

# **Developmentalism Versus Environmentalism : A Misplaced Polarity**

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CERTIFICATE

Certified that the dissertation entitled "DEVELOPMENTALISM VERSUS ENVIRONMENTALISM : A MISPLACED POLARITY" submitted by SURENDER SINGH AHLAWAT in partial fulfillment of the requirement for the award of the degree of Master of Philosophy (M. Phil.) has not been submitted in part or full for the award of any degree of this or any other University. To the best of our knowledge this is his own work.

We recommend that this dissertation may be placed before examiners for evaluation.

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Dedicated  
to those who are last  
and those who put them first.

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## CHAPTER 1

### INTRODUCTION

For last few centuries growth and progress have been the hallmark by which to judge the world. This was the result of the conviction that human mind can comprehend the universe and utilize it to meet human needs. Inspired by the abundance of natural resources human society strived for economic and material growth. During this age progress became the central ideological foundation of the man's thinking. This progress ideology stood on twin pillars of growth and abundance.

Progress ideology survived till as late as the middle of the twentieth century when the ideology of 'environmentalism' developed as antithesis to it. Both the notions of growth and abundance which supported progress ideology faced rough weather during 1960's and 1970's. The notion of growth implied only economic growth which did not necessarily guaranteed a good quality of life and social equity. It was found that quite often economic growth and socio-economic disparities existed side by side. The notion of abundance came under attack during 1960's from scholars who believed that natural resources were finite and exhaustible and ultimately put a limit to growth.

After World War II a new concept, i.e. Welfare State, emerged in political thought. Welfare state provided a middle way between the extremes of laissez-faire and collectivism. Welfare state was an outcome of the belief that welfare of the individual is too important to be left to custom or informal

arrangement and is, therefore, a concern of the government. As a result, the concept of development metamorphosed into an ideology of developmentalism in the form of Welfare State.

✓ Developmentalism implied optimum utilisation of natural resources for the welfare of human beings. It holds that only planned development can help societies get rid of problems of mass poverty, unemployment, population explosion, diseases and social inequalities.

✓ Development did take place but it created environmental problems as a by-product. It also failed to achieve social equity goal. The developments in science and technology made possible efficient use of natural resources and as a result production increased. Technological developments helped developments in other sectors such as Agriculture, Industry, Transport and Communications. At the same time indiscriminate use of technology also adversely affected the environment and ecological balance. Now, environmentalists are so critical of high technology that they overlook its benefits and are inclined to throw away the baby with the bath water.

✓ Actual and potential threats to natural environment also have helped emergence of environmental consciousness. Peoples' apprehensions about environmental deterioration have been heightened by actual environmental problems such as Air pollution, Water pollution, Acid rain, Green-house effect, Ozone layer depletion, Nuclear radiation hazards and Industrial accidents.

The issue of social equity is being raised by the environmentalists because the benefits of the development did not reach the poor sections of the society. They continue to exist at a sub-human level. The rich got richer and the poor became even more poor. The problem of production has been overcome but the problem of distribution remains to be tackled.

The ideology of developmentalism failed in creating a just and equitable society. Environmentalism developed as an antithesis to developmentalism. Environmentalism covers a wide horizon of concerns and attitudes. There are number of groups having different perspectives and views regarding genesis and possible solutions to the environmental problems. Some take as radical a position as to oppose any kind of interference in Natural Environment. They seem to view man separate from nature and exploiting nature for his own benefits. They seek protection of nature for its own sake. Then there are some who believe in 'small is beautiful'. They like to have a labour intensive simple and environmentally friendly technology with maximum people's participation. Yet some others have concerned themselves with the distributive aspect of environmental resources. They would like to see the benefits accruing from natural resources be distributed equally among all the people including those who are fighting for their traditional rights in land, forests and water.

The developmentalists are on one extreme and the environmentalists on the other. Their rigid attitudes towards development and environment have failed them to appreciate



properly the relationship between development and environment. Developmentalists ignore the environmental aspects and environmentalists fail to see the welfare side of the development. This has led to the misconception that development and environment are polar opposites./

✓ Chapter 2 deals with the concept of development and its evolution over the years. During 1950's and 1960's under the impact of 'Growth Theory' and 'Modernization Theory' development meant more or less economic development. It was measured in terms of GNP. It was expected that affluence would trickle down to the underprivileged as the development proceeded. Modernization or 'Mainstream theory' failed because it did not take into account specific social and economic conditions which prevailed in different underdeveloped societies. This narrow economic concept of development faced rough weather with the emergence of Marxian perspective in development theory. Now, development implied growth with redistribution. But the obvious limits of redistribution of resources and this perspective's obsession with economic matters resulted in the neglect of education, agriculture, health, housing and other areas. Consequently, growth with redistribution conception of development gave way to a new concept of development which sought improvement in life chances by fulfillment of basic needs. Neo-institutional School in development theory focused on the specific social, economic and political conditions in underdeveloped societies and fulfillment of basic needs of the people. Emergence of 'Dependency Theory' of development gave

rise to a new concept of development which meant liberation from dependency and exploitation. Eventually, the concept of development transformed from narrow economic development to all encompassing concept of development seeking improvement in life chances as well as political and economic sovereignty. The latter part of Chapter 2 deals with the development of Welfare state in India and the ideology of developmentalism. Welfare state endeavored to achieve social development by conscious intervention and distributive measures supported by direct legislative and executive measures. The tensions between political democracy and Welfare state in a plural society has also been dealt.

Chapter 3 starts with the discussion about the different concepts of environment and the evolution of the ideology of environmentalism. It is followed by the developments which have taken place at global level in the thinking and activities about environmentalism during last two decades. During this period actual changes in environment and changes in people's perceptions about environment have created a new interest in environment. The thinking in the North has been deeply influenced by the theory of 'limits to growth'. Their concern has been with the pollution and resource depletion for which they hold responsible growth in population (mainly in the South). In the South though the population is large but <sup>Per capita</sup> resource consumption is less compared to resource consumption in the North. A person in USA consumes thirty times more natural resources than a person in India. As for the pollution, the industrialised North has contributed more

to the global environmental pollution than the underdeveloped South. Later part of Chapter 3 deals with the emergence of environmental consciousness in India and developments regarding environment which have taken place at the level of Government. Legislative, administrative and legal developments both at the center and state levels have played major role in the emergence of consciousness about environment in India. This is followed by the role of NGO's and media in the development of environmental movement in India. At the end various ideological trends in Indian environmentalism has been discussed briefly.

In Chapter 4 efforts have been made to show that the polarity between environmentalism and developmentalism is misplaced regarding dams in India. Dams have played an important role in hydropower development, irrigation development and control of floods in India. But these benefits have not accrued without paying costs in terms of loss of land and forests, risk of dam failure causing loss of life and property, spread of water borne diseases, socio-economic problems of dislocation and rehabilitation of oustees, etc. Therefore, the polarity between developmentalism and environmentalism is misplaced regarding dams in India. Conclusion has been given in Chapter 5.

**CHAPTER-2**  
**DEVELOPMENTALISM**

**CONCEPT OF DEVELOPMENT**

There are few terms as vaguely defined as development. Development means different things to different people. It is a value laden concept, with historical, philosophical, and ideological dimensions. Much of the confusion is , perhaps, because of multiplicity of disciplinary perspectives, different ideological premises, varying usages of the term by developmental agencies, and the changing meanings of the term.

In every epoch there are some words which are given approval and they become slogan of the day. Anything attached to them is considered unquestionably positive and sacrosanct. Such words become ambiguous in two different ways because of the unquestionable position attributed to them. Some come to take on a large number of different meanings, while others on the contrary come to exclude implicitly every possible meaning but one. The term democracy is the example of the first kind of ambiguity. As for the second kind of ambiguity, it is represented by the term 'development', which has been implicitly shorn of much of its meaning at the same time it has become a sort of slogan of our age. An implicit reduction has depleted the term much of its meaning. We admit that there are various forms of democracy, but we take a rather hard-and-fast view of the concept of development.

Development means different things when viewed from different perspectives. Laufer, for example states-

It means dams and factories, roads and canals, bush clearing, electrification, soil improvement, universities, secondary schools, primary schools, sanitation, research and multitude of other activities and achievements. But above all, development means people-The preparation and activation of people is the cause of economic and social development (Laufer, 1967. p.69).

To others, national development objectives relate not only to a rate of growth, but also to income distribution and other social goals.

Development can be considered in narrow economic terms whereby it means increase in the GNP or raising the per capita income, or it may mean the provision of a better quality of life for all the members of a society. Gunnar Myrdal defines development as follows : "Development" means the process of moving away from " underdevelopment", of rising out of poverty ; it is sought and perhaps actually achieved by means of "planning for development" (Myrdal G, 1970, p. 34).

According to Myrdal a country is underdeveloped when in that country exists a constellation of numerous undesirable conditions for work and life; outputs, incomes and levels of living are low; many modes of productions, attitudes and behavioral patterns are disadvantages ; and there are unfavorable institutions, ranging from those at the state level to those governing social and economic relations in the family and the neighborhood.

Apart from this kind of an economic conception of development along with the structural changes some advocated a commitment to development that transcends the limiting terms of economic growth to embrace such features of social justice as equality of opportunity, full employment, generally available social services, equitable distribution of income and basic political freedoms. Keeping these aspects in mind Dudley Seers, regarding aim of development, states : "... 'Development' is inevitably a normative term and we ask ourselves what are the necessary conditions for a universally acceptable aim - the realization of the potential of human personality (Seers D, 1969, p. 5).

Considering the absolute necessity to achieve this aim Seers says that one answer is obvious, that is, enough food. Below certain levels of nutrition a man lacks not merely bodily energy and good health but even interest in much besides food. He cannot rise above an animal existence. To be able to buy food is a matter of income, and to have an income one needs employment. Employment reduces the incidents of poverty. Poverty is also a result of inequality. Seers holds that if - poverty, unemployment, and inequality - all the three are declining from higher to lower levels then undoubtedly development is taking place in the country concerned.

Development has also been referred to as an integral, value loaded cultural process encompassing the natural environment, social relations, education, production and

consumption, and well being. United nations defines development as follows :

As the ultimate purpose of development is to provide increasing opportunities to all people for better life, it is essential to bring about a more equitable distribution of income and wealth for promoting both social justice and efficiency of production, to raise substantially the levels of employment, to achieve facilities for education, health, nutrition, housing and social welfare, and to safeguard the environment. Thus, qualitative and structural change in the society must go hand in hand with economic growth and existing disparities - regional, sectorial, and social - should be substantially reduced. These objectives both determining factors and end results of developments, they should therefore be viewed as integrated parts of the same dynamic process (United Nations, 1975, p.iv).

