia have also been widely published in newspapers and popular magazines from the West as well as Soviet Russia (Statesman, 1993; Ellis, 1990; Moscow News, 1991; Goldman, 1970). The aim of this paper is to present some information on Soviet environmental degradation in the context of its socialist politico-economic structure. Some demographic consequences having direct relationship with environmental pollution would also be described in this paper. Last but not the least, some comparative data from market economies (though very much limited in terms of time span) would also be juxtaposed on the Soviet data to have a glimpse of the magnitude of the situation.

ECOLOGICAL PERIL : THE SOVIET SCENE

Disaster in Chernobyl was not an isolated phenomenon. In 1991, the scientists at the institute of Geography of the Soviet Academy of Sciences had identified about 300 regions in the erstwhile Soviet Union's territory whose environment was unfavourable for human population. And these territories occupy 3.7 million sq. km or 16 per cent of the countries' total area and if the reindeer pastures ruined in the Tundra are taken into account then this figure rises to 20 per cent

(Moscow News, 1991; Goldman, 1970). Information of explosions in nuclear plants contaminating 120 sq. km of Siberian forest have also come to public knowledge. (The Statesman, 1993) Soviet scientists at a top level nuclear plant issued open statements to president Boris Yeltsin against poor safety measures in those plants where "a serious accident involving just one weapon could cost 500 million or more to clean up" (The Telegraph, 1993). Besides pollution caused by nuclear plants, the level of air and water pollution with the flow of toxic wastes of the different types of industries in erstwhile Soviet Russia had reached alarmingly high levels; for example, the flow of toxic wastes into lake Baikal annually exceeds 100 million cubic meters (The Statesman, 1993; Goldman, 1970). Before entering into aggregate energy expenditure and discharge of pollutants of the then Soviet Russia in a comparative framework, we may have a look into the quantum of pollutants by a typical Soviet industry. The case in point is a synthetic rubber plant in Voronezh in Central Russia. Over the course of 20 years, this plant emitted 511,000 metric tons of air pollutants per annum and according to a 1989 OECD report this amount is only marginally lower than that produced by entire small industrial countries like Ireland and New Zealand (OECD, 1989). The same plant also discharged 14.6 million cubic meters of polluted water. One of the plant's shops was closed down in 1988 under the then economic reform. It is important here to note that about 35 per cent of

the Soviet population, which is more than 100 million people, live in towns where this type of companies control the entire infrastructure, local government and living conditions (Carlson and Bernstam, 1991). The magnitude of the problem had attained such an alarming level that Mikhail Gorbachev in his speech delivered in Moscow on 19 January 1990 at New York based global forum on environment and development stated explicitly: "Even when the pollution of the environment in some regions began to acquire a dangerous scale, this was not properly assessed at once..... The pollution of the atmosphere in some big cities exceeds the permissible level. The state of the water resources spells grave consequences for the vegetable and animal kingdoms. Soils degrade, harm is being done to people's health, and full possibilities of future generations are being called into question" (Gorbachev, 1990).

But it is not only a matter of issuing statements. In a global context, the erstwhile USSR is one of the 3 countries in the world which are jointly responsible for half of all the carbon dioxide emissions from fossil fuel combustion in 1985 (Smil, 1990) (see Table 1).

The data is revealing on at least two counts: Of the three countries two are socialists and the per capita CO₂ emission rates of USSR have increased more than 4 times compared to a less than twofold increase in USA within 35 years. Data also show that over the years the socialist countries (including USSR) have not only increased their en-

Table 1: Generation of carbon dioxide from combustion of fossil fuels, 1950 and 1985 (in per cent) (All totals are in million tonnes of CO₂/year, all per capita rates are in tonnes of CO₂/year, and all values are rounded)

Countries	1950			1985		
	Total	Share	Per capita	Total	Share	Per capita
USA	2,400	41	15.8	4,400	24	18.4
USSR	730	13	4.1	3,500	19	12.6
China	110	2	0.2	1,900	10	1.8

* Adapted from Vaclav Smil (1990).

ergy use continuously but this has occurred sometimes without any economic growth (Winiecki, 1987). Rapid environmental degradation is the natural consequence of this increased energy use which reached its peak in the former USSR. On the other hand, the pollution reduction efforts were either late comers or largely ineffective. For example, discharges of polluted water increased in the Soviet Union from 35 billion cubic meters in 1970 to 150 billion in 1988 and the abatement efforts were 60-80 per cent ineffective (Bernstam, 1991). In this context, one can again compare socialist and market economies. In 1986, the Soviet Union produced more than twice as much emission of air pollutants as the United States : 273.3 and 127.7 million metric tons, respectively (*c.f.* Bernstam, 1991). Although comparative pollution data are still rare, one of the earliest works in this area was conducted by Jiry Slama who compared sulphur dioxide emissions (the cause of 'acid rain') of the market economies with the socialist world. He concluded that the production of each billion dollars of GNP resulted in the emission of 7,000-8,000 tonnes of sulphur dioxide in the West, but more than 3 times this amount, *i.e.* about 26,000-27,000 tonnes in the socialist countries. In the amount of SO₂ emitted per unit of GDP was set at an index of 100 for the erstwhile West Germany then the comparable figure for the erstwhile East Germany is 490, for the erstwhile Czechoslovakia 485, for Hungary 386, for Poland 322, for Romania 279, for Bulgaria 229, and the USSR 236, and so unfavourably goes the comparisons of nitric oxide emissions (Bergson, 1978; Ellman, 1989).

