CHAPTER - II

LITERATURE REVIEW

The study *Commercialization of Water: A Study on development Issues and Ecological Concerns* employs a trans-disciplinary approach to ecological economics, market economics and development economics. Demand-supply issues, pricing techniques, publicness, governance, human rights and livelihood issues on water accompanying its commercialization are the central questions.

The present chapter is divided into five sections. The first section, readings in environmental and ecological economics, surveys the varied areas of environmental and ecological theories and concepts. The second section, readings in development economics, is essentially a survey on development economic studies exploring the new trends and tools in development theories. The third section, readings in water issues, reviews the water-related socio-economic problems, conflicts and de-development practices from the perspective of developing countries along with water pricing techniques, water commoditization issues etc. The fourth section of the chapter, readings for creative perception, searches for new analytics and paradigms to make a creative foundation for the present study. The final section of the chapter discusses the place and role of the proposed research in the emerging ecological economics panorama.

2.1 READINGS IN ENVIRONMENTAL AND ECOLOGICAL ECONOMICS

Environmental economics has existed as a powerful discipline for nearly 50 years. Ecological economics borrows heavily from it, and overlaps significantly. But there are differences. Ecological economics perhaps invests more heavily on understanding ecological science, takes more note of discontinuities and non-linearities in ecological and economic systems, and pays less attention to notions of

economic efficiency and outcomes determined by short-term human wants (Pearce 1993).

What is environment? How is an ecological balance maintained by the actions of both living and non-living organisms? In addition, why do these forces tend towards ecological destabilization? These are basic questions related to ecology. The first question underlines the nature of human wants and needs, which defines what is known about environment. The second question analyses the 'physiology' of the environment and tries to explain the internal and external forces that act to change the environment. The third question investigates the pattern of social evolution and the changes of people's behavior and its impact on environment (Cole 1999). These questions and their explanations revolve around the anthropocentric worldview, where ecology or natural resources are factors of production to satisfy human wants, and environmental economics is an explanatory tool for these activities.

Environmental economics covers only the application of neoclassical economics and ecology adheres to 'natural' systems. Ecological economics is a modest approach in-between. *Ecological Economics* (Soderbaum 2000) describes the theme as a trans-disciplinary field of study rather than a single discipline. This provides a common place to social science scholars to discuss the environmental problems of contemporary society. Therefore, ecological economics is a commitment or mission to engage in public debate and practical action with a view of ecological sustainability. *It will include neoclassical environmental economics and ecological impact studies as subsets, but will also encourage new ways of thinking about the linkages between ecological and economic systems* (c.f. Soderbaum 2000: 20).

In his book *Ecological Economics*, Peter Soderbaum points to a large measure of conceptual pluralism in ecological economics discussion and argues that there is

no single 'right approach' or paradigm. The book inquires into the relevance of neo-classical economic tools (quantitative analysis) and institutional economists' normative postulations (value principles) in the assessment of ecological issues. Besides, *Ecological Economics* presents the epistemological tensions and complementarities of both mainstream economic schools of thoughts. The focal point of this book is that the pluralistic approach and holistic outlook of ecological economics requires a paradigm co-existence of economic school of thoughts and natural science rather than a paradigm shift.

Instead of a rational consumer and producer (utility-seeking or profit-seeking individuals), Soderbaum introduces a 'political citizen' in economic activities. Along with these theoretical issues, he analyses the various political ideologies like ecologism, liberalism and democracy, and their validity in economic decision-making process. In environmental policies, management and decision-making, the political citizen is the right person and this hypothetical person is the basis of all arguments put forward by Peter Soderbaum through *Ecological Economics.*

According to Michael Common and Sigrid Stagl (2005) ecological economics is the study of the relationship between human housekeeping and nature's housekeeping. It starts from the fact that both of them are interdependent, where environment is the material base for economic activity. Their book *Ecological Economics: An Introduction* makes an effort for systematic analysis of the subject. The book has four parts with a general introduction to ecological economics. The first part of the book analyses the interdependence of ecology and human beings as well as explains how the economy became a subset of environment with the history of human evolution, biological evolution and recent pollution problems. The second part, *Economic Activity*, highlights the significance of ecology in growth, development, human wellbeing and economic accounting (input-output Analysis, GNP, foreign trade, natural resource balance sheet etc.). Common and Stagl question the so-called 'economic activity', which is directed toward the

satisfaction of human needs and desires and states that, there are some market limits rather than 'unlimited economic growth' dogma. Rest of the two parts, *Governance* and *International Dimension* respectively, propose and analyze the international environmental policies, problems and principles. Sustainability of ecosystem is the principal concern in these chapters.

'Value against price' or 'pricing just beyond market' is the foremost proposition among ecological and environmental economists in the allocation of natural resources. *Economists have a distinct definition of value based on the ideals of rationality and consumer sovereignty* (Hanley et.al. 1997: 357) and these are measured by the utility or consumer surplus doctrine of Marshallian economics. In contrast, natural resources and their services are in an imperfect market where traditional demand curve fails to determine the price and quantity of the resources required for market. Nick Hanley, Jason F. Shogren and Ben White, in their book entitled *Environmental Economics in Theory and Practice* give more weight to market failure issues resultant of asymmetric information, incomplete market, externalities like pollution and exploitation, allocation problem of public goods (commons) and their scarcity. The book provides an in-depth analysis of natural resources' market, theory of environmental economics, management and policy framework. According to them, 'environment' includes life forms, energy and material resources and 'economy' is the population of economic agents, institutions and their inter-linkages as markets.

Why are environmental or ecological economics and policies increasingly becoming deeply entrenched in current international socio-political debates? The answer is simple once it is recognised that environmental problems are people's problems. According to Wills, *environmental problems occur when some people are unhappy with other people's use of the natural environment, because it imposes harm on them or their property to which they have not consented* (Wills 2007: 5).