#### **EVOLUTION OF THE CONCEPT OF DEVELOPMENT**

It is interesting to trace the evolution of the concept of development and to see how its meaning changed over the years. For the early social scientists like Spencer and Hobhouse development was synonymous to social evolution. Hobhouse defined social evolution or social development as the increase in the scale and efficiency of social organisation. Spencer's social evolutionism demonstrated that the societies, like Darwin's naturally evolving species, had history of structural differentiation and functional specialisation. This perspective implied the idea of growth. Development was thus conceived of as organic, linear, irreversible positive process.

#### **DEVELOPMENT AS ECONOMIC GROWTH**

Industrialization and development of capitalism gave rise to a new thinking in the West about development. The main focus of this thinking was on economic growth which was measured in terms of GNP. This concept of development gained further

strength in post World War II period when a large number of countries gained freedom from colonial rule and endeavored for economic reconstruction.

In the post World War II period development became a slogan of global aspiration and effort. At this time development of Third World was perceived as transition from a traditional to modernised society. 'De-velop' means literally 'to take out of the envelope' (UNESCO-Goals of Development, p.43). From the stand point of modernisation theory the envelope was traditional society, its culture and its values. The historically evolved indigenous culture and values were looked upon as an obstacle to change and as the front backwardness. With the crumbling down of colonialism the intellectual circles in the West faced the problem of providing a development model for the developing countries. The development theory eventually evolved dominated the era following World War II and was called the 'mainstream version'. The process of development for Third World was perceived as a repetition of the western development path, which implied development as economic development.

Famous development theorist W.W. Rostow viewed development as economic development and gave a theory of development based on the stages of economic growth (Rostow W W, 1969). He postulated a unique scenario of evolution which he called 'The stages of economic growth.' According to this theory all countries have to go through the same stages. After a first 'traditional' stage they have to follow a second, in which



the 'preconditions of modernisation' are established. The third stage called 'take-off', is followed by 'drive' to maturity. After this, the last stage of 'high mass consumption' arrives.

This view of economic development implies the idea of structural changes in the economy expected to take place through the shifts from agriculture to industry or from primary sector to the secondary and tertiary sector. A shift in the labour force is also expected on similar lines. Skill formation, energy production and technological innovation are pillars of such a view of development, and high investment is made in these activities. Because of the technological backwardness and lack of capital resources for investment, a key role is assigned to imported capital and technology in the development of the third world countries. This view of development envisages possibility of eventual trickle down effect without ruling out the possibility of high disparities in income distribution in the initial phase of growth.

This concept of economic development enjoyed importance in fifties and sixties but in the seventies it faced rough weather. It was criticised for its crude methods of estimating GNP, the inadequacy of GNP growth as development, for over-stressing industrialization and for concealing dependency as the assumption of an automatic trickle down effect (Sharma S L, 1980, pp. 62-82).

From environmental stand point GNP is an inadequate indicator of development since it treats sustainable and

unsustainable production alike and compounds the error by including the costs of unsustainable economic activity on the credit side while largely ignoring processes of recycling and energy conversion which do not lead to the production of goods or marketable services (Redcliff M, 1987).

#### DEVELOPMENT AS REDISTRIBUTION WITH GROWTH

With the rise of Marxian perspective in development analysis, development as economic growth conception came under criticism. The main focus of criticism was on lack of concern for distribution in this conception. As a result, development was redefined as redistribution with growth. The focus of development shifted from the growth of GNP to reduction of poverty. Eventually the concept of economic development got enlarged encompassing economic equity and self-reliance into its ambit.

The awareness that dependency is an obstacle to development, made self-reliance, growth, and equity important ingredients of the new concept of development. Indicators were devised to measure each of the three objectives of development. Economic growth is measured in GNP growth and per capita income. Agricultural growth and industrial growth also indicate economic growth as they are two major goods producing sectors. The economic equality objective encompasses the equality of current incomes and equality regarding employment opportunities. The indicators of equity are : (a) The degree of equality in overall distribution of income class; (b) The differential between average levels of living in urban and rural areas; (c) The

dispersion of average levels of living among the different regions of a country; (d) The range of incomes earned by people working within the highest paid workers; and (e) The extent to which the employment opportunities are available to the working population, as well as the adequacy of provisions made for the employed and the under employed. The indicators for the economic self-reliance are : (a) The extent to which the control of productive enterprise is exercised by nationals; (b) The extent to which the country has been able to do without foreign aid ; (c) The extent to which the country remained free of foreign exchange problems and foreign debts ; (d) The extent to which the country has developed an independent technological base for economic activity (Sharma S L, 1986).

This concept of development differs from the preceding concept of development. Firstly, it envisages economic growth with self-reliance. It rejects the dependent capitalist development paradigm. "Independence is not merely one of the aims of development; it is also one of the means. It is force for mobilizing popular support and force is blunted if a government is obviously far from independent" (Seers D, op.cit.,p.6). Secondly, it does not give importance to assumption of an automatic trickle down effect; rather the emphasis is on planned redistribution with the aim of ultimate economic equality.

✓ This concept of development also has some shortcomings. No doubt economic self-reliance is a measure of development, but

given the unequal distribution of world resources over the different countries it is difficult to believe whether economic self-reliance can ever be achieved by underdeveloped countries lacking in resources. Again, there seems to be a basic inconsistency. Can a world system be created which will accommodate nationalism while providing a truly international and much more equitable economic and political order (ibid., p.6).

✓ Another problem with this conception is that of the strain between twin objectives of growth and redistribution. Redistribution may sometimes impede growth. A case in point is land reforms in India and other developing countries. A viable size of land is necessary for raising agricultural productivity. Redistribution of land among small and marginal farmers without due regard for farm size may prove counter-productive.

#### DEVELOPMENT AS IMPROVEMENT IN LIFE CHANCES

The redistribution with growth strategy for development could not achieve much because of limited possibilities of redistribution. It focused on income aspects and neglected education, health, nutrition, etc.

This model had little to say about social equity in national income distribution. For instance, measures discussed in the New International Economic Order debate concerns with a more balanced growth distribution at International level. This effect towards interstate transfers responds to nationalist desires for growth, cherished by the already privileged elite groups of the Third World. However, more income for the states

does not automatically result in a better internal distribution. Third World has been striving for reform in the International order while masses there hope for internal social reforms (UNESCO, op. cit., p.46).

The failure of the mainstream theory is accorded to an inadequate paradigm which saw development as displacement of the traditional system by a modern (western) system at great social, economic and cultural costs.

Modernisation and industrialisation processes created enclaves of modernism in some sectors while neglected the traditional sectors. Secularization thesis made the mistake of taking European and American modernisation of the nineteenth and twentieth century as a model. In this way highly questionable characteristics, namely, universality and perfection were attributed to these civilisations. In many developing countries traditional cultures resisted such changes.

The new socio-political movement propelled by moral base idea (i.e., giving importance to specific social, economical and political conditions) gave rise to a development strategy known as basic-needs model. Unlike the mainstream model, the basic-needs model's focus was on forgotten target groups in the population by stressing against poverty and by giving priority to projects that promote employment. More specifically the basic-needs model stressed on fundamental services such as education, health care, public transport and houses. Institutions that promote participation of the people were established and

strengthened.

All this shows how development has acquired a different connotation with the change in emphasis from economic growth to the provisions of basic human needs. There are broadly two types of operational indicators of this new condition of development. First is scale of social services and, second, the improvement in life chances. One of the ways to assess the fulfillment of the basic needs is to focus on the provision and utilization of services in fields such as health, nutrition, housing and education. The indicators in the field of medical care are number of hospitals, health centres and doctors per one lac population. Indicators of nutrition are availability of safe drinking water, calories intake and protein consumption per capita per day. The indicator regarding housing is the number of persons per room; educational indicators are number of educational institutions, student-teacher ratio, enrollment at primary, secondary and university level. The indicators of life chances are life expectancy, death rate, infant mortality and literacy.

The operationalisation of development in terms of improvement in life chances too suffers from the problem of distribution like preceding strategy of development.

#### DEVELOPMENT AS LIBERATION FROM DEPENDENCY AND EXPLOITATION

This concept of development, in international context - implies liberation from dependency on an unequal exchange. This -

calls for change in the relationship between developed and developing countries.

In the seventies after the failure of the modernisation strategy of development, a new school of thought emerged which is known as 'dependencia' school. This school did not perceive underdevelopment as a consequence of tradition, or as failure of educated labour forces, or even as a lack of capital. This viewed it as a consequence of too great dependency (dependencia) on the West. Underdevelopment was no longer seen a shortcoming in modernisation on the part of the developing nations, but a consequence of western penetration and dominance, first of a colonial and later of neo-colonial nature. The radical dependencia school offered a solution: delinking of international relationships and ties with the outside world in order to promote national development. Later on the dependencia school underwent a radicalization through the adoption of the Marxist paradigm of unequal exchange and exploitation. This tendency resulted in the notion that development can be pursued through socialist model. Angola, Ethiopia, Afghanistan followed this line but they also lapsed into an equally visible dependencia on the Soviet Union.

As a consequence of this change in thinking about development, at international level and also within the nations, the concept of development underwent a change. At global level developing countries with the help of United Nations Organisation aspired for a new international economic order. Proposals were formulated by a group of developing countries in order to

influence world prices and trade tariffs in their favour by means of internationally negotiated interventions.

A.G. Frank extends centre-periphery thesis to the national context. He finds that the national structures are less unequal. As there are more developed and less developed nations in the world there are dominant and dominated classes within each nation. So development in the national context would mean the liberation of the masses from the dependency on the dominant classes. Such a development calls for restructuring of class and power relation in the individual country (Frank A G, 1967).

Kim also articulated such conception of development and defined it as that type of structural transformation which involves the alteration of society's resource allocation or distribution. For the operationalisation of this concept he proposed the 'structural flexibility' as means of development. By structural flexibility he means "the degree to which structure of society allows the deprived and alienated majority not only to demand their just share of resources but also to actually achieve such goals" (Kim, Kyong -Dong, 1973, pp. 462-76). According to this as long as the structure of society changes in the direction that enhances the opportunity to the deprived masses to obtain a greater share of resources the structure is in the process of development.

#### WELFARE STATE AND IDEOLOGY OF DEVELOPMENT IN INDIA

During mid-twentieth century a new concept developed in political theory; the concept of welfare state. The underlying



philosophy of the welfare state was overall human development of the society. In other words welfare state offered the hope of a just society achieved without revolutionary violence.

Welfare state provided a 'middle way' between the extremes of laissez-faire and collectivism, a way that promised to defuse the intense ideological conflict that threatened democratic society before World War II. Thus, D. L. Hobman defines welfare state - "The welfare state is a compromise between the two extremes of communism on the one hand, and unbridled individualism on the other, and as such, inspite of all its imperfection, it sets a pattern for humane and progressive society" (Hobman D L, 1953, p. 1).