DEMOGRAPHIC DIMENSIONS OF ECOLOGICAL IMBALANCE

The latest researches conducted to explore into the relationship between (i) ecological imbalance and (ii) demography (in the form of diseases and mortality patterns) could

not establish any significant relation between the above two variables for the whole of former USSR (Carlson and Bernstam, 1991). Further, besides environmental pollution there were other factors, *viz.* governmental policy, poor health care delivery systems, etc. which contributed to the increase of mortality rates among working age populations and infants, in the erstwhile USSR. But despite methodological and other difficulties, about presenting aggregate country level data on the relationship between pollution and mortality, certain distinctive regional patterns were discernible before the dissolution of the republic. Ecological catastrophe in the South Central Russia having almost equal dimensions like that of Chernobyl had already come to the notice of the world during the late eighties. The affected region is situated around Aral lake in the Asian republics of Uzbekistan and Kazakstan. The Aral sea, which was the world's fourth largest lake is fast running into a deadly desert of sand and salt due to poor resource management and insufficient attention to the environment. This happened as large volumes of water are being drawn off since 1918 to irrigate millions of acres of land for cotton production from the lake's two great feeder rivers, Amu Darya and Syr Darya. The success in cotton production was, however, spectacular and by 1937, after being self-sufficient in cotton production, the then USSR became an exporter of cotton to the world market. But the desertification of Aral takes its toll on Soviet people in many ways. Apart from the havoc ecological imbalances created by the destruction of rare living organisms which were being supported by the lake, the once thriving commercial fishing industry is dead. Furthermore, the use of pesticides in the cotton fields over the decades has not made the land unfit for the growing of crops, but it has also polluted drinking water supplies over a vast area around Aral. Reports of wind blown sand and salt from the deserted parts of the huge lake

have been found from as far away as the Soviet coast of the arctic ocean (Moscow News, 1991; Goldman, 1970). The affected Republics demonstrate one of the worst health conditions in the whole of the erstwhile U.S.S.R. The region is characterised by a low life expectancy, high maternal and infant mortality rates, and high rates of infectious and congenital diseases as well as cancer (Slooff, 1992). Another localised pattern of ecodemographic devastation can be observed in terms of the minority communities under the Soviet socialist system. The life-expectancy of the Soviet Eskimos from the mid-1960s to the mid-1980s declined from 59 to 44 years among males and from 67 to 54 years among females. Among the Evenki ethnic group, the life expectancy for both sexes fell to 40 years - the level of the least developed African nations (Bernstam, 1991). A good number of studies by the Russian and other scientists during the late-1980s revealed how fuel pipes, by warming the Russian Tundra, destroyed the food sources for reindeer herds and how oil spills produced water pollution thereby reducing fish stocks. These in turn deteriorated subsistence settlements of the indigenous population to slums and the resulting mortality increase was concentrated in high infant mortality, tuberculosis, and alcohol-related deaths (Bernstam, 1991).

CONCLUDING REMARKS

In this paper we have only made a preliminary attempt to present some facts as regards the ecological imbalances in the erstwhile USSR. Although it is beyond the scope of this paper to account for such 'ecological perils' one cannot afford to overlook the succinct observation by a famous authority on socialist planning, Alec Nove : "The point made here is that these is as yet no evidence that the system is better able to cope with these problems by reason of its centralized nature and of

public ownership. This is a consequence of the pluralist aspect of centralized pluralism, and of the existence of several mutually inconsistent plan objectives. Thus, a pollution-reduction plan conflicts with (say) the output and the cost-reduction, these latter usually take priority" (Nove, 1986). On the whole, it seems from an ecological perspective that the Soviet politicoeconomic system created an environment where production took priority over any other goal and in its heyday human and technological intervention was thought to be the supreme force over the biosphere. In one sense, then, socialism followed the same trajectory traversed by capitalism several decades ago. During the early phases of industrial capitalism, Engels rang the warning bell which now-a-days may sound more like an apt Rio earth summit slogan : "Let us not, however, flatter ourselves over much on account of our human victories over nature. For each such victory nature takes its revenge on us. Each victory, it is true, in the first place brings about the results we expected, but in the second and third places it has quite different, unforeseen effects which only too often cancel the first" (Engels, 1978). But ironically enough this warning bell now rang over the citadel of communism which paid little respect to the intricate feedback mechanisms of the biosphere. Recent ecological studies reveal that centralized command type of economy cannot manage the environment in the long run by creating a closed system, hence ecologically unsound. (Carlson and Bernstam, 1991). So, under the circumstances, it is not very hard to understand that it would be far more difficult for a divided Soviet Russia to come out of this grave ecological crisis. The pollution free blue sky would still remain a dream for the Russians who are now only experiencing different hues of their red firmament.

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