INTRODUCTION

"Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and torturous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential for his well-being and to the enjoyment of basic human rights— even the right to life itself."


Environmental Reconstruction\(^1\) is one of the most critical concerns for the central and East European countries today. The Environmental Reconstruction is used in the specific form of Environment restoration, where the policies and method of environmental restoration are organically linked to the transformation of the economies from planned based to market, where the building of new industrial infrastructure would be both market efficient and environment friendly. Coupled together with this term is the significant and extreme degradation of the environment, which cannot be ignored without an active interference. The term signifies large-scale reconstruction of Industries, Chemical Intervention, Construction of new roads, new power and telecommunication infrastructures, etc.

Another term used is Environment Management. However, this term is not very useful as it is a more generalized term and includes not only problems of restoration but also day management of today's environment. Usage of the term ‘Environment Management’, often leads to blurring of focus of the study. On the other hand Environmental reconstruction is a crucial term and relatively used in independent condition of Central and Eastern Europe, which is an independent region in the overall environment Management. With all its linkages with restructuring of the planned economies into market based economies.

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\(^{1}\) This is a new term which is being used in new publication by both academic institutes as well as International Agencies like, World Bank, U.N., International NGOs like World watch, Green peace etc.
MAP OF THE STUDY AREA

LEGEND
- Bulgaria
- Czech Republic
- Hungary
- Poland
- Romania
- Slovakia
- Slovenia
The collapse of the command economies and the cataclysmic changes that took place in Central and Eastern Europe and the former Soviet union in the late 1980s and early 1990s uncovered an environmental disaster of similar proportions to the economic disaster; it has also opened the road for radical changes in the conduct of environmental policy.²

The study is focused on seven Accession countries of Central and Eastern Europe, which have joined European Union on May 1, 2004. They are Czech Republic, Slovakia, Hungary, Poland, Bulgaria, Romania, and Slovenia. The other three countries Latvia, Estonia and Lithuania which joined on May 1, 2004 are not included in this study. Although they are also part have Eastern Europe but they had their separate identity as of Baltic States.

From the Rio summit (1992), more universally acceptable form of development is reflected as Sustainable Development. It incorporates local components and there are more or less the same guidelines for all countries to follow. The “Sustainable Development”³ takes a longer term and more complete view of economic activity, by recognizing the obligations of the present generation to its descendants, and by considering full lifecycle costs-including the cost of environmental input.

Sometimes referred to as, “environmentally sound and sustainable development.” The use of natural resources by humans at a rate and manner that ensures there continued availability for future generations.

- This implies that renewable resources are managed in a way that allows regeneration at a rate that can provide for future human needs.
- Those non-renewable resources are used at a rate that permits preparation of alternatives.
- That actions are avoided that would endanger the ability of the natural environment to sustain living things.

In the context of Eastern Europe, they have twin objectives to fulfill. The first task

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these countries have at their hand is clean up the mess from the past. Secondly they have to grow and maintain a sustainable, approach as laid down in the guidelines provided by the donor countries.

In the late 1980s momentous political change occurred in the Eastern Europe. These countries began moving towards democracy, and more than forty years of centrally planned economic systems began unraveling. The changes will take many years to work through the economic systems of Bulgaria, Czech Republic, Slovak, Hungary, Poland, Slovenia and Romania. The process of democratization and openness has revealed environmental degradation as one of the major cost of physical planning. Although the picture remains unclear, the environment in all its forms has undeniably suffered as a result of centralized planning. The revolutions that toppled regimes throughout Eastern European regions in 1989 are giving rise to an unprecedented mass disclosure of previously restricted environmental information. These revelations have brought to light numerous instances of ecological degradation. For example: people living in the polluted northern Bohemia, region of Czech Republic, where residents die younger than elsewhere in the country are offered financial compensation termed “burial money” by its recipients. 65% of Poland's river water is deemed unfit for industrial use, let alone drinking water. The school children living in polluted areas are regularly taken on special vacations to breathe clean air. Such disclosures led to outpourings of public concerns. The changed political climate is reason for optimism but the magnitude of the problems remains daunting.