The following is another useful observation by a western political scientist:

The welfare state is institutional outcome of the assumption by a society of legal and therefore formal and explicit responsibility for the basic well-being of its members. Such a society emerges when a society or its decision-making groups become convinced that the welfare of the individual (beyond such provision as may be made to preserve order or provide for common defense) is too important to be left to custom or informal arrangement and private undertakings and is therefore a concern of government (Harry K G, Encyclopedia of Social Sciences, Vol. 16 p. 512).

Welfare state emphasises the responsibility of a modern polity with a more or less industrial economy for promoting, by direct legislative and executive measures, the economic and social good of its people. This is envisaged to be achieved by providing specific goods and services to individual and families that meet certain criteria of need or entitlement. Poverty is a major concern of the welfare state, and although the elimination

of poverty was an important impetus to its development both in theory and practice; what is characteristic of the welfare state today is the range of social contingencies it addressed and universality of its programmes.

A welfare state usually has the following types of programmes. First, programmes related to social security which makes income transfers from tax payers to benefit recipients in the form of cash payments, provisions regarding sickness benefits, unemployment doles, retirement pensions, etc.

Second, benefits in kind, which are provided via free health care, education and various personal social services. Third, there is a range of price subsidies designed to reduce the cost to consumers of certain commodities deemed socially desirable. These are rent subsidies, public transport subsidies, distribution of essential commodities etc. through public distribution system.

For the last few years welfare state has come under attack from various quarters. One reason is that it embraces a set of concepts and principles any one of which, if articulated in an extreme or pure form, contradict the others. The welfare state embraces the market but at the same time, seeks to limit and control it; incorporates ideas of right, specially right to property and fruits of one's labour, but asserts a right to welfare, a right to have one's basic needs met ; it is based on the conception of the person as a responsible agent but recognizes as well that many of the conditions of one's life are

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due to circumstances beyond one's control; it is premised upon sentiments of sociability and common interest, but its very success may undermine those sentiments ; it seeks to provide security but embraces as well a commitment to liberty (Moon D J, 1988).

Claus Offe is concerned with reasons why citizens support the welfare state and, more especially, why this support has eroded in recent years even within those groups in society that have been among its principle beneficiary (Offe, 1984). Offe finds that there are important areas of tensions between political democracy and welfare state, for he argues that citizens will not always find it in their interest to support welfare state programmes. In Offe's account the preconditions for the development of welfare state include certain normative and cultural conditions, particularly a sense on the part of most citizens of a common identity and mutual obligations. This sense of "sameness" of common membership and ties, supports the interventionist and redistributive measures of the welfare state, as it leads citizens to identify themselves not in terms of their particularistic and narrow individual interest, but as members of a collectivity facing shared problems and concerns. From this perspective, the welfare state is a means through which we can provide ourselves with collective goals in the form of programmes that protect us against the widely shared risks inherent in the dynamics of the capitalist mode of production. These sentiments are intelligible in the context of a society in which large number of people share a common life situation and not deeply

divided by ethnic, religious, or other cleavages.

In plural society people are less likely to see themselves as the "same" as others, less likely to share a common identity and sentiments of solidarity. Their more individualistic, self-interested orientation lead them to see welfare state programmes not in terms of a common interest, not as collective goals, but in terms of the costs and benefits to them individually. More people find it in their interest, as they have come to conceive these interest, to opt out of collective arrangement and oppose programmes that they increasingly come to see as benefiting others - a "them" with whom they do not identify.

India is a welfare state. For an Indian a welfare state for India is the kind of government implementing faithfully through positive measures of government the Directive Principles of the Indian Constitution. As we know the underlying philosophy of the Indian Constitution did not conceive the state as merely a law and order agent for the control of national affairs and safe guard of national security. Indian constitution conceived the state as an instrument for positive good, for the welfare of Indian people. Has developmentalism been able to develop the society on the lines of equity principles enshrined in the Constitution which provide for justice-social, economic and political?

Development of welfare state in a plural society requires some normative and cultural conditions. The smooth

working of welfare state in a society having a large number of religious, and linguistic groups necessitates a consensual vision of future, or goals and objectives among different religious or linguistic groups. Offe's analysis provide a good insight into the problem arising out of Indian State's developmental efforts.

Being a welfare state, Indian state is committed to the welfare of its citizens. It is the responsibility of the state to fulfill minimum needs regarding education, health, food and nutrition, and to provide social securities. In order to fulfill such obligations, state has to undertake programmes of economic and social development. During last two decades objections have been raised against various developmental projects. The scenario has been dominated by protests and movements against big dams, nuclear power plants, thermal power plants, mining etc at certain places. The objections are based on a wide range from environmental consciousness to class and regional interests.

Immediately after achieving freedom India set out on the path of reconstruction and development. Economic development was the key word as it was considered a prerequisite to the overall development of the society. In a quest to make India a welfare state development became the responsibility of the state. The main objective was to become self-sufficient in food production and industrial development of the society.

#### **CONCEPT OF DEVELOPMENT IN INDIAN PLANNING**

Developmental planning in India started in 1951. Though developmental plans in India take holistic view of development,

economic overtones are discernible. Based on the Directive Principles in the Constitution of India, the objectives of all the Five Year Plans remained economic and social justice.

The leading features of the patterns of development envisaged in the Five Year Plans may be briefly stated. The basic objective is to provide sound foundation for sustained economic growth (emphasis added), for increasing opportunities for gainful employment and improving living standard and working conditions for the masses....(India, Planning Commission. Third Five Year Plan (1961-1966), Chap. 1, p. 6).

Analysis of Five Year Plan documents gives the impression that development is still conceived primarily in economic terms. This is evident from the development planning strategies and measures of development performance. The targets are set in terms of percentage growth in GNP, rise in per capita income, higher rates of savings and investment, etc. If the development planning strategies are analysed they are basically of two types: Sectoral and Spatial. The sectoral strategy gives importance to sectorwise development like agriculture, industry, transport, communications, energy, etc. For the purpose of planning, spatial strategy focuses on spatial units such as region, village and city. Accordingly, we find the categories like agricultural development, urban development etc. But we rarely hear of social or cultural development. When we see the development performance or appraisal of plans, we find that all the indicators of development are economic, viz., GNP growth rate, annual per capita income, savings, investment, agricultural growth rate, industrial growth rate, etc.

Jawahar Lal Nehru the main architect of Indian Planning,

regarding the objectives of planning, said-

We have to remember that we can not set aside human factor. We do want more production, but more than that, we want better human beings. In other countries this aspect of the question has not had due attention. We want a plan of integrated economic growth of the country, a plan in which the individual grows with his society. (Nehru J L, Speech in Lok Sabha on Dec. 15, 1952).

Planners visualise development as a dynamic process of change which implied reshaping of Indian Society. They envisaged institutional and structural change through planning, so as to achieve ultimate objectives of economic and social justice. Thus the changes desired were both quantitative and qualitative. The development so desired was social change with growth.

Regarding the approach to planned development it is written in the second Five Year Plan draft that ". . .The task before an underdeveloped country is not merely to get better results within the existing frame work of economic and social institutions but to mould and refashion these so that they contribute effectively to the realisation of wider and deeper social values" (India, Planning Commission. Second Five Year Plan (1956-61) p.22).

These values or basic objectives have been referred in second Five Year Plan draft as "socialist pattern of society." The essence of socialist pattern of society is that the basic aim of development is not private profit but social gain. Patterns of development and socio-economic relations should be so organised that along with economic growth they should also aim at economic justice. The benefits of economic development should go

more to the poorest and less privileged in the society. There should be reduction in the concentration of incomes, wealth, and economic power. All the members of the society should get the opportunity to participate in the developmental processes and through an organised effort they should be able to put in their best in the interest of country and higher standards of life for themselves.

The objective of bringing about more equitable distribution of income and wealth for the final aim of social justice and higher production, required dispersal of developmental activities and decision making at different levels. This was sought to be achieved during first two Five Year Plans through community development schemes and national extension service projects, but these programmes had only limited success. In the Fifth Plan a new development strategy known as 'minimum needs programme' was adopted to make special efforts to fulfill the basic minimum needs of food, clothing, shelter, education and health. Thus, a new dimension was added to the concept of development.

It was envisaged that self-sufficiency in food production and economic development would lead to the ultimate objectives of socially and economically just and equitable society. But this did not materialise. Still, deaths due to starvation are reported from different part of the country now and then. Food is produced but not distributed equally.

The ideology of developmentalism has failed to create



a just, equitable society as was promised. The consequences of this failure are even more serious in a plural society like India. In a plural society grievances of people regarding developmental issues are exploited to raise religious, linguistics and racial feelings among the masses. Developmentalism failed to achieve a society where hunger and poverty could be replaced by prosperity and provisions for a good quality of life. Developmentalism did not pay due attention to environmental degradation. It benefited some while created miseries for others without a proper compensation.

Consequently, in recent years developmentalism has been challenged by a counter ideology i.e. environmentalism, which is dealt with in next chapter.

## CHAPTER 3

### ENVIRONMENTALISM

#### CONCEPT OF ENVIRONMENT

Environment is derived from the French words environ or environner, meaning "around", "round about", to "surround", "to encompass"; these in turn originated from the old French virer and viron (together with the prefix en), which means "a circle", "around", "the country around", or "circuit". Etymologists frequently continue to the conclusion that, in English usage, environment is the total of the things or circumstances around an organism (including humans) though environs is limited to the "surrounding neighborhood of a specific place-the neighborhood or vicinity" (Young, 1986, pp. 83-124).

The etymology of the word suggests two implicit meanings of the word environment. One, that the word environment is identified with a totality that encompasses each of us. Two, that the encompassing is active, it is reciprocal. Environment is not an inert phenomenon, it affects and is affected by the organism.

Rapoport indicates that the notion of 'environment' suggests the partitioning of a portion of the world into two regions, an inside and an outside (Rapoport, 1976). The environment is the outside. But where to draw the line between organism and environment, between inside and outside is a problematic and has been a focus of investigations. The inside-outside notion is inadequate to answer the questions regarding limits of inside and outside regions and, interaction between inside and outside regions. It is very difficult to state where one region ends and other starts. To cite an example, at what

point does an apple stop being part of the environment and begin being part of the person eating it ? Perhaps as soon as it enters the mouth; perhaps not until digestion has been completed. The question is one of origin rather than present position(Bates, International Encyclopedia of the social science; ed. by David L. Sills, vol. 5, 91).

Second problem is of the interaction between organism and the environment. The earth's atmosphere with oxygen and carbon dioxide as component gases, is an essential part of the environment for life. We now know that these gases were are not part of the early atmosphere of the planet, they appeared as a result of the action of living organisms but now there existence is a necessary condition of life (Bates , op. cit.).

Bates says that the interaction problem is particularly confusing in the case of man and the human environment. "The concept of culture is responsible for many difficulties in this connection. Should culture be looked at as a part of the individual or of the community? Is it a part of environment ? The answer surely varies, depending on the nature of the study " (ibid., p.91).

A way out the problem resulting from the inside-outside notion has been provided by the development of systems framework in which organism and environment both are taken as components or part of a complex, ongoing but single and unitary system.

Environment is defined in many different ways. Three general patterns can be detected. At one end is the

undifferentiated and all encompassing definition. Here environment is "some<sup>swm</sup> total of all conditions and influences that affect the development and life of organisms" (McGraw-Hill. Encyclopedia of Environmental Sciences, 1975) The idea here is that human consciousness about environment should be widened, not restricted. Human beings need comprehend and care about what happens in far away places and to people they do not know but do affect them indirectly. At the other end is the operationally limited definition as is often used in biological ecology. Here a distinction is made between social environment and natural environment. To cite an example; "the term environment refers to the biosphere, the ecosystems of which it is composed and modifications of these brought about by human action. The biosphere is defined as the thin layer of soil, rock, water, and air that surrounds the planet Earth along with the living organisms"(Dasmann, 1976, p.5). Sometimes even more restricted definition is used which restrict environment in the universal sense to only those phenomena that have an operational relation with any organism : other phenomena present that do not enter a reaction system are excluded (Mason and Langerhein, 1957, pp.325-340).

In between these extremes there are large number of semi-restricted definitions allowed by a variety of modifiers or adjectives. Adjectives used are physical, natural, semantic, built, artificial, synthetic, functional, effective, operational, perceptual, conceptual, total, technical, social, human, geographical, ecological, psychological, behavioral, relevant,

institutional, and so on.

#### **EVOLUTION OF ENVIRONMENTAL CONSCIOUSNESS**

Our perception of environment has evolved with the development process. Man always used natural resources for satisfying his most essential needs of food, clothing and shelter. As a part of nature himself man's sustenance always depended on utilization of natural resources. As a result of his interaction with surrounding natural environment man learnt a lot, by trial and error method, about the natural environment as well as about himself. He would take some step to modify the surroundings in order to make his life more comfortable and secure, and would consciously or unconsciously find out the repercussions of his action on the natural environment. In this process of development spanning over thousands of years, man became aware of the impacts of his actions on the surrounding natural environment.

In the late nineteenth and early twentieth centuries expression of interests in the future of the natural environment were largely anti-urban and anti-industrial. This kind of consciousness gave rise to conservation movements in USA, USSR and West European nations in the last decades of nineteenth and early decades of twentieth century. Conservation movements had two main concerns: efficient management of natural resources and preservation of natural habitats(Caldwell, 1970).

## DEVELOPMENTS IN ENVIRONMENTAL CONSCIOUSNESS DURING LAST TWO DECADES

During the last three decade, there has been an upsurge in the public interest in environmental quality. The concern for environment during this time has been uniquely wide spread and impassioned. Efforts have been made both at official and unofficial levels to create environmental consciousness. One such effort was UN conference on the Human Environment, held in Stockholm in 1972. It was the first major organized effort at global level.

In industrialized countries a combination of actual changes in the environment and people's perception have accounted for the new interest of 1960's and 1970's. The publication of Rachel Carson's 'Silent Spring' in 1962 brought the issue of environmental pollution into sharp focus in the United States of America. This book highlighted the effects of pesticides use on the balance of nature. Her main interest was in birds which were killed due to the application of pesticides but she correctly focused on interrelationship and interdependence of all components of nature.

People in developed countries felt that unplanned economic growth and increasing population would not help in improving quality of life. Club of Rome published the book 'The Limits to Growth'. Its main concern is to link the depletion of natural resource and environmental pollution with the present growth trends in world population. It concludes that - "if the present growth trends in the world population, industrialization,

pollution, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached some time within the next one hundred years"(Meadows, et al. 1972, p.23).

Like the club of Rome, Ecological School's main concern was also population growth and its impact on environment. Their concern was more with population growth in developing countries than in developed. They extended the 'population bomb' to the deterioration in the quality of environment.

An important addition to this view point comes from Hardin who again links population growth and pollution which he terms as the "freedom to breed" and calls them as the "tragedy of the commons". He also coins a term, "tribalism" for the population growth in the third world, citing a case from Srilanka. The only way out according to Hardin is to forcefully relinquish the freedom to breed(Hardin, 1968).

According to a report by UN Environment Programme 1982, environmental movement brought three major developments since 1950's (Holdgate, et al. 1982). First, the scientific and nature protection components grew together, especially under the influence of professional ecologists. Second, appreciation of the environment grew in many countries outside Europe and North America. Third, the character of approach changed. The movement became concerned with all aspects of the natural environment. It also turned towards human situation, at the level of both whole communities and of individual needs for housing and living, and

emphasized the relationship between manmade and natural environment. This new approach had a broader and scientifically more sophisticated perception of relationship between man and environment.

Incidents relating to environment management and industrial accidents in recent past have helped environmentalists consolidate their position. The air pollution episode in London and New York between 1952 and 1966, instances of mercury poisoning at Minamata and Niligate between 1953 and 1965, the reduction in aquatic life in some of the North American great lakes, the deaths of birds caused by unexpected side-effects of DDT and other organochemical pesticides, the massive oil pollution from the wreck of the Torrey Canyon in 1966, and more recently Chernobyl accident and Bhopal gas disaster have made people environmentally conscious.

Pollution of air, water, soil and noise along with phenomena like acid rain, green house effect, ozone layer depletion, etc. have raised issues relating to carrying capacity of the ecological system and dangers of unthoughtful interference by man in natural environment.

The Stockholm Conference was the first organized effort at global level to deal with the environmental problems. Developed countries approached Stockholm Conference with two major concerns; one, environmental pollution problem, second, need for a world wide conservation programme to safeguard the planet's genetic and natural resources. The Stockholm conference



was accordingly expected to lead a global campaign to curb pollution, conserve resources and lay the foundation for more careful management of these resources.

Developing countries approached the conference with a different perspective. In developing countries resource consumption was not high and industrial pollution problem were localized if present at all. But these countries suffered from poverty, infectious diseases, low life expectancy and poor conditions of life; lack of clean drinking water, adequate shelter, sanitary and health services. These countries were engaged in stimulating change, though faced with shortage of financial resources and skilled labour. Third world intelligentsia argued that their problem was too little industries rather than too much, and that some smoke in the air would be a small prize to pay for lifting the multitude from gross deprivation. Faced with such a situation developing countries if accepted the thesis that pollution prevention was cheaper than cure, there was, nonetheless, a temptation to industrialize by the cheapest route first and cure the resulting pollution afterwards.

Eco-development emerged as a central theme from Stockholm conference. Eco-development was defined as development at regional and local level consistent with the potential of the area involved, with attention given to the adequate and rational use of the natural resources and application of technological styles.

The 1970's brought into focus the importance of International Cooperation which may be regional, between groups of developing countries "south-south linkages" or between developed and developing countries "north-south linkages - not only to solve world development problems but also to safe-guard the environment for future generations. The need of international cooperation arises because of the fact that the over-consumption at on place creates problem elsewhere. Moreover, nations are not isolated. The actions of one country may affect the environment in a neighbouring one.

Since Stockholm conference there have been several important developments at international level to deal with the crisis of development and environment. Even before Stockholm meeting UNESCO had launched its "man and biosphere" programme in 1971. It was aimed at identifying environmental problem areas and developing interdisciplinary research methods for better environmental management. The research enterprise was to provide the kind of information that could be used to solve the problem at hand.

Immediately following Stockholm conference the United Nations Environmental Programme [UNEP] was founded as a supra-national world ecological organization. In spite of its subordinate position within the structure of United Nations, UNEP which is not an independent specialized agency but merely a specialized institution of United Nations Economic and Social Council, has been instrumental in achieving new international ecological agreements to stop the general trends of ecological

degradation.

World Conservation Strategy (1980) gave a boost to the concept of sustainability. Its programme has three priorities: First, maintenance of ecological processes and life support systems; Second, sustainable utilization of resources; and Third, maintenance of genetic diversity. the programme explicitly linked the first priority to second and third.

In 1983 World Commission on Environment and Development (Brundtland Commission) was established as a result of increasing concern with environmental problems in developing countries and the failure to relate these problems to development issues. It was headed by Norway's Prime Minister, Mrs. Brundtland and had twenty two people from both developed and developing countries. The objective of the commission was to focus on environmental problems rather than the effects of environmental degradation. The main objective was to undertake public hearings in various countries, at which members of public could give evidence about the relationship between development and the environment.

The report of the commission draws attention to what it calls a 'standard agenda' of environmental concern which it wants to call into question. This agenda commits a number of errors, which the Commission seeks to correct. First, it is usually the effects of environmental problems that are addressed in public documents. Second, environmental issues are usually separated from developmental issues. Third, critical issues, such as acid

rain or pollution, are usually discussed in isolation as if solutions to these problems can be found in discrete areas of policies. Fourth, usually a narrow view of environmental policy is taken which relegates environment to a secondary status as it is added to other more important development issues.

In 1987 second report of Brundtland Commission was published under the title 'Our Common Future'. This report sought to do away with the idea of National Sovereignty over natural resources and focused on sustainable development.

Despite all developments and numerous agreements regarding environment at international level, there has been hardly any change in the attitudes of the participants in Stockholm Conference. In 1972 there was very little willingness to cooperate. Socialist countries maintained that, ecological problems were phenomena related to capitalist world and the countries belonging to south believed that the debate on the ecological crisis was yet another attempt of the the rich North to deprive them of developmental possibilities and spoke of "neo-colonialism dressed in green". After twenty years agenda of environmental debate at global level remains the same though global ecological problems have called into question the conception of sovereignty of nation states by jeopardizing the principle of territorial integrity.

#### **ENVIRONMENTAL CONSCIOUSNESS IN INDIA**

It is generally believed that environmental consciousness reached the third world from the first world. But

the process of environmental consciousness originating in North America and then defusing to Communist Block and finally reaching underdeveloped countries is not perfectly a linear one. In India though examples of consciousness about environment can be cited from Vedic literature, Buddhist texts and some minor sects among Hindus but their impact has been negligible. Environmental consciousness developed in India as we came face to face with the environmental problems such as deforestation, widespread pollution, resource depletion, degradation of land, landslides and floods in the Himalayan rivers. Industrial accidents like Bhopal Gas Tragedy stimulated people to think about environmental problems.

In India efforts were made at governmental level too keeping pace with international developments in the field to see that natural resources be used in economical and sustainable manner. The first effort on these lines was establishment of 'The National Committee on environmental planning and coordination (NCEPC) in Feb. 1972. It provided a focal point in the structure of government where environmental consideration could receive close attention in an integrated manner. NCEPC was given the task of reviewing, formulating and promoting policies and programmes covering development projects, physical planning, legislation, administrative procedures, education and research. Its establishment was a result of government's intention to pay proper attention to the problem of environmental protection and the conservation of natural resources while going ahead with huge development projects. NCEPC had been the major advisory body

to the Govt. of India on environmental matters. NCEPC worked under department of Science & Technology till Nov. 1, 1980; when a separate Department of Environment was established within the Central Government. Later the Ministry of Environment and Forest was formed in 1985. One success of the NCEPC in the mid-seventies was to induce majority of State Governments and Union Territories to set up high level State Environment Committees. These were headed by Chief Ministers or Lieutenant Governors and consisted of senior officials representing various ministries, research organisations and Public Sector Agencies whose work has a bearing on the environment. Government of India has been quite active in creating consciousness about environment. These activities include environmental research programmes, incorporation of environment related subjects in school and college curriculae, enactment of laws relating protection of environment, organisation of 'eco-development camps', etc.

In India Five Year Plan Drafts from first to fifth plan had polices and plans regarding conservation of forests and soil and economical use of natural resources. Plan Drafts also had pollution control programmes. Till Fifth Plan period emphasis was on conservation and economical use of resources. In the Sixth Plan Draft a whole new chapter was added on environment. This chapter outlined the nature and dimensions of environmental problems in India and the programmes which were to be strengthened, or initiated afresh, to tackle them. This new development was a break from the past and an important insight into the manners in which environmental considerations must be

brought into the development planning process. It is stated that the environment must not be considered as just another sector of national development. It should form a crucial guiding dimension for plans and programmes in each sector (India, Planning Commission. Sixth Five Year Plan(1980-1985), Chap.20).

Some important programmes in the sixth Plan were :  
Programmes of environmental research and development to generate the kind of information and data required for the formation of environmental policy; environment impact assessment programme to ensure that the plans for development in all sectors are in harmony with the goal of maintaining life sustaining eco-system and other environmental resources; setting up of an environmental information system for collection, processing and dissemination of environmental information that will aid planners, decision makers and researchers; programme to increase public awareness about environmental issues and to stimulate public participation in activities for environmental protection; field action programmes which consists of demonstration projects that illustrate successful use of tools , techniques and methodologies for environmental protection in fields such as land reclamation, low-cost pollution control, recycling of waste materials, mass communication of environmental messages etc.

As environmental consciousness grew in India new Articles relating to environment were added to the Constitution of India. Till 1977 there was no provision, whatsoever, relating to environment in our Constitution. The Forty-Secondth Amendment (1977) incorporated the following two Articles in the

Constitution imposing certain obligations on the state and the citizens regarding protection of environment.

Article 48 A : The state shall endeavor to protect and improve the environment and to safeguard the forests and wildlife of the country.

Article 51 A(g) : It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and Wildlife, and to have a compassion for living creatures.

Indian Constitution , therefore, now provides a firm base to make policies, laws and regulations to deal with the vast complex of problems of environment.

#### ENVIRONMENTAL LAWS

The last two decades have witnessed the enactment of a number of legislations directly related to environment. Important among these are the Wildlife (protection) Act 1972, the Forest (conservation) Act 1980, the Water (prevention and control of pollution) Act 1974, the Water cess Act 1977, the Air (prevention and control of pollution) Act 1981, the Environment (protection ) Act 1986, and the Public Liability Insurance Act 1991.

The Wildlife (protection) Act provides for rational and modern wild life management while Forest (conservation) Act was enacted to check indiscriminate deforestation/diversion of forest land for non-forest use. The Water and Air Acts are major



instrument for the control of Water and Air pollution and have provided for establishment of the Pollution Control Boards at the Centre and States to act as watchdogs for the prevention and control of pollution of all forms and dimensions. The Environmental (protection) Act is a land mark legislation which provides for a single focus in the country for the protection of environment and aims at plugging the loopholes in the existing legislation. The Public Liability Insurance Act provides for mandatory insurance for the purpose of providing immediate relief to the persons affected by accidents occurring while handling any hazardous substances.

#### ROLE OF VOLUNTARY AGENCIES

In India both government agencies and NGO'S have been instrumental in creating consciousness about environment. Role played by voluntary agencies has been significant on two counts : first, these agencies have perceived and analyzed the environmental problems from a perspective different from that adopted by government agencies. The government agencies, allegedly, end up blaming the poor for environmental degradation while voluntary agencies hold over-consumption by the elite and development policies responsible for deterioration of environment. Voluntary agencies exhort the people to appreciate alternative government processes. Second, voluntary agencies have been operating at grass root level and as a result have been successful to a large extent in spreading environmental awareness among the people.

The national policy on education stated that there was

a paramount need to create a consciousness about the environment and it must permeate all ages and sections. Consequently, NCERT developed a national curricular framework with flexibility of content and approach keeping in view the local requirements. Centre for Environment Education (CEE), Ahmedabad is involved in the task of preparing flexible material that can be easily adapted to local conditions. This material through teacher training workshops can be supplemented with local examples.

The national museum , Calcutta, and the Madras museum house have large collections of natural and historical specimen. National Museum of Natural History, Delhi, provides visitors an exposure through exhibition galleries, discovery activities and competitions. Mobile exhibition help to extend these facilities to remote villages, cities and towns where such facilities do not exist.

Different agencies have been using diverse approaches and methods to create environmental consciousness. Street plays, folk dances on environmental issues, rallies, marches, walks, runs and satyagrahs have been adopted by several organization as a means to creating awareness and interest among the public. Use of animals to attract the peoples attention to environment related issues have been effectively taken advantage of by the Madras snake park and by Sunderban at Ahmedabad. Regular Snake shows, exhibitions, slide shows and demonstration are used by these centres. Some Science popularization organizations are also working for the cause of environment. One such organization

which has been quite active more recently is Kerala Shastra Sahitya Parishad (KSSP).

Centre for Science and Environment, Delhi has made a valuable contribution in creating environmental awareness. CSE has brought out three reports on the state of Indian environment. First citizens report (1982) brought home the fact that it is poor who suffer most when the environment is degraded, in other words, if we did not strive to make development harmonious with environment, development would lead not only to environmental destruction but also to injustice. Second report dated 1985 - built on the first highlighted the plight of politically marginal groups like women, nomads, fisherfolk and tribals as a result of environmental degradation and loss of control over their natural resource base. The second report went on to elaborate how the poor depend on a biomass based economy for their survival. Third citizens report - titled 'Floods, Flood Plains and Environmental Myths' deals with the relationship between deforestation of Himalayas and flood problem in the plains.

#### ROLE OF MEDIA

Media have played a vital role in educating people about environmental issues and associated problems. Over the last few years coverage of news on environmental issues has increased considerably. Public interest in environment related papers and periodicals has been reported to be increasing. Radio and Doordarshan are playing important role in creating, motivating and sustaining public interest in such issues. The Indian National Trust for Art and Cultural Heritage (INTACH) produces

programmes for radio and TV. Several other organizations such as UGC have begun producing environment related programmes in the forms of films and Videos for distribution to schools and colleges and for screening at workshops and camps. Environmental information system (ENVIS) set up by the Deptt. of Environment provides specialized information to planers, policy and decision makers, researchers and the public.

#### ENVIRONMENTALISM IN INDIA

The growing consciousness about the natural environment and problems related to it ultimately gave rise to environmental movement in India. Chipko movement emerged as early as 1973. It was instrumental in making the issue of environmental degradation in the Himalayas a major concern at national as well as international level. Then there was Appiko in the south, a counter part of Chipko, to save the forests of western ghats. In last two decades India has witnessed a number of movements in different regions against feared environmental deterioration or displacement of tribals because of developmental projects like big dams, nuclear power plants, mining etc.

Some intellectuals have doubts regarding calling these movements as environmental. Ramchandra Guha says that most of these movements are peasant's movements for their traditional rights in natural resources. Guha argues that -

A large segment of what presently passes for environmental movements is a peasant movement draped in the cloth of environmentalism. Thus a number of local initiatives in defense of traditional rights in land, water, forests and other living resources collectively constitute what sympathetic intellectual have turned the environmental movement (Guha, 1988)

Guha further maintains that the conflicts these movements symbolize are not (as in the western case) about 'productive' versus 'protective' uses of the environment, but about alternative productive uses. D. Raghunandan makes a similar observation and writes that "Environmental protection per se is of least concern to most of these groups. Their main concern is about the use of the environment. How should the environment be used and who should use and benefit from it" (Raghunandan, 1987).

Raghunandan says that agrarian communities have been seen to have little concern for ecological issues. This is substantiated by the fact that there have been no movements in the plains protesting against deforestation in the hills or construction of large dams which may radically alter environmental conditions down stream. This is contrary to the view that traditional societies have an inbuilt ecological consciousness.

The people who are involved in environmental movements have a consensus that the present developmental model has failed, but there is no consensus on likely alternatives. As a result, three distinct ideological perspectives have emerged. Each with a different explanation regarding the origin of the problem and mechanism of redressal.

Guha identifies three such perspectives as crusading Gandhian, appropriate technology, and ecological Marxists. [Guha, R. op. cit.]

Crusading Gandhians derive strength from religious ideology to reject modern way of life. They hold pre-capitalist and pre-colonial village community as ideal examples of ecological and social harmony. Their main concern is with the Indian intelligentsia's obsession with the modernists philosophies like rationalism, and economic growth. Their methods of protests have religious colours and include Padyatra, Poojas, Fasts, etc.

Proponents of appropriate technology are not as strident as crusading Gandhians in their opposition to industrial society. They are for a working synthesis of agriculture and industry. A combination of big and small units and blending of western and eastern technological traditions. Their emphasis is on demonstrating in practice a set of technological and social alternatives to present model of urban industrial development rather than preoccupation with the 'systems' ideology.

A question arises here. Can we have a brand of appropriate technology having universal applicability? Appropriateness of a technology can not be decided without taking into account the availability of resources and requirements of a particular region.

Ecological Marxists in India are most closely identified with people's science movement like KSSR, whose initial concern of making science popular with the people has been extended to include environmental protection. Ecological Marxists are very critical of crusading Gandhians for latter's

preoccupation with religion and tradition, and hostility towards modern science and technology.

'Environmentalism' developed as a counter ideology to 'developmentalism'. Ideology of environmentalism covers a wide horizon from simple opposition to energy and resource intensive industrial development to any 'interference' in natural environment, however, minor it may be [For instance construction of dams, big or small; clearing of forests; mining, etc.]. 'Developmentalism' represents one extreme with its total disregard for environmental cost of development, environmentalism represents the other with its obsession with pristine beauty while ignoring social welfare aspects of development.

Neither 'developmentalism' nor 'environmentalism' could help us in creating a just and happy society. Now, the need is to think rationally rather than passionately. We have resources lying unutilised/underutilized, and we have objective of creating a politically, socially, and economically just and equitable society. What we need is to devise rational means to this end. The polarity between developmentalism and environmentalism is misplaced. A synthesis of developmentalism and environmentalism is possible. The possibilities of such an approach are explored in the next chapter taking up the issue of dams.

## CHAPTER-4

### A MISPLACED POLARITY

The controversy regarding big dams is a complex and many sided one. Its resolution requires interdisciplinary approach. During 1950's and 1960's the main concern of planing was economic development. And it is in this context big dams were considered indispensable for economic development. Big dams have been instrumental in the development of economic infrastructure. Heavy reliance was placed on this kind of multipurpose projects for the development of irrigation, control of floods and generation of electricity. It is for their multiple utility and high potential for economic development that Nehru called big dams 'modern temples' of India.

At the beginning of developmental planning food production and energy generation were accorded top priority. Because at this time country was striving to achieve self sufficiency in food production, and power was an essential input for industrial development. Big dams helped in both ways. Irrigation became possible by storing water during rainy season and supplying this water through major and minor irrigation canals, when and where required, to the farmers. As a result agricultural production increased many fold. The stored water was also utilised for driving turbines to generate electricity. The availability of electric power made mechanisation possible which increased efficiency and reduced the cost of production.



The development was to be viewed in a 'national' perspective. The objective was to develop economy by utilising resources in whatever region of the country they were available. The sights for the developmental projects were chosen which were most suitable and cost effective. Optimum utilisation of natural resources and good of the largest number was the supreme consideration. Thus the unit of development was nation as <sup>a</sup> whole rather than individual states or particular regions. Now this national perspective is under the clouds of suspicion. In recent years some controversies have emerged over the distribution of benefits occurring from developmental projects. The conflict between Harayana and Punjab over water distribution acquired gigantic proportions and contributed at least partly to the present Punjab problem. Narmada dam project is causing heart burning to the people in M.P. who complain <sup>that</sup> the benefits will go more to Gujarat though more people are being displaced in M.P. The Cauvery waters have become a bone of contention between Tamil Nadu and Karnataka. Such conflicts arise because people belonging to one region/State/language do not identify themselves with the people belonging to other regions/states/languages and do not recognise anybody else's right over the resources available in their region. In a situation of scarce resources and increasing demands such issues are exploited by politicians for electoral gains.

During 1950's and 1960's multipurpose big dam projects were hailed by everybody. Administrators and planners were sure of their success and considered these projects as boons to the

people. Media highlighted the economic benefits occurring from these projects; how these would change the destiny of the people by enhancing food production, giving a boost to economy and generating employment.

There are some success stories like Damodar Valley Project which tamed river Damodar known as Bengal's river of sorrow. It saved Bengal from repeated floods which always resulted in colossal loss of life and property. Bhakra Nagal dam on Sutlej river changed the face of Punjab and Harayana by ensuring regular supply of water and thus made possible the phenomenon of 'Green Revolution'. Hirakud dam over Mahanadi provide water to the arid land in Orissa.

The mega projects taken up during early years of planning were completed and became operational. Benefits from these began to be realised. National agricultural and industrial growth rates increased substantially. Per capita availability of food grains went up to a level of 478 grams per day in 1986 as compared to that of 395 grams in early fifties. Production of food grains increased from 510 lakh tonnes in 1950 to 1700 lakh tonnes in 1989-90 . Net sown area increased from 11.9 crore hectare to 14.1 crore hectare during the period 1950-51 to 1985-86. Irrigation potential during pre-plan period was 226 lakh hectare , it increased to 675 lakh hectare by the end of 1984-85. Fertilizer consumption increased from 0.62 lakh tonnes in 1950-51 to 124.33 lakh tonnes in 1989-90. Installed power generating capacity has increased from meagre 1400 MW in 1947 to 64000 MW in 1991. In 1956 only 7294 villages were electrified this number

increased to 460536 in 1990 (data has been taken from 'India 1991' a publication of Research and Reference Division, Ministry of Information and Broadcasting, Govt. of India).

These benefits have not accrued without paying costs in terms of loss<sup>of</sup> land and forests, risk of dam failure causing loss of life and property, spread of water-borne diseases, problems of rehabilitation, etc.

#### ISSUES RELATED TO BIG DAMS

The idea of big dams is being questioned on various grounds. The objections raised cover a wide range of issues related to environmental, economic and socio-cultural areas. The important issues involved are as follows :

1. Displacement of people due to the submergence of their village land.
2. Loss of forests through submergence and other project related activities such as construction of project colonies and project roads.
3. Loss of agricultural and forest land through submergence and the emergence of water logging and salinity in the command area.
4. Loss of vegetative cover in the upper catchment resulting in excessive run off and loss of top soil, leading in turn to the accelerated siltation of the reservoir and the reduction of its useful life.
5. The problem of reservoir induced seismicity.

6. The public health problem arising from the large scale impounding of water leading to water borne diseases.
7. The problem of project spillover.
8. Possibility of disappearance of some rare species of flora and fauna.
9. Issue of big dams versus small dams and 'Appropriate Technology' stand.

#### ISSUE OF DISPLACEMENT

The government's performance regarding rehabilitation and resettlement of oustees in the past has been quite dismal. Consequently, government's credibility is extremely low. This has been one of the main reasons of the protests against the big dams. To cite an example, 36000 people were displaced in case of Bhakra Nagal project which was completed in 1959. Land was acquired from 2180 families in the districts of Una and Bilaspur in Himachal Pradesh only. They were promised rehabilitation in the districts of Sirsa and Hissar. But till 1989 only 730 families had been resettled. The few who were given compensatory land were not given property rights, as a result they cannot take loan against this land if they so desire (Fernandes and Thukral, 1989, p.42).

Irregularities regarding rehabilitation have also been observed in case of Hirakud dam in Orissa. "The Government of Orissa Report (1968:13) claims that all the people of the submerged area were provided with land for cultivation and a house to live in. And yet in spite of the schedule drawn up by the government of Orissa to disburse Rs. 9.66 crores as

compensation by 1956, only Rs. 3.43 crores were actually distributed. Nevertheless by June 1956 everyone was displaced - compensated or not (Patnaik, Das and Mishra, 1987, p.17).

One major objection raised by environmentalists is that the construction of big dams results in an involuntary migration. Some even hold that as the migration is involuntary it in itself provides sufficient ground to stall the project (Chandrashekhar and Dharmadhikary, 1989). Here we must consider the fact that the tribals and landless labourers do migrate to the urban centres in search of work and live in slums amidst most dehumanising conditions. This migration, though apparently voluntary, is not so in the real sense. They are forced to migrate by the conditions of starvation and nonavailability of work in the areas of their origin. Such conditions emerge as a result of underdevelopment of these areas and a consequent lack of employment opportunities. In other words, the social and economic conditions which are a result of undevelopment/underdevelopment forced the people to migrate to new locations.

Developmental projects like big dams, <sup>while</sup> creating assets for economic development also create employment opportunities. The construction of big dams, housing colonies and project roads provide ample opportunities to oustees. After the completion of projects new avenues of employment open up as a result of 'multiplier effect' generated by such projects.

The issue of social justice, that is, the question of

'whose costs and whose benefits' is a perfectly legitimate one. Costs and benefits do not affect the same set of people. Nobody wants to part with their land, traditions, culture and way of life. Oustees pay a heavy cost mainly in socio-cultural and psychological terms. These people must be properly compensated. Rehabilitation as compensation in monetary terms is not enough. Rehabilitation means recreating the economic, social, cultural and environmental conditions for the dislocated population at their new place of settlement as near as possible to their original habitat. Efforts should be made to accommodate the entire people belonging to one village at one site to ensure minimum changes in their social environment and avoid dismemberment of their social groups. Resettlement colonies should have facilities of drinking water, electricity, roads, hospital, school, etc. Further, it should be ensured that the fruits of development occurring due to the project are shared with the affected population to the extent possible. Allotment of land in command area should be made to project affected people. Rehabilitation measures should not only aim at mitigating hardships but also assure to affected people a quality of life as good as if not better than what they are losing. Rehabilitation costs should be included in costs of the project.

The issue of tribal social and cultural disorganisation should also be seen from the tribal development perspective within the policy of tribal integration. The argument that there is no need to interfere in tribal affairs and they should be left to themselves is an erroneous one. A welfare state cannot adopt

this kind of noninterference approach advocated by the 'glass-house' theorists like Varrier Elvin. They would like tribals to be kept as 'museum pieces' in an anthropological zoo. It is inhumane to leave the tribals to exist in acute conditions of poverty and disease. We cannot allow the fruits of development bypass these people who have all the rights over the natural resources of the country alike other citizens. But a cautious approach should be followed. Development or the mainstream culture should not be forced upon tribals. The development policy should be informed by the principle of integration rather than forced assimilation. State can provide alternative ways of life but the final decision should be left to the tribals to accept or reject these choices. In the absence of development, tribals have to migrate to other areas in search of livelihood which also results in social and cultural disorganisation. Development is necessary even to preserve their culture and society.

#### DEFORESTATION

As the forest cover of the earth is receding very fast any development project that causes deforestation becomes a target of the environmentalists. In India the forest cover is diminishing at a rate of about 1.5 lac<sup>ha.</sup> per year. A dam affects forest cover in two ways. One, by submergence of forest under the reservoir on the upstream side, which is around 10 % of the irrigation potential created by a big dam. Two, forest cover is also reduced because of the dam building activities such as construction of project roads and housing colonies

(Dhawan,1990,p.25).

Dhawan holds that the damage to forest cover on account of submergence is a small proportion of the total damages to forests from all other nondevelopmental activities, namely, illegal felling of trees; unauthorised ploughing of forest lands; authorised allotment of forest land to dam oustees or the landless people; increased pressure from graziers, etc. He adds that total forest area lost in India due to submergence by reservoir created by all big dams is just about 5 % of the total forest cover we have lost since independence. Therefore, Dhawan concludes that the problem of our receding forests cover is not going to be solved by calling to a halt to the construction of big dams. At the same time he suggests that whenever the loss by a single dam is unduly high such a loss can be minimised by reducing height of the dam.

Ashok K. Mitra counters Dhawan's argument that loss of forest cover because of big dams constructed so far is a small percentage of the total forest cover lost and therefore it would be irrational to oppose construction of big dams on this ground (Mitra,1989). Mitra argues that loss of forest cover because of factors such as illegal felling, unauthorised ploughing, authorised allotment of forest land to dam oustees and pressure from graziers is backlash of forest cover lost and people ousted for the construction of big dams. Regarding Dhawan's suggestion of reducing dam's height to minimise loss Mitra observes that reducing the reservoir size is not a merely technical issue; its economic implications in terms of costs and benefits will have to



be worked out in order to examine if the economic feasibility is adversely affected. Mitra further adds that loss of forest cover cannot be counted only in terms of felled trees, its adverse effects on the eco-system should also be taken in account. In long run it may affect the availability of water in the reservoir through siltation and deficient rainfall in the catchment area. Afforestation undertaken as a part of project should not only compensate for the deforestation caused by the project but also aim at improving the overall ecological balance in the catchment area.

#### LAND DEGRADATION

Another major environmental problem created by dams is of land degradation due to water logging and increased soil salinity within the command area. According to government of India sources, out of a total of 42 million hectare of area under irrigation, at least 10 million hectare is affected by water logging and salinity (Ministry of Environment and Forests, 1985).

Year-round irrigation from dams leads to water logging, rise in the water table, salinization and loss of productivity in the absence of a proper drainage system as, for example, in Bhakra command area (CSE, 1985).

Only 1100 square km of catchment area had been treated up to fifth plan against the estimated 15 lakh square km area covering 59 major projects (India, 1990. p. 188). Command area development has more or less been the responsibility of the farmers who have neither technical knowhow nor financial

capability to undertake necessary land leveling, grading and drainage operations to fully utilize irrigation potential.

Dhawan suggests that this problem can be checked <sup>either</sup> with adequate provisions of drainage or the use of drip or sprinkler modes of water use. But A.K. Mitra (Mitra, 1989) points out that drainage work is no different from that of canal network itself and because of the scarcity of investment fund this work is missing from our major canal network. Still, the benefits are estimated on the entire potential created notwithstanding the fact that owing to lack of drainage in long run more and more land in the canal command would get degraded. Mitra asserts that this should be properly accounted for in cost benefit analysis.

#### SEDIMENTATION OF RESERVOIR

The reservoir by themselves do not accelerate the sedimentation rate. The effect of these project on siltation is nominal if any. But a higher rate of siltation than expected has been observed in certain cases. Perhaps, this is because of the deforestation in up stream areas to the dams. In case of Bhakra dam assumed annual siltation rate was 23000 acre feet, but the actual observed rate is 33748 acre feet (Gupta, 1989). The live storage capacity of Bhakra dam has come down by 5.78 percent while the dead storage has lost 20.77 percent ( Thukral, 1990).

In case of Hirakud dam also it is said that there has been a reduction in the storage capacity of the reservoir from 8105 cubic km of water in 1956 to 6427 cubic km in 1988 (Baboo,

1991. p. 295). On the other hand, these projects help in stabilizing and reducing river slopes (and thereby sediment carrying capacity of the stream) and arresting soil erosion in more than one way. The project area gets all the attention and is surveyed in this respect and the necessary soil conservation measures are carried out as a part of the project.

#### RESERVOIR INDUCED SEISMICITY

The increase in seismicity due to creation of reservoir is a debatable question. The incidents of induced seismicity have occurred in less than one percent cases. "According to Mr. Cates (1981) only 0.67 % of the world's largest 11000 dams (of height more than 10 meter) have induced seismicity (in 1983, the number of cases was 94 out of 14000 dams)" (Vershney, 1990 ).

Various explanations have been given as to the causes of induced seismicity. Some attribute induced seismicity to elastic deformation.<sup>1</sup> Some say that seismicity is caused by deformation and stress readjustment following the loading reservoirs.<sup>2</sup> Then it is said that percolation of water along fault and fracture zone probably leads to a built up of pore fluid pressure which are then transmitted down to the stress zone with a potential to slip and cause earthquakes.<sup>3</sup> Some say that rapid impoundment of water may induce earth tremors.<sup>4</sup> However, no explanation is borne out by facts and contrary examples are available.

#### ISSUE OF WATER BORN DISEASES

Irrigation may result in some increase in certain types of water related diseases like Schistosomiasis and Malaria if

prevention is not handled adequately. Prof. V. Ramalingaswamy, chief of the Indian Council of Medical Research expressed his fears that mosquito-borne diseases would increase in the absence of proper drainage. He noted that a crippling bone disease known as Knock Knees had began to appear in the area after the construction of the Nagarjuna Sagar dam. A similar disease has been reported in the area of Ganga Nagar through which the Rajasthan canal flows ( Thukral, 1990).

A similar observation has been made by CSE (1982). The report reads

The sub soil environmental changes caused by the construction of the dam have triggered off causative factors resulting ultimately in crippling syndrome of Knock Knees (genu valgum) among the poverty-stricken people living in the command area of the dam. Water seepage from the dam's reservoir and canals has increased the level of the sub-soil water. As a result, the alkalinity level of the soil has increased. This in turn has changed the fluoride, calcium and trace metals (copper, molybdenum, zinc and magnesium) composition thus creating suitable conditions for increased uptake of molybdenum by Sorghum plants(CSE,1982. p. 135).

On the whole, such projects should result in a net improvement in health because it seems probable that adequate supplies of domestic water are likely to give a much greater health improvement.

#### ISSUE OF SPILLOVER

Big projects have long gestation period . Because of long gestation period the limited investible funds earmarked for irrigation sector get thinly spread on too many projects. Thus, a large chunk of money released for a project gets absorbed in defraying establishment costs. This kind of delayed completion of irrigation projects leads to distortions in the whole planning

process. It generates a 'crowding out effect' --the funds allocated for overall irrigation development gets consumed in the maintenance and completion of a few delayed projects. As a result dryland farming and minor and medium irrigation works are left out. One more consequence of the delayed completion is that the real cost of establishing irrigation service shoots up. This is because of not only inflation but also income benefits deferred by many years for a poor economy.

In 1983, the Irrigation Minister, R. N. Mirdha told the Parliament that since 1951 when the Five Year Plans began, 205 major and 916 medium irrigation projects had been taken up of these as many as 176 major and 447 medium projects had not been completed; thirteen out of 25 major projects taken up during First Plan (1951-56) were incomplete, 32 major projects had cost overruns of 500 percent; and no irrigation or hydro-electric project had been completed on time and within cost estimates (Suresh, 1990. pp. 10-12).

#### ISSUE OF FLORA AND FAUNA

Studies should be undertaken in advance to find out if any species of plants or animals are in danger of extinction. Though it rarely happens but if any such species are found arrangements should be made to transfer them to safer areas in a similar climatic zone. This should be accomplished before the work on the project is taken up.

## ISSUE OF BIG DAM VERSUS SMALL DAM AND 'APPROPRIATE TECHNOLOGY' STAND

There are some who believe in the philosophy of 'Small is beautiful. They prefer small dams to big dams. Various reasons are given in favour of small works such as small irrigation works are more productive; they give much more crop output on an area to area basis; the cost of irrigation from minor works is a small fraction of corresponding cost entailed in establishing major irrigation projects and later developing their command areas; there is a full utilisation of irrigation potential in case of minor schemes; minor irrigation works can be completed in very short time; minor irrigation works do not pose any environmental threat; there are less chances of illegal appropriation of investment funds by contractors.

### SMALL VERSUS BIG DAMS

Many critics argue that small dams are better than big dams. While small dams have a role and are significant part of the overall irrigation development, they do not, and cannot, approach the scale of benefits of large dams (Dhawan, 1990). First, they are not as low cost as is often claimed, partly because of the amount of land they inundate. Typical small dams inundate almost as much as they irrigate, around 0.9 of a hectare for every 1.0 hectare irrigated; while big dams inundate from 10 to 15 % of the total land irrigated. Second, they fail to fill in the very year, the dry year, when they are needed most. They cannot store enough water to carry over to the next year in case of drought. Third, small dams with low heads of water may not be

able to generate same quantum of hydroelectric power as one single large storage with a high head of water. Further, owing to the seasonality of the flows small dams fail to provide dependability and resilience which only large dams can provide. Fourth, small dams can be built on small streams or tributaries. It is the large rivers which carry bulk of annual flows from which we need to store for later use. Big dams are by necessity on main rivers. Small dams undoubtedly are useful but they are not substitutes for big dams. Big and small dams are complementary. We need both for overall balanced irrigation development.

#### APPROPRIATE TECHNOLOGY

'Appropriate Technology' is not what it should be in the conventional language. 'Appropriate Technology' has been designed loosely by the AT movement. Here AT implies a set of concerns about impacts and an associated set of assumptions these features would produce as impacts. These impacts can be broadly categorised as equity, environmental and quality of life. The equity impacts have been most important which also shape the nature of concerns for environmental and quality of life impacts.

AT is an alternative paradigm of development to the existing capitalist and socialist paradigms. The AT paradigm envisions, in contrast to these two paradigms, a de-escalation of growth in developed sectors and a stable merging of the rich and the poor at a level somewhat above basic human need provisions.

AT alternative development paradigm derive support from

various sources: disillusionment with technology transfer aspect of modernization theory; ideology of small is beautiful; ideology of environmentalism; feminism and poor peoples' movement. The modernization theory of development sought transfer of technology from developed to developing countries as the main instrument of economic development during 1950's and 1960's. The failure of modernization theory and a consequent disillusionment with the ideal technology transfer stimulated the AT development paradigm.

The OPEC action and publication of 'Small is Beautiful' in 1973, though these two events not linked to each other, gave a boost to the development of AT paradigm. Schumacher's analysis further promoted the growing disillusionment with western technology transfer. Even more importantly Schumacher offered a very broad, qualitative perspective on the relationship of technology, equity, resources, environment, and quality of life.

At the time of OPEC action the quest for alternatives to mid-east oil was a matter of interest among environmentalists. The use of coal, synfuels, off-shore oil, nuclear power, etc. as probable alternatives brought much concern in environmentalist circles over the probable resource depletion, health risks, and social disruption. The resource and quality of life concerns in the AT movement proved very useful in attracting environmentalists toward AT movement. AT notion thus addressed in substantial way the 'elitist' critique of environmentalism. That is, the claim that environmentalists are, by and large because of their personal situation, insulated from the negative



economic impacts of environmental reforms, that the impact of these reforms are socially regressive, and that the reforms give priority to the welfare of nature over that of people, particularly the poor masses. Another part of the elitist issue that AT help to counter is the antigrowth theme in environmentalism, i.e., the critics' claim that environmentalists tend to ignore the fact that economic growth in the modern industrial mode has been the main historical economic force that has improved the situation of the poor.

Feminism and Poor Peoples' Movements also extended their support to the AT movement. Both these movements shared with AT movement the concern for equity. But still feminism and poor peoples movements did not support AT alternative development paradigm as a whole. This is owing to the fact that there existed within each of these movements two lines of thought, namely, Radical and Liberal. When considered in its pure form none of these, radical and liberal thoughts, agree substantially with the AT movement ideology.

It is erroneous to consider whether traditional technology is inappropriate. "All technologies are appropriate, contextually, irrespective of size"(T.K.Oommen, 1990 p.150). 'Appropriate technology' implies a specific set of characteristics and the probable areas of its application (less developed countries being poor in capital and rich in human resources). This makes AT appear as a particular type of technology rather than an approach towards the application of

technology.

T.K.Oommen says that there are two misconceptions about AT. One, that it seeks to displace traditional technology; two, that AT is a substitute for HT. The second misconception owes to the tendency of AT advocates who, more often than not, list out negative features of HT and claim to eradicate these negative features through AT. As a way out Oommen suggests that "an authentic notion of AT implies technological pluralism, the coexistence of traditional, intermediate and high technologies. These are not competing but complementary technologies, to be used selectively. It is contextual relevance that makes one or another type of technology appropriate not its size or characteristics (Oommen, 1990. p. 150).

Oommen further suggests regarding the application of the areas of AT that we should think of societal sectors to which specific technologies - traditional, intermediate and high - should be applied rather than taking a society as a whole. Also, the needs of a specific sector should determine the choice of technology for that area not the availability of resources.

#### AT'S CRITICISM OF HIGH TECHNOLOGY (HT)

The advocates of AT hold that currently predominant technology creates inequitable social impacts, adverse impact on environment which reduce its capacity to sustain life, and impacts that in other ways affect the quality of life adversely. Such impacts are termed 'hard' by AT advocates and the technology that creates such impacts as inappropriate. In turn AT advocates seek

a change to an appropriate technology ~~that~~ is claimed to create impacts that are socially equitable, environmentally benign, and that enhance the quality of life.

AT's critique of HT system of production is based on the means of production employed by HT and multidimensional impacts these means of production create. AT advocates hold that means of production employed by HT are capital intensive, complex, large-scale, centralised, resource intensive and resource-exogenous. These have undesirable impacts. Such systems displace people, alienate employed from their works and unemployed from society. They create over abundance for a few, deprive many of their basic needs, make bulk of people dependent on the decisions destructive to the natural environment, and are thus ultimately destructive of the affluence they seek to create. Ordinary people do not participate meaningfully in such systems.

On the other hand, AT advocates maintain that, systems that involves light-capital, are small in scale, decentralised, resource-conserving, and resource indigenous are appropriate because they have desirable impacts. They create meaningful work for all, ~~meet~~ the basic needs of all, promote self-sufficiency at all levels of social organization, and create an ecologically sustainable, higher quality of life. Ordinary people participate fully in such productive systems.

#### HT'S SOFT IMPACTS

No technology is inherently good or bad. Impacts a technology creates depend on the manner and purpose of its

application. Both high technology and low technology may have 'soft' as well as 'hard' impacts on the system depending on the context and relevance of application. Low technologies employed in Asbestos factories, Slate pencil cutting factories, cement factories, Lime quarries expose labour to health hazards. The working conditions in such factories can be humanized by resorting to a level of machanization. Low efficiency and pollution creating chhulas in villages cause respiratory and eye diseases to rural women. Introduction of gas stoves can reduce their hardships.

#### EQUITY IMPACTS OF HT

An important source of interest in the productivity and efficiency characteristics of HT is the desire to reduce the cost of productive process, including labour costs. AT because of its labour intensive tendency considers the proposition of reducing labour costs through machanization a 'hard' impact. Labour movements seek higher wages and consequently the costs of labour inputs go up. Similarly, environmental movement's emphasis on conservation of resources result in increased cost of natural resource related inputs. Both labour and environmental movements increase the cost of productive process. Moreover, environmentalism has constraining effects on economic growth which is a traditional way of addressing equity claims in the capitalist paradigm.

The equity claims of organised labour and their demands of higher wages conflict with the owners efficiency concerns. Problems such as strikes, protests and absenteeism decrease

efficiency and increase the cost of production process. To get rid of such problems owners resort to substituting technology for labour to reduce the number of workers. The reduction in the number of workers is compensated by improved wages, benefits and job security. Thus, the issue of equity gets blurred.

The advocates of High Technology hold that the jobs eliminated by HT are most undesirable ones. Most of these are monotonous, alienating or expose the labour to health hazards. Therefore, HT protagonists advocate replacement of routine assembly works by robots or automated handling of toxic materials. Further, HT reduces jobs in particular (usually traditional) industries only. The net long term impact of high technology will be to increase employment opportunities by creating new products, new services and new demands.

#### ENVIRONMENTAL IMPACTS

HT is helpful in resource conservation and in maintaining ecological balance. It has become standard by now to interpret energy conservation as being best achieved by increased energy efficiency; getting more output from same energy input - rather than a reduction in functions energy performs or in the amenities energy provides. This is possible through HT only. Moreover, only HT can make possible the use of non conventional energy sources such as sun, wind, waves and sea tides.

In the field of biotechnology HT promises soft environmental and equity impacts simultaneously. Biotechnoly promise rapid afforestation, efficient biogas production from

crop residues and animal and human wastes; microbiological processes for production of substitutes for petrochemical feed stocks from wastes or from other abundant renewable material; drought and pest resistant plants for agricultural use; nutritional and medical improvements for humans and farm animals.

#### QUALITY OF LIFE IMPACTS

Quality of life impacts of HT are both positive and negative. HT helps in providing electricity, drinking water, health services, transportation and communication in rural areas. At the same time it encourages consumerism and further widens the gap between haves and have-nots.

Construction of dams is necessary for hydropower development, irrigation development and control of floods. The importance of energy in a developing economy cannot be overemphasized. Our energy demands are increasing. Hydropower development is a must to meet energy demands by the turn of the present century. Moreover, hydropower has some economic and environmental advantages over thermal power and nuclear power. Irrigation has been single most important input in increasing agricultural production. To meet food demands of fast growing population agricultural growth is a must and this is possible through irrigation development only. The role of big dams in flood control is indisputable. Hirakud dam has considerably mitigated the problem of floods in the fertile Mahanadi Delta; Bhakra dam has completely solved the problems of recurring floods in the Sutlej river. A series of dams constructed in the Damodar

basin have been very effective in checking recurring flood menace in the Damodar basin; Ukai dam has completely protected Teh Surat town in Gujarat from recurring floods. The construction of dams generate 'multiplier effects' and help overall economic development. Expansion of irrigation facilities leads to increase in cropping intensity and make possible adoption of new agricultural technology. With the growth of agriculture; transmission of growth impulse from agricultural sector to other sectors takes places. All these benefits did not accrued without paying costs in terms of loss of land and forests, risk of dam failure causing loss of life and property, spread of water-borne diseases, socio-economic problems of dislocation and rehabilitation of oustees, etc. Dams have potential for development as well as for improvement in environment. But if not conceived and executed properly, they may result in environmental and socio-economic problems. In the ultimate analysis developmentalism versus environmentalism is a misplaced polarity with reference to dams.

## NOTES

1. If so it is difficult to reconcile the fact that a 46 m Cajura dams in Brazil registered a shock of 2.0 magnitude while the 185 m high Allmendra dams in Spain also showed a shock of 2.0 magnitude. On the other hand, the 22 m high Coyota dam in USA showed a shock of 5.2 magnitude, but 185 m high Toktogal dam in USSR could generate only 2.5 intensity shock. It is difficult to reconcile the fact that the Hoover dam (191 m high) in USA has a maximum magnitude of shock of 5.0 while in the same Colorado basin, the subsequently built (upstream of Hooverdam water spread) 139 m high Flaming Gorge dam, 176 m high Glan Canyon dam and Le Roy Anderson dam have shown 'decreased micro seismicity' (Varshney, 1990. p.40).
2. It is then intriguing to find in the case of the Bhatsa Dam (1983) that the phenomenon occurred when the dam was half built. But the phenomenon did not persist or become aggravated when the dam was completed to its full height. Here the epicenter was about 8 kilometers away from the waterspread (ibid. p. 40).
3. If this were so, then how to account for the Giri Bata pressure tunnel (in HP) and Chibro Khodri tunnel (in UP) which cross the same Mahan and Krol thrusts at two different places far apart in the Himalyan regions. Serious tunneling problems were faced due to extraordinary deformation and breaking of steel



support. Yet these tunnels have running for 10 to 15 years, and so far no earthquake has been triggered (ibid. p. 40).

4. The maximum rise in lake level at Koyana was 7.25 meter on 2nd. July, 1972. But there was no major shock in 1972 (ibid. p. 40).

## CHAPTER 5

### CONCLUSION

The objective of development is to improve quality of life of every human being. All development activities should be directed to this end. Development cannot take place if there are no natural resources available. In other words, environmental protection and resource conservation are necessary for development. Some development activities result in the degradation of the environment. Here, I hasten to add that all development activities need not result in the degradation of environment. In some cases it may be the other way round. If all development is stopped, certainly it will not be in favor of overall human good. At the same time if development is carried out without paying due attention to environmental aspects, again, the results would be disastrous for humanity. Development and environment though apparently opposed to each other are not so in reality. Development and environment are complementary to each other rather than competitive provided the strategies are worked out properly.

Development is necessary for the protection of environment. At the micro-level poverty is main cause of degradation of environment as indicated by the often quoted statement - 'Poverty is the worst polluter'. Protection of environment and resource conservation at micro-level is possible only through the involvement of men at grassroots level: tribals and villagers. Participation of these people at local level is

possible only by their involvement in the process of development as beneficiaries and also as agents of development. Poverty is the cause as well as the result of degradation of environment and depletion of natural resources. There exists a relationship of circular causation between poverty and deterioration of environment. Only development can break this vicious circle.

Development of science and technology helps in protection of environment in several ways. As a result of technological developments, now there exist more efficient technologies which help in resource conservation, reduce wastage of raw material and save time. Recycle technologies have helped tremendously in resource conservation. Now, the waste products can be used again as raw material.

Developments in natural sciences have equipped men with the capacity to regenerate environment. Rapid afforestation has become possible with the help of tissue culture techniques, which can provide in large number similar disease resistant saplings for plantation.

Most of the forests in Germany are the results of human creation. Tissue culture technique also helps in preservation and fast propagation of rare species of animals and plants. Sperms and eggs of rare species of animals and birds can be stored in liquid Nitrogen under low temperature. These can be used for propagation whenever required.

Techniques have been developed to check air, water and soil pollution. Only scientific and technological developments

can check pollution growth effectively and restore ecological balance.

As development is necessary for the protection of environment, same way environment is necessary for development. Development can take place only when there is a well developed infra-structure. Development of infra-structure in turn needs natural resources. If depletion of natural resources takes place it will arrest the development of the infra-structure and affect the development adversely. Moreover, a good quality of life is not possible with<sup>out</sup> an environment free from pollution.

Now, the choice is not between development and environment. The choice is between different strategies of development. Environment and development are not polar opposites, they are two sides of the same coin. Development and environment are not competitive, but complementary to each other. Thus, the polarity between developmentalism and environmentalism is misplaced.