Each of these environmental problems involves a lack of social coordination between resource users and those who are harmed by that use. Ian Wills' book titled *'Economics and Environment: A Signaling and Incentive Approach'* analyzes the lack of social coordination and its signaling issues in the first two parts of the book. The next two parts discuss the decision making on natural resources' employment by conventional cost-benefit analysis and other valuation techniques like travel cost method, hedonic pricing and contingent valuation methods with some empirical evidences. The fifth part of the book explores various global environmental problems and their management issues. Lastly, Wills tries to analyze the uncertainty problem, which involves ignorance and irreversibility. Wills argues that the absence of precautionary programs and policies guided by imperfect precautionary principles result in environment destruction and *it seems sensible to anticipate serious environmental damage and to act to prevent it, but this is the paradox of the precautionary principle. Told to environmental damage, we are left pondering how to anticipate the uncertain, indeterminate and unknown* (c.f. Wills 2007: 354).

Wills concludes with the remarks that environmental problems will always be with us and most of them involve non-rivalry, non-excludability of commons and the errors in environmental policies due to environmental and economic complexities. This can be managed only through an effective social coordination and signaling besides a clear perception about the processes and problems of environment rather than 'design solutions'.

What is the price of water? What is the price of soil and air? What is the price of a riverbed or forestland? These open questions were hitherto considered illogical in common socio-political arena until the development of environmental economic theories and tools. However, the discussion is about the static environmental problems like pollution and depletion that results due to industrial actions. If the above questions are reframed as, 'Can you imagine the "value" of an ecosystem?',

then the discussions will become ablaze due to the term "value" which is normative or subjective in all respects rather than "price." Nevertheless, environmental economists are concerned with developing methods for capturing the value of environmental goods and services in monetary terms and these investigations leads to various "surrogate valuation methods" (Groove-White 1997). However, they do not serve a dynamic analysis of resource allocation and ecological problems. According to Pearce (1993), there is no activity that can rightly be called "valuing the environment". The surrogate valuation methods, including cost-benefit analysis, hedonic pricing, contingent valuation, existence value and the like are based on the neo-classical economic thoughts, where utilitarianism and preferences of the individual [human preferences] are the basics of 'value system'. Besides, contingent valuation method is an alternative to travel-cost and hedonic pricing models, because they are unable to quantify some type of benefits, such as non-use or passive use benefits. *Contingent valuation* (CV) *evolved as a method to quantify the benefits of non-marketed environmental goods and attributes so that they could be entered directly into cost benefit calculations* (Bateman and Willis 1999: 1). However, 'willingness to pay' (WTP) and 'willingness to accept compensation' (WTAC) that are being measured in a contingent valuation survey (individual utility or preference models), are the basic tools (Hanemann 1999). The book *Valuing Environmental Preferences* edited by Ian J. Bateman and Kenneth G. Willis (1999) proffers an in-depth discussion on contingent valuation, based on individual preferences. The first part of the book discusses theoretical issues of contingent valuation and its essentiality in the theory of choice, public good and passive-use value analysis. The book also considers market information and uncertainty problems along with an individual's psychology and vividly narrates the constitutional frameworks of United States and European Union for contingent valuation supported by some case studies.

Since 1980s, contingent valuation studies have been common in EU and US, albeit not free from criticism. Pearce (1993) and Keat (1997) note that the principles,

WTP and WTAC are convenient to valuing the environment, but misleading to many due to the lack of pluralistic and ethical approach in ecological problems. The book *Valuing Nature* edited by John Foster (1997) brings together philosophers, sociologists and economists to put the case for new and more creative environment policies and valuation methods. It discusses the drawbacks of conventional environmental economics and analyses the problems with contingent valuation and cost-benefit analysis with alternative valuation methods. The book takes into account the pluralistic character of the society (rationalism and social norms) and its ethical notions along with the subjective nature of "value". The proceedings of the first annual international conference on environmentally sustainable development held at Washington, D. C. titled *Valuing the Environment* edited by Ismail Serageldin and Andrew Steer (1993) provide a clear vision about sustainable development and environmental valuation methods. Based on the discussions that took place in Washington D.C., it is obvious that "sustainability" offers only a guideline and a normative criterion (value) that enables to identify what economists may call "optimal development" (Dasgupta 1993). Dasgupta and Pearce try to analyze "sustainability" and "optimal development" questions based on normative and subjective nature of environmental valuation techniques. The books, *Valuing Nature* and *Valuing Environment* are exceptionally sound in normative value judgment of environmental goods and services, allowing a pluralistic socio-political spectrum in the allocation of natural resources.

On the other hand, *Economics of the Environment: Theory and Policy* (Horst Siebert 1998) introduces a static analysis on environmental issues and policies based on scarcity canon. This interprets nature and the environment as a scarce resource and tries to solve the natural resource allocation problem with property rights approach and public good criterion. The book is 'value' free in all aspects, considering only externality problems that arise from pollution and mismanagement. The environment is understood to be a set of natural conditions

that define the human living space (anthropocentric view) having four functions viz. consumption good, supplier of resources, receptacle of waste and location space for economic system (Siebert 1998). The book incorporates a variety of economic approaches, including neo-classical analysis, the public goods approach, benefit-cost analysis, property rights ideas, economic policy and public finance reasoning, international trade theory, optimization theory and risk analysis. The basic notion of this book is that, environmental disruption and environmental use are by nature, allocation problems.

In the late 1960s and early 1970s, many scholars and thinkers observed that continual economic growth directed by the "cowboy" economies was causing environmental decline, and argued that it could not be sustained forever, because the planet has limited supplies and a limited capacity to extract wastes. Therefore a 'spaceman economy' is inevitable to tackle the situation. Such an economy aims to limit extraction and pollution, decrease consumption, continuously reproduce the material form and increase stock maintenance. It would be measured by the nature, extent, quality and complexity of the total capital stock, including human bodies and minds (Beder 2007). Ecological sustainability principle, polluter pays principle and precautionary principles are the three basic environmental tenets that have occupied the market-oriented environmental policy discussions. On the other hand, the new wave in environmentalism and struggles for existence demands several social principles like equity, human rights and public participation to enter into environmental policy making. The book *Environmental Principles and Policies: An Interdisciplinary Introduction* by Sharon Beder (2007) discusses the above mentioned environmental and social principles. Apart from other books, she takes a critical and interdisciplinary approach to analyses and evaluates policy options. This book is significant at all levels, because, it argues that ecological problems cannot be addressed without taking into account these six potent socio-ecological principles.

The global economy is growing even faster, prompting the nation states to transpose the natural endowments to economic goods and services, add to GDP and national income. It has been shaped by market forces, not by the principles of ecology. Therefore the market *...does not recognize basic ecological concepts of sustainable yield nor respects the balances of nature* (Brown 2001: 78). The limitations of market signals to reflect the full costs or real costs of goods and services leads to a distorted economy- an economy that destroys its natural support systems; where the relationship between ecology and economy is under threat and stress. According to Brown, economic theory and economic indicators do not explain how the economy is disrupting and destroying the earth's natural systems, and asserts that an economy is sustainable only if it respects the principles of ecology.

In *Eco-Economy: Building an Economy for the Earth,* author Lester R. Brown (2001) makes a comprehensive and systematic analysis of the present ecological problems and its backward linkages to economic systems and development. The book makes the case that there is no alternative to restructuring the economy if we want economic progress to continue in the decades ahead; and discusses the 'eco-economic' structure in detail. *An eco-economy is one that satisfies our needs without jeopardizing the prospects of future generations to meet their needs* (Brown 2001: 78). This will affect every facet of our lives and give us a world where we are a part of nature, instead of estranged from it. The 'eco-economy' concept is extremely close to Gandhian economics and Buddhist philosophy, besides the 'intermediate technology' and 'small is beautiful' dictum (E.F. Schumaker); the assertion that the economy has plenty of resources to satisfy human needs but not human greed. *It means we can live in a world where energy comes from wind turbines instead of coal mines, where recycling industries replace mining industries, and where cities are designed for peoples not for cars... we will have the satisfaction of building an economy that will support, not undermine, future generations* (Brown 2001: 23). Brown cites the example of

Denmark as a successful eco-economy leader. It has stabilized its population, banned the construction of coal-fired power plants, banned the use of non-refillable beverage containers, and now gets 15 percent of its electricity from wind; it has restructured its urban transport system; now 32 percent of all trips in Copenhagen are on bicycle.

2.2 READINGS IN DEVELOPMENT ECONOMICS

Development economics emerged as a distinct field in the 1940s and 1950s and has become an empirical discipline today. Kuznets and Myrdal were the principle protagonists, followed by Rosenstein Rodan, Hirschman, Leibenstein, Lewis, Nurkse, Scitovsky and Sen. The theories and empirical works, put forward by the development economists were aloof and isolated from mainstream neo-classical economics and based on implicit assumptions of pervasive externalities, missing markets, economies of scale, imperfect competition and information (Mookherjee 2005).

During late 1970s and early 1980s, with the emergence of environmental/ ecological economics and then the formation of international organizations for ecology and climate changes, development theories and their empirical approaches shifted to addressing the issues such as cost-benefit analysis, migration and optimal growth by the work of Lefeber, Little, Mirrlies, Todaro, Chakravarty, Sen, Dasgupta, Marglin and many others. Besides, mounting ecological problems caused by rising economic growth has forced economies to revisit the growth theories and indicators. Internationally, United Nations Development Programme (UNDP) and its development reports suggest new tools and indicators to measure economic growth and development, though they revolve around the domestic product and national income notions.

What is development? How much and which sections of people are the beneficiaries of these development? Is it a 'top to down' or 'down to top' pattern?

How can we measure genuine economic growth and development? These are major questions that make the subject more normative and dynamic. The late 1970s and early 1980s experienced new waves in ecological economics and development economics, proposing a paradigm co-existence, normally called 'sustainable development'. Natural resource democracy, eco-friendly products, optimum utilization of natural resources, recharging the ecology and environmental management are the new approaches to sustainable development. In short, ecological balance and well-being of the people of present and future generations have gained central motive of the new wave development economics.

Development is a multidimensional construct: its aims are always social and ethical (synchronic solidarity). It contains an explicit environmental conditionality (diachronic solidarity with future generations); economic growth, though necessary, has only an instrumental value; development cannot happen without growth, yet growth by itself does not warrant development; it can equally sustain misdevelopment in which growth of GNP goes hand in hand with increasing social inequalities, unemployment and poverty (Ignacy Sachs 2004).

In 1987, the Brundtland Commission stated that poverty is a major cause and effect of global environmental problems and that there are close links between poverty and ecology. However, it has been poorly tacit due to the lack of efficient measurement tools with respect to economic development. The paper titled *Poverty, Environment and Development: Proposals for Action* (Johan Holmberg 1991), examines the relationship between ecology and poverty. According to Holmberg, the poorest 20 percent, the poorest of the poor, are frequently observed in ecologically vulnerable areas, who live on marginal lands with low productivity and high susceptibility to environmental degradation. The paper puts forth the 'Deprivation Trap' (proposed by Chambers 1983) and notes that poor countries tend to be highly natural resource dependent and therefore need to protect their environment as a basis for future growth and poverty reduction. In the absence of

effective environmental protection, they will fall into 'deprivation trap', which has five sets of factors viz. poverty, physical weakness, isolation, vulnerability and powerlessness against those who push society into deprivation and de-development.

Sustainable development with sound ecology and economy is the focal point of every economic and environmental policy. 'Development that meets the needs of the present without compromising the ability of future generations to meet their own needs' is the widely accepted definition of sustainable development (WCED 1987). Nevertheless, it gives no indication of the time horizon (future generation), the scope and substance of human needs, nor of the role of environment in development (Bartelmus 1993: 69). *Environment Growth and Development* (Bartelmus 1993) offers a unique analysis of sustainable economic growth and development, focusing on operational, quantifiable concepts and methods and linking them to different policies, strategies and programmes of growth and development. Here, Bertelmus examines the distinctive features of "Green Accounting" and environmentally adjusted domestic products (EDP) rather than Gross Domestic Product (GDP) and National Income Accounting. Conventional accounts neglect the scarcities of natural resources and degradation of environmental quality from pollution that threaten the sustained productivity of the economy, human health and welfare. On the other hand, they account the environmental protection expenditures as increases in national income and product (Bertelmus 1993: 34). The issue is not how much economic growth or development but what kind of growth and development. The book analyzes the ecological issues and its drawbacks that emerged during 'a lost decade of development,' putting forward new tools, techniques and policies for an 'eco-development' strategy.

Like other sciences and technologies, economic science is also under the influence of euro-centric rationalization. In so far as, accomplishing a west-influenced

economic growth, living standards and life styles, the third world nations practiced western economic models until the commencement of global environmental issues. *Westernizing the Third World* (Mehmet 1995) explores the issue of the euro-centric economic theories and practices in the other parts of the world. Ozay Mehmet examines the euro-centric elements in the classical and neoclassical development theories to explain the euro-centric mindset, which exploit the third world's natural resources for their growth and hinders in the development course of others. Why has development failed? Why did the euro-centric theories and models work in Europe but not in the rest of the world? What is the future agenda of the developing world? are the main questions discussed in the book. *Westernizing the Third World* discusses the vicious circle of poverty, critical minimum effort thesis, big push theories, the Asiatic mode of production thesis and other neoclassical theories. Ozay Mehmet is incredibly cognizant to the heterogeneous and multi-linguistic cultural patterns of the Asian and Latin American societies in his study. The book directs the mainstream economic perceptions to various ethnographic development models and sustainable economic development.

Today, the new-wave 'development' is being questioned. It ranges widely over the issues of euro-centrism, critical globalism, intercultural transaction, delinking and alternative, human and post-development theory. *"What are the connections between development and globalization? How do culture and modernity relate to the economic inequality between nations?"* (Pieterse' 2001). The book *Development theory – Deconstructions / Reconstructions* is wide-ranging in treatment and forward looking in its conclusions. As such, it is likely to be used as a barometer of critical thought in the field today. The book provides the right vision about the question of what ought to be development.

The present form of development concerns 'higher prices, loss of employment, lower wages, loss of control over their lands, forests and water bodies,

contamination of their wells and rivers etc. by industry' (Cheriyan 1999). The book *Equation for Life* (Cheriyan 1999) opines that de-development and ecological problems lead to further pauperization, marginalization, displacement and exclusion of poor, women, weaker sections of society and even ecosystem. How to manage and how to attain economic and natural resource equity as well as efficiency are the basic issues discussed in the book.

More than a half century of persistent efforts by the World Bank and others has not altered the stubborn reality of rural poverty, and the gap between rich and poor is widening (WRI 2005). The thesis *World Resources 2005*, a joint venture of United Nations Environment Programme (UNEP), UNDP, World Bank and World Resource Institute (WRI) recognizes that environmental income (income from ecosystems) can act as a fundamental stepping-stone in the economic empowerment of the rural poor. Productive ecosystems are the basis of a sustainable income stream from nature; unfortunately, the poor are rarely in such a position of power over natural resources. An array of governance failures typically intervene: lack of legal ownership and access to ecosystems, political marginalization, and exclusion from the decisions that affect how these ecosystems are managed. Without addressing these failures, there is little chance of using the economic potential of ecosystems to reduce rural poverty.

World Resources 2005 is about the following simple propositions:

1. Economic growth is the only realistic means to lift the poor out of extreme poverty in the developing world.
2. The building blocks of a pro-poor growth strategy begin with natural resources.
3. Transparent and accountable governance is critical to fostering pro-poor growth and essential to ensuring that the engine of that growth and natural resource wealth is managed wisely.

World Resources 2005 details the steps necessary to empower the poor to use ecosystems both wisely and for wealth. Using examples and case studies, the report traces a route to greater environmental income. Working at the cutting edge of sustainable development, it lays out the governance changes necessary to give the poor the legal, financial, and management capability to use nature for wealth creation without depleting their fragile resource base. *World Resources 2005* also presents statistics on current environmental, social, and economic trends in more than 150 countries.

We all know the basic facts. Half the people in the world live on less than $2 a day. A fifth lives on less than $1 a day. Over the next three decades, two billion more people will be added to the global population 97 percent of them in developing countries, most of them born into poverty (James D. Wolfensohn, former World Bank President, c.f. World Resource 2005). Therefore, an appropriate dependence on ecosystem and its appropriate governance and involvement of the poor in decision-making is inevitable to tackle the poverty trap.

The perception on development and human well-being has changed and is defined as '*the process of enlarging the range of peoples choices - increasing their opportunities for education, health care, income and employment, and covering the full range of human choices from a sound physical environment to economic and political freedoms'* (Bertelmus 1993: 71-72). Ignacy Sachs (1997) asserts that development must be economically feasible, ecologically sound and socially acceptable (triple-win theory), and only that can ensure a sustainable eco-economy in future.

Resource conflicts are becoming a common scene in international socio-political arena, some may be at the micro level, others being macro issues between nations. *"Most of the armed conflicts, whether domestic or international, are concentrated*

in regions heavily dependent on agriculture, such as South Asia, Central Africa, and parts of Latin America. In countries that have a low dependence on agriculture …, we find only a handful of conflicts. Indeed, only five out of 63 states that exhibit a low dependence on agriculture have suffered armed conflict after the Cold War" (Ohlsson 2000). The article entitled *Livelihood Conflicts: Linking Poverty and Environment as Causes of Conflict* (Ohlsson 2000) analyses the problems between resources and livelihood issues. It asserts that without environmental protection there will be neither sustainable development nor any successful poverty reduction. We are gradually beginning to understand how environmental issues link to other development issues and just how decisive the management of environmental resources is for people's livelihoods. A livelihood comprises people, their capabilities and their means of living, including food, income and assets (Chambers 1983). Scarce natural resources (water, oil etc.), lack of arable land for agriculture, agriculture failure and civil wars as well as social unrests on the distribution of natural resources constitute conflicts on livelihood. Internationally, 'resource terrorism' on water, oil and other natural resources are very visible as well as sensitive between 'West and East' or 'North and South' or 'developed and developing' countries for the sake of the well-being of the former. According to the Human Development Report (HDR) 1998 by UNDP, 86 percent of the world's resources are used by one-fifth of the world's population and a child in the Western European nation uses 40 to 70 percent more water than his/her South Asian counterpart. Therefore, social activists and environmentalists from the south always say that 'we don't want development, but want to live'. Now slogans are changing to 'greening of the heart and nurturing the nature'.

We are in the realm of various paradigm shifts in the human as well as economic development and growth indices, from Gross National Product (GNP) to Gross National Happiness (GNH) or from HDI to Human Freedom Index and so on. GNH is sensitive to environment, freedom, gender difference, regional difference, income distribution etc. His Majesty Jigme Singye Wangchuck (The King of

Bhutan, the proponent of Gross National Happiness philosophy) has proclaimed that the ultimate purpose of government is to promote the happiness of the people. He says, "Gross National Happiness is more important than Gross National Product", and has given happiness precedence over economic prosperity. Present socio-economic indicators are an attempt at measuring means, but they do not measure ends such as how the dramatic global economic changes propelling the common people into the 21st century affect prospects for happiness. *How will information technology affect people's happiness? How will shrinkage of biological and cultural diversities affect the individual and collective potential for happiness? Will the particular scientific world-view of contemporary education and curricula undercut in the next century the basis for the culturally rich and value-full basis of daily life? How will global capitalism and competitive international trade make people more vulnerable to unhappiness and uncertainty of their lives?* (Thinley L.J.Y 1998). Bhutan is on the way to new economic development strategies and expects to ensure GNH for the economy. These strategies are: seeking 'Happiness' in income generation and its distribution, natural resource employment that is based on ethics, international relations and policies, education that ensures enlightenment, social structure that is rooted in good governance and overall development that provides, socio-ecological harmony with economic security. GNH is presently passing through four platforms: economic development, environmental preservation, cultural promotion and good governance. The effort could finally lead to a method of synthesis between GNH and HDI, with HDI becoming sensitive to GNH.

Beyond 'externality', the term 'social cost' bears wide ranging meanings. Development and ecological economists are increasingly becoming clear about the perception of social cost along with its backward linkages to development. In this regard, *Social Costs of Human Underdevelopment – Case Study of Seven New York City Neighborhoods'* (Berkowitz 1974) is a comprehensive book on social costs and underdevelopment. It attempts to link the underdevelopment and social

cost issues with externalities of consumption (preventing achievement of Pareto Optimality in consumption) and production (preventing achievement of Pareto Optimality in production) and examines ineffective use of human resources as a social cost. Berkowitz classifies the social cost into two, viz. direct costs (externalities traceable directly to the economic poverty on human underdevelopment) and indirect costs (losses in productivity due to an underdeveloped or underutilized state of human resources). The book tries to restate the concept of social cost and facilitates the understanding about the real cost which was labelled as indirect costs or externalities by the precedent theories. Along with these, the *Social Costs of Human Underdevelopment* also gives some glimpses on the linkages between underdevelopment and externalities that are commonly used in resource economics and human development theories.

Social Costs of Energy – Present Status and Future Trends edited by Olav Hohmeyer and Richard L. Ottinger (1992) provided a clear vision on social costs. The authors state, *"…the term social costs would be used for all cost elements of production and consumption handed on to third parties not involved in the specific market transaction"*. The book thoroughly analyzes and estimates emissions and pollutions from energy producing sector. It also introduces some techniques to estimate the social costs. The book enriches the present study by connecting environmental issues with social cost concepts.

2.3 READINGS ON WATER ISSUES

The basic notion of market economics is that each and every scarce resource requires a market-based solution for its fair distribution. Water sector is no different in that the growing demand and dwindling supply of water makes it a scarce economic good. Fresh water is a finite and vulnerable resource to nurture life, economic growth and the persistence of ecology. The 'economic good hypothesis' recognises water as a commodity and market economics plays a crucial role in its pricing and marketing. Above all, the demand–supply gap, pollution,

environmental concerns, new policies and unethical pricing mechanism in the water sector are very prominent issues, denying water to ecology and to vulnerable people as well as affecting livelihood. Hence, it is significant to revitalize the real value of water or human right to water that entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses.

In India, water has been treated as a private good since a long time. A person, who owns the land, owns the water below the land and people have the freedom to extract water for agricultural purposes and domestic uses. However, water scarcity in housing areas entails individually designed bullock carts and tractors, which have a carrying capacity of 500 to 1000 litre water. In this 'subsistence water market', people were conscious about their water sources and their sustainability. Therefore, conservation and management of water resources was voluntarily maintained. But the scenario drastically changed during late 80's and early 90's. Rapidly growing industries and multiplex shopping complexes and housing colonies in the developing cities of India demanded more water. The government authorities were unable to manage this demand stress situation (Dwivedi, Gourav et al. 2000). In 1999, Chennai, Pune, Bangalore and Hyderabad, were among a few urban centers in India that successfully bid to attract private participation in the water sector, extraction, supply and billing of water charges. Delhi will soon become part of the infamous water corporation Vivendi's giant network of 110 million customers in more than 100 countries. In January 2003, the head of the public utility in the Indian capital announced that privatization "is to take place soon." Indian authorities are rushing to offer management contracts or grant of concessions to private water firms (Ninan 2003). Such privatization practices are causing a large-scale water withdrawal from the water rich regions of India.

Worldwide, water trade could be a multi-trillion dollar industry in future. Besides, the MNCs are penetrating into the water service sector and commercialization of

water is becoming imminent. Commoditization of water claims new stress on water resources and profit seeking corporate giants are entering the soft drink market along with bottled water production. The all-India market for packaged water is between $145 million (Rs. 8 billion) and $21 million (Rs. 10 billion) and growing at the rate of nearly 40 per cent per annum (Bhushan 2002). Even though it accounts for only 5 percent of the total beverage market in India, branded bottled water is the fastest growing industry in the beverage sector (Kaushik 2001). While the single largest share in the mineral water market might still belong to an Indian brand - Parle ($52 million (Rs. 2.5 billion)) Bisleri brand has a 40 percent share. In less than two years since its launch, Aquafina (Pepsi) has cornered 11 percent of the market and Kinley (Coke) has almost a third of the market. News reports indicate that other MNCs like Unilever are also eying the market. Currently, Kinley is being manufactured in 15 bottling plants across the country and according to Coca-Cola India President and CEO Alex von Behr, Coke has invested Rs. 4,000 crore in India between 1993 and December 2001 (Bhushan 2001). According to Behr, Coke expects a significant portion of their turnover to be accounted by pure water business.

International organizations like United Nations Organization (UNO), UNDP, WHO, World Trade Organization (WTO), International Monetary Fund (IMF) and the Asian Development Bank (ADB) are increasingly considering water as a strategic economic and political tool and the international summits on environment as well as development give more emphasis to water-related issues. The UNO has declared 2005-15 as the international decade for action with the motto 'Water for Life' with greater focus. The present research titled "Commercialization of Water: A Study on Development Issues and Ecological Concerns" considers water as a development device as well as a public good. Human rights on water, water pricing techniques, commercialization of water and related conflicts, water and livelihood issues, gender issues in water sector and

ecological problems led by water shortage are the focal points. In this regard, the following authors and their contributions are significant and relevant to this study.

Ramaswamy R. Iyer-(2003) discusses and analyses several interlinked themes related to the crucial aspects and many dimensions of water resources through the book '*Water Perspectives, Issues, Concerns'*. The space of water resources in the Indian Federal System, water rights under constitution, constitutional provisions to resolve inter – state water disputes, critique on national water policy – 2002, search for a water law, the controversies surrounding large dam projects in India and the dilemmas that face water resource management in India are also discussed in the book.

Water needs to be treated as a commodity to ensure efficiency of use in the context of scarcity. At the same time, common interests in water are fundamental (Moench 1998). The article, *Allocating the Common Heritage – Debates over Water Rights and Governance Structures in India* explores the social basis for ground water rights reform in India and water allocation decision-making processes. The paper also discusses the customary and statutory rights structures governing ground water and surface water. In conclusion, Marcus Moench argues that governance structures must be designed to create a balance of power in water use decisions between commercialization and common rights that reflect the common heritage nature of water resources.

Measuring social cost in monetary terms is a crucial question. Social cost is the sacrifice made by society such as the giving up of leisure time or the time for looking after their kids or the time that they spend for achieving some basic human rights etc. The task may be unrealistic and impossible but K. Pushpagadan (2002) suggests some models in this regard. Social costs can be treated as opportunity cost of time, leisure etc. In his working paper *Social Return from Drinking Water, Sanitation and Hygiene Education- A Case Study of Two Coastal*

Villages in Kerala, he puts forward a formula for opportunity cost of travel time for drinking water and sanitation. The working paper has helped the present study to keep a mathematical and theoretical device in the case study.

Irrespective of whether water is a private commodity or a public good, it is clear that water has an economic and commercial value and commercialization of water is increasingly becoming persistent, defying all transnational boundaries. Therefore, the underlying objective of the present study is to understand the very perception that water is a common property. *Aligning Interests for Social Development in the Water sectors from the Inception to the Implementation of Socially Sound Water Policies by* Jakob Elster (2003 May) is an attempt to summarize the salient points of this public-private debate that usually accompanies a discussion over who should control water sources and services. This paper reframes the question of water development from that of '*right and wrong', 'profit and rights' and 'public versus private' into a real politic lexicon of interests and incentives*.

David Mosse (2005) challenges the narrow interpretations of common property resources. He argues for a more historically grounded understanding of landscapes, rights and rules for resource use and takes into account the social ecology and ideology of water. *"The Rule of Water*" explores the changing ecology, political significance and cultural meaning of water in South India. According to Mosse '*the relationship between water and society is as complex an[d] historical, sociological, and regional problem as any that can be imagined'.* The book focuses on a key development concern based on empirical evidences and as such will be useful for policy makers, NGOs environmentalists as well as researchers.

'*Blue Gold'* by Maude Barlow and Tony Clarke (2003) precisely and beautifully narrates the corporate theft of water by the MNCs. It captures in striking detail the forces behind the increasing depletion of world's fresh water and its human

and ecological impacts. The major bottled water producers are part of one of the fastest growing and least regulated industries, buying up fresh water rights and drying up crucial supplies. Maude and Clarke, two of the most active opponents to this trend, show how the corporate giants act in their own interest and how, contrary to perceived wisdom, water only flows uphill to the wealthy. '*Blue Gold'* argues for a water democracy and rejects commoditization of water from the perspective of the commons.

More than a billion people lack access to safe drinking water, and more than 2.4 billion people lack adequate sanitation; more than five million people [most of them children] die each year from illnesses caused from drinking unsafe water. Global consumption of water is doubling every 20 years, more than twice the rate of human population growth and the privatization of water industry is already a 400 billion dollar-a-year business globally (Aid Watch http//www. indiaresource.org 2003 April). Holland tells the real story behind these facts and figures. *The Water Business* (Holland 2005) provides a number of interviews of the poor, the experts, the corporate executives and makes a policy provision between the private and the public. The book raises some basic yet pertinent questions: should decisions about the provision of and access to water be taken by citizens in democratic societies, or by commercial corporations? Is water a human right or just another tradable commodity?

Water: Private, Limited-Issues in Privatisation, Corporatisation and Commercialisation of Water Sector in India, a booklet published by Manthan Adhyayan Kendra (2007), is a compilation of information gathered from multifarious sources that discusses key issues in privatization and commercialization of water and related global experiences. The privatization projects in the country and associated policy frameworks and programs have been discussed. The booklet narrates the role of the World Bank and the Asian

Development Bank in the water privatization process and the search for possible options.

Privatization as a solution to the water crisis proposes a model of water management structure that relinquishes all control over water resources to the domain of the markets forces and thus marginalizes the role of the state and the rights of communities (Singh 2004). *Privatization of Rivers in India* (Singh 2004) addresses these issues based on the neo-liberal free market practices and discusses the intervention of WTO, IMF, ADB and Transnational Corporations in the water market. The book analyses in depth the international, financial and legal framework of water trade as well as the changing Indian water policies along with a number of empirical evidences including Sheonath river privatization and water commoditisation issues. The *Privatization of Rivers in India* calls for a civil society cognizant in water governance for a social control over water resources.

Negotiating Water Rights (Bruns and Meinzen-Dick 2000), a collection of studies, shares various thoughts on water management, rural development and common property resources. The book deals with two mainstream concepts: property rights- especially common property and institutional reforms in irrigation and water resources. Legal pluralism, participation in water management and water rights are subsidiary ideas. The concepts are discussed with the help of empirical evidences.

The term "pricing of water" is nowadays a common jargon all over the world. It constitutes the economic value of water and its scarcity. However, the word 'water' constitutes an array of forms and meanings that may be fresh water or water resources and occasionally, that represent water catchment areas. *Pricing Water- A Tool for Natural Resource Management in the Onkaparinga Catchment* (Hatton and Connor 2001) focuses on pricing of water to manage the catchment water resources in a sustainable manner. The descriptive study analyses the full-

cost recovery pricing techniques and its limitations along with practical approaches.

The agricultural sector is the largest user of water, accounting for 70 percent of global withdrawals and 90 percent of withdrawals in low-income countries (Johansson 2005). Over exploitation of ground water for irrigation purposes, has seen a significant drop in the availability of fresh water. In India, Tamilnadu and Gujarat are the two major states depending on ground water for irrigation. Many villages and towns in the vicinity demand drinking water from the storage reservoirs and canals. Therefore, 'pricing or valuing of irrigation water' is necessary to check over-extraction and wastage along with the concern that irrigation is an inevitable practice to maintain food security and livelihood of many people. *Micro and Macro-Level Approaches for Assessing the Value of Irrigation Water* (Johansson 2005) analyses the role of irrigation and its linkages to the economy. Johansson's econometric analysis throws glimpses on international trade, ecology, land use and competing uses of water, rural poverty and its linkages to urban economy and economic growth. *Equity, Access and Allocation: Discrimination in an Irrigation Project* (Lele and Patil 2006) and *Is India Ripe for Integrated Water Resource Management? Fitting Water Policy to National Development Context* (Shah and Koppen 2006) describe the importance of and need for participatory irrigation management and integrated water management for a developing world.

It is recognized that water is a development device and the basis for sustenance. Water is both a key input to many types of livelihood activities and a determinant of the health and productivity of ecosystems. Ensuring continuity in water flows and minimum levels of water quality is essential for maintaining the integrity of ecosystems, which in turn is critical for activities such as fishing, grazing and fuel-wood gathering on which the poor depend. *Linking Poverty Reduction and Water Management,* a paper published by Stockholm Environment Institute and UNDP

argues that water management is a key factor in the global battle to remove the curse of extreme poverty. The paper also takes into account various policies and programs that improve the contribution of water management to poverty reduction.

International Law, Sustainable Development and Water Management (Hildering 2004) examines water as a central theme in sustainable development. The research is founded on the three-fold nature of water: as an economic good, social good and environmental good and raises the following questions. *Which principles of international law can be instrumental in achieving sustainable development in water management? How do they relate to one another? and How can they jointly contribute to a more sustainable development of freshwater resources*? The book follows some ontological methodology on guardianship of water that helps the present research.

The report entitled *Water Pricing* (2003) discussed in the House of Commons of London is a documentation of various discussions, interviews and written evidence by the Environment, Food and Rural Affairs Committee. The report is a periodic review of water companies' pricing tendencies with their public comments as well as other investments in water and its recovery by increasing water price. Beyond this, the report deals with a wide range of discussions related to environmental sanitation, affordability issues and water subsidies and pricing techniques along with quality and quantity measures.

Water pricing techniques and water sector investment arguments consider only the economic value of water. However, the problems of water pollution, over extraction, monopolization, commoditization and related uneven distribution of water among people as well as ecosystems entail a social cost analysis and valuation of water beyond simply price. It is recognized that, t*he proper benchmark for assessing the social cost of monopoly is the Pareto optimal state*

that utilizes minimal economic resources to provide the same level of consumer satisfaction as realized in the monopolized state (Lee and Brown 2005). Conventional Dead Weights Loss measures ignore the social cost of monopoly including competition and thus cannot accurately capture the loss in social welfare. *Competition, Consumer Welfare and the Social Cost of Monopoly* (Lee and Brown 2005) suggests an alternative method for measuring the social cost of monopoly. This article proposes a social cost metric and discusses the implications of the renovated approach for antitrust law as well as how this methodology can be used in practice for allegations of monopoly power given a history of price demand observations.

The present study has ecological economics perceptions that make an effort to supplement some theoretical and conceptual design for social cost of water. In this regard, the working paper by Mike Young (1997) entitled *Water Rights: An Ecological Economics Perspective* contributes fresh thoughts about ecology and illustrates how the ideas, propositions and recommendations developed by ecological economists differ from those that have been developed by conventional economists. The paper challenges the conventional economists' notion on economic efficiency and trade-off between equity and efficiency.

It is observed that the ecosystems matter for people and their welfare; it may be water, arable land, forests and fresh air. Moreover, ecosystems are a part of water equations and there are some forward and backward linkages in the ecosystem resulted by investments (tangible and intangible). *Value: Counting Ecosystems as Water Infrastructure* (Emerton and Bose 2004) discusses the significance of new valuing methods including travel cost analysis, hedonic pricing techniques, replacement cost techniques, contingent valuation methods, along with the limitations of traditional economic valuation in ecosystem accounting. They assert that the real valuation of ecosystem will help to formulate new policies and programs that ensure a sustainable development in future. The book goes through

a number of examples of ecosystem valuation and vividly narrates the issues and drawbacks associated with them.

The proposed study tries to present a distinction between the economic value and social value or ecological value of water, because international economic organizations and their various summits consider water as an economic good as part of their commoditization agenda. This market concept has received wide acceptance by the world's water professionals. In particular, it is yet not clear as to what exactly is implied by water as an economic good or an economic as well as social good. Peter Rogers et.al (1998) have addressed this lack of understanding by formulating the concept of water as an economic good and explaining, in practical terms, the economic tools that can be used to affect the environmentally, socially and economically efficient use of water. The paper - *Water as a Social and Economic Good: How to Put the Principle into Practice* (Rogers et.al 1998) presents the general principles and methodologies for estimating costs and values in the water sector, which has helped the present study to address the problem on how to reckon and price the social concerns related to water. The present study concerns those actions of commercialization of water that have harmful effects on others. The economic analysis of such a situation has usually proceeded in terms of a divergence between the private and social product of the business firm. Here, economists have largely put forward the 'Pigouvian tax' which asserts that it would be desirable to make the owner of the firm liable for the damage caused to those injured by the pollution or any other destruction and to place a tax on the owner varying with the amount of destruction caused and equivalent in money terms to the damage. However, it is not a permanent solution to the problem. According to Ronald H. Coase (1960) "the suggested courses of action are inappropriate in that they lead to results which are not necessarily, or even usually desirable". His article titled *The Problem of Social Cost* has helped the present study to bring a refinement in the problem of social cost.

Projections of water demand and supply based on various scenarios provide a backdrop for examining the relevance of alternative interventions to achieve sustainable use of India's water resources. (Kanchan Chopra 2003). *Sustainable Use of Water – The Next Two Decade*; focuses on projections of water demand for the next two decades and studies them together with estimates of supply. The author also argues that issues of water management in overcrowded urban areas would become significant in the future.

Gender disparity on water is a crucial issue discussed in this study. Women's rights on natural resources and governance will call for a renewed perspective on the protection, efficiency and rejuvenation of the common heritage because access to a fair share of clean, healthy water is a basic human right and indeed the basis of our existence. However, *everyone looks at it as a natural resource for which nobody should be asked to pay* (Navdanya 2005). In this context, the articles *Untapped Connections* (Grossman 2003), *Common Ground* (Pearl 2003) *and Diverting Flow* (Grossman et.al. 2003) are worthwhile. These papers present an overview of the relationship between gender, poverty and water and examine how access to water and sanitation has implications for women's health and economic activities. Every day, women and girls walk long distances to bring water and fuel to their families. Therefore, women's survival and that of their households and communities depends on the access to and control of natural resources–land, water and plants. The report entitled *Water and Women* published by National Commission for Women and Navdanya Foundation (2005) narrates the Indian water scenario and women who suffer from water scarcity and privatization. These studies focus on women, who make a change and become a driving force in achieving sustainable development.

India's Water Economy: Bracing for a Turbulent Future (Briscoe and Malik 2006) and *Financing the Water Crises: World Bank International AID Agencies and Water Privatization* (Navdanya/RFSTE 2005) illustrates a clear picture about the

Indian water scenario, presenting problems as well as future prospects along with a detailed study on past water management techniques. These reports narrate the consequences and effects of private investment in the water sector and analyze their positive as well as negative impacts with empirical data.

In addition to the above-mentioned books and reports the proposed study goes through the World Water Report (WWR), HDR, World Health Reports (WHR), and various documents produced by various International Organizations such as ADB, World Bank, WTO, IMF, International Water Management Institute (IWMI), WRI along with other conference documents.

One of the four Dublin Principles recognized at the International Conference on *Water and Environment: Development Issues for the 21st Century in 1992* is "*Water has an economic value in all its competing uses and should be recognized as an economic good as well as managing water as an economic good is an important way of achieving efficient and equitable use, and of encouraging conservation and protection of water resources."* However, people concerned with human welfare and the environment have heavily criticized the idea of treating water as an economic good and the pricing of water. At this juncture, how water should be priced and who should be given charge of its provision are the two interrelated issues in the debate on water as an economic good.

2.4 READINGS FOR CREATIVE PERCEPTION

Research is supposedly a problem-based study; which means investigating a significant problem - be it scientific or social, technical or aesthetical, cultural or environmental, economic or political - that should produce some solutions or explanations. However, perceptions on the problem may differ from person to person, society to society and nation-to-nation based on their ethical notions. In socio-economic and related academics, the perception of a problem and its solution is associated with the particular researcher and his or her knowledge,

experience, values and position in a social institutional and physical context. More specifically *an actor negatively values the 'development path' and future outcomes of some ongoing activity, compared with the outcomes of an alternative development path* (Soderbaum 2000). In this regard, the following books give various creative suggestions to deal with the problem of the present study and follow an ontological methodology in the proposed research.

Economics, the study of allocation of scarce resources (Oxford dictionary of Economics) continues to grow and expand in scope, size and character right from the days of its founders. Relations of exchange between consumers and producers (demand and supply) are the ground rules in economics. A historical analysis shows that there are three mainstream perspectives on economic analysis since 1860s viz. consumer as economic dynamic, producer as economic dynamic and citizen as economic dynamic.

The consumer-centric economic analysis or school of thought started with Jevons, Merger and Walras further enriched by Pareto and Fisher followed by Friedman, Robbins and Arrow. Subjective preference theory of value is the central theme of analysis. On the other hand, producer-centric analysis revolves around the cost of production theory of value that originated from the writings of Veblen and Marshall, supplemented by Keynes, Kalecki, Robinson, Kaldor and Galbraith. The so-called institutional economists, Marx and Engels, proponents of citizen-centered economic analysis, consider the abstract labour theory of value as the fundamental doctrine and Sweezy, Bukharin, Mandel, and Cleaver contributed further to this stream (Cole 1999).

In recent times, environmental issues have become ever more pervasive and centre stage to global discourses due to global warming, climate change and biogenetic hazards. It is a political, economic and social means (what can we know about existence) as well as ends (what we do know). According to Cole, 'the

environment' can only be conceived theoretically and all theories related to environment are biased. The 'egocentrism' approach considers environment as a source of pleasure playing an instrumental role in meeting human needs and desires. The environment is conceived as a basket of commodities and man, a selfish animal. However, in the eco-centrism approach, ecology is conceived as a science of the relations of living organisms to the external world; and environment is considered as productive resources having a rhythm according to natural laws and processes that are beyond human control. The socio-centric approach analyzes the environment as a base for social evolution and defines the environmental problems politically, socially and culturally. The present analysis, based on neo-classical economic thoughts considers market-based incentives (prices, taxes and subsidies) that change the demand for and supply of environmental commodities in order to resolve the issues of resource scarcity and environmental problems. *At heart, the neoclassical approach to environmental economics has one aim: to turn the environment into commodity* (Cole 1999: 112].

Perspectives on development may differ. However, they are still concerned with deriving policies and strategies that would make development sustainable. Cole tries to investigate the different perspectives on development from 'natural inequality' to socialistic pattern of development. People or individuals are differentiated with genetic endowments and this will be reflected in the individual's progress. Likewise, societies are endowed with different resource potentialities and a society is equal as it can be, 'given the natural inequalities' between people. Modernization theory of development argues that progress is a consequence of the free choice of individuals to act according to their own best interests that claims economic freedom and structural changes to the fulfillment of individuals' potentials. To the contrary, structuralism recognizes, that development is not merely a result of changing individuals' attitudes, interests, free enterprise but is more than modernization; it involves structural transformation of the economy and society which ensures economic growth

combined with social justice. The structural transformation promises widening economic and social opportunities and appropriate distribution of social goods as well as fulfilling the technical potentialities of cooperation (Cole 1999). Socialistic pattern of development tries to fulfill the people's social potentials while avoiding 'class struggle'.

Ken Cole's *Economy-Environment-Development-