The socialist philosophy of central planning maintains that it can cope with environmental degradation. In part, this assurance reflects Marxists philosophy, which argues that nature must be humanized to capture its inherent value to man. Engel's, in particular, argued that taking an exploitative approach to nature should be avoided. In practice, Engel's concerns, which were not in any event dominant in his own thinking, have been put to one side in the belief that a humanized nature would be capable of supporting both increased population and rapid industrialization. Moreover, the centralization of the power precludes any appreciation of the effects of environmental degradation.
NATURE AND SCOPE

The study includes history of environmental concerns and the limits to growth and concept of Sustainable development. The Sustainable Development is a complex structure with no clear definitions. The accession countries in pursuit of joining the Eastern Europe are integrating Sustainable Development Dimensions in the economies. The new technologies like Remote Sensing and Geographical Dimensions are helping policy makers in visual analysis of environmental problems and their solutions more efficiently than it was done by conventional methods before the onset of technological developments.

There is inconsistency in the availability of environment data of Eastern Europe as the data is available after the demise of former USSR. Therefore the inconsistency of environment data format has runs across the study. Only bit of data connectivity is there because of transitional aspects. Different countries are facing different problems so the focus of study varies across the region.

Throughout the region, however cleaning of the environment is by no means a luxury. Under the assault of air pollution and acid deposition, medieval cities are blackened, crumbling, whole hillsides are deforested, and crop Yields are diminishing. The rivers served as open sewers and clean drinking water is in scare supply. Most alarming of all, people are dying from pollution. In the dirtiest parts of the region, life expectancy is year’s lower and rates of cancer, reproductive problems and a host of other ailments far higher than in cleaner areas. In Hungary, nearly half of the population lives in areas with heavily polluted air. Half of Czech and Slovak Republics drinking water does not meet the national health standards.

SOURCES

Various Primary and secondary sources were taken up in the study. The World Bank Reports, European Environment Agency Reports, Legal Documents of transitional countries, United Nations Environment Programme Agency Reports, Food and Agriculture Organization Reports. Secondary sources like Limits to growth, beyond limits, sustainability conceptual framework was taken up from various sources, various reports from United Nations sustainable development initiatives in central and Eastern Europe.
MAPS

The study included Study area map, state of environment in Central and eastern Europe Maps from secondary sources, digital maps from Soil and Terrain Database for Agriculture and Environment Protection in Hungary, Forest decline Assessments by Sustainable Development Department of Food and Agriculture Organization of the United Nations, Hyperspectral data of Ikonos of NASA, Change Detection of Flooded area of Danube River by NASA, Land Use Land Cover change detection by Satellite Imagery in Bulgaria, Forest Fire and Forest decline map from Landsat Image in Poland.

STATE OF ENVIRONMENT IN CENTRAL AND EASTERN EUROPE

The state of Eastern Europe’s environment in late 1980s reflected the risk of attempting to industrialize rapidly without paying significant attention to the environment. A limited number of heavily populated industrial regions or isolated “hotspots” merit priority attention in the East European countries: Upper Silesia in Poland; north Bohemia in Czech Republic; the Borsod industrial regions in Hungary; Copsa Mica in Romania; Dimitrovgrad, Srednogorie, and Dernya in Bulgaria. Some of the problems in these areas go beyond any western experience. For example: levels of lead in the blood of children in the most polluted regions are reported to exceed safe limits by as much six times. Similarly; food contamination is recognized as a serious issue: the amount of lead and cadmium in the soil of upper Silesian towns of Olkerz and Slowkow are the highest ever recorded in the world.

Though precise figures are hard to come by economists estimate that environmental degradation in 1990 was costing Poland 10-20% of its GNP every year and former Czechoslovakia’s 5-7 % of its GNP. In former Czechoslovakia, 55 % of agriculture land is endangered by water and wind induced soil erosion. In both Hungary and Romania, water and wind erosion endangers more than 30 % of arable land. Given the degraded environment toll on human health and biological productivity, decontaminating Eastern Europe was seen as pre-condition to economic development. Air pollution related forest damage in Eastern Europe is among the worst in the world. Woodlands in the brown-coal belts of southeastern Germany, southern Poland and northern Czechoslovakia are dying or dead. A count by the United Nations Economic Commission for Europe (ECE) in 1989 found 82% of
Poland's forest showing some signs of damage, 780% of Bulgaria, 730% of Czechoslovakia, 57% of East Germany and 36% of Hungary.

Water pollution is worst in the Eastern Europe, 70% of former Czechoslovakian rivers were badly polluted. About a third of those in Bohemia, in Czech Republic and half of those in Slovakia can no longer support aquatic life. A third or 33% of the rivers and 9,000 lakes in former East German territory are biologically dead. Eighty percent of Romania's river water is unpotable. In Czech Republic, only 40% of wastewater is adequately treated. In Hungary, some 1.3 billion cubic meters of untreated sewage is discharged into the country's surface water every year. Much of the rest is only nominally treated: more than 44% of Hungary's sewage treatment plants are equipped merely for rudimentary treatments. Half of Poland's cities, including Warsaw and 35% of its industries do not treat their waste at all.

The new governments in Eastern Europe are beginning to formulate environmental strategies. However, cleaning up the region will cause substantial short-term economic and social dislocation. Thus, the challenge is to design clean-up programs that offer maximum long-term gain for minimum short-term cost. The East European countries are saddled with debt burdens. Poland is saddled with a debt of $42 billion, 64% of its annual GNP. Hungary's debt of $18 billion is 65% of its GNP. Czech Republic, Slovakia and Bulgaria also have large outstanding bills.

Poland's Environment minister estimates that improving conditions in his country will cost $20 billion over the next 10-20 years. Czech Republic and Slovak governments believe they will need to spend at least $23.7 billion on pollution control in the next 15 years. These deeply indebted East European countries are finding difficulty to pay the debts back. Meanwhile the interest payments are crippling their economies, precluding investments in environmental protection and other critical government services.

During the course of transformation, will the growing interaction of environmental experts from East and West, some countries are tending to adopt Western models on a first come first serve basis without understanding the advantages and the shortcomings of the different systems.

In the first decade, these countries have experimented with regulatory frame works. It was observed that the rush to adopt western standards should be tampered by a
careful evaluation of the cost and benefits over time and clear determination of who should bear the cost and how the standards have not been based on serious considerations of costs and benefits. Many of their standards are quite strict but not enforced; the whole system of environmental regulations has not been taken seriously.

In transition, privatization and industrial restructuring are being promoted with relatively little awareness of the potentially critical role that environment factors play in the process. Investors shy away from committing themselves because they are afraid of being held liable for past environmental damage. The regulatory framework (including standards) is unclear and national or local authorities have established specific investment constraints based on a misguided ordering of the economic and environmental priorities. These Eastern European countries are pursuing reforms for their transitional economies which are: privatization, price reform, fiscal reform, industrial restructuring, trade liberalization, monetary reforms, banking and capital market reform offers, environmental policy reform and decentralization of governance and the economy.

One of the distinguishing features of the East European revolutions of 1989 was their strong environmental component. In numerous instances, the environment in the pre-revolution days served as a rallying point from which broader demands for political change emerged. In Hungary, mass protest against the Nagymaras Dam was instrumental in the development of an effective political opposition, which eventually undermined the communist parties' exclusive hold on power. The brutal suppression of the people by the police force led to protest in Sofia (Bulgaria) led by the environmental group, “Ecoglasnost” contributed to the fall of old guard prime minister, Todar Zivkov. The clandestine publication by the Slovak Union of Nature and Land scope protectors in Bratislava, of a report bluntly detailing the regions environmental crises helped turn the people against the communist regime. Severe pollution and the resulting decay helped fuel mass pro-democracy demonstrations in Leipzing in former East Germany.

Each East European country now has a green party. In Bulgaria, Ecoglasnost, the movement that helped unseats Zhivkov and the Green party together holds 32 seats in parliament. In Romania, the Green party and the Green movement hold 23 seats in parliament between them. The fledgling environmental movements face the task
of pressuring the new governments to abide by their campaign promises. Though their environments do not show it, the East European countries have stringent environmental regulations on the books. Air and water quality standards actually tend to be stricter than those of the western nations, because they are based on a scientific determination of the level necessary to avoid health problems. Unlike in the west, the standards do not have to survive the vicissitudes of the political process.

Unfortunately, enforcement of these laws has been poor because most industry continues to be state-owned, the regulator and the regulated are the same, posing a formidable conflict of interest. Moreover, the Ministries charged with industry, agriculture and forestry have considerably more clout than the new agencies charged with environmental enforcement. The production Ministry has often succeeded in getting them exempted from fines. The penalties that are levied have barely made a dent: the offending industries being state owned and monopolistic, simply passes the bill on the central government.

TRANSBOUNDARY CO-ORDINATION

All environmental problems have a local origin but may affect much broader area. The solution to these problems likewise will have implication locally, across boundaries and globally. For example: emissions from burning fossil fuel originate at point, it may be Transboundary if the emissions descend some way off as acid precipitation and it may be global, as emission contribute to the cumulative build-up of green house gases.

Trans-boundary air pollution in Central Eastern Europe is dominated by the problem of acid rain, which is linked to emissions of sulphur-dioxide and nitrogen oxides from power stations, large industrial plants, small scale and house hold burning of coal and other fuels and motor vehicles. They are also large recipients of acid depositions from other countries, so that for example almost 50%of Poland's acid depositions originate from outside Poland. Studies of the transport of acid pollutants show that an average of only 10-25 % of sulphur and N02 emissions stays within the 150km grid square from which they originate.

Eastern Europe accounts for 7 % of global CO2. Because of its location, significant share of its air and water pollution winds up in Western Europe. Complicating the
picture is air pollution's, transboundary nature. S02 emissions are continually traded back and forth between countries. The Eastern European countries export from 68 and 97% of their So2 emissions, but import 40 to 91% of So2 of the deposited within their borders. Toxin emissions do not respect borders either. For instance, the town of Ruse (Bulgaria) has been poisoned over the years by chlorine emissions from a noxious Romanian plant just across the Danube. The plants continuing emissions are a major irritant in Bulgarian-Romanian relations.

Many of the rivers of the region cross-political borders, water pollution are a source of international conflict. Romania's pollution of the Tisza river headwaters has long been a point of contention with neighboring Hungary. In 1988, the Polish Government asked former Czechoslovakia to pay damages for the contamination of the Polish stretch of the Odra River, caused by a heavy fuel leak in Nov 1986. The Danube travels through Germany, Austria, Slovak, Bulgaria, Romania, and the Russia, picking up the industrial and biological waste along the way. Few of the cities and towns along its east European route treat their sewage.

The Black Sea receives thousands tons of nitrogen compounds and hundred of tons of petroleum products, lead and detergents from industrial waste much of it from the Danube and Dnieper rivers. This waste and a naturally occurring hydrogen sulphide cloud in the water that is exacerbated by the pollution have rendered 90% of the Black Sea biologically dead. In central Baltic Sea over half of the floor was found to be devoid of life. The Baltic receives more than 460/0 of its nitrogen load and more than 53% of its organic wastes from Poland, eastern Germany and the Russia, though they occupy only a third of its coastline.

International co-operation will be critical to the region environmental restoration. At the non-governmental level, environmentalist in Europe are increasingly cultivating ties with western environmental groups and green parties of the countries bordering the Baltic sea have established the, 'Baltro-Scandian Information center' to push governments to respect previous commitments to reduce their discharge into sea. A "Common House of Europe" project between East and West European NGO's in pushing for the conversion of the former border areas into parks. In a protest at the Tremelin nuclear plant in southern Slovak, Austrian, and Czech Green peace activist placed a banner across the plants cooling towers, a move that would have been unthinkable before the revolution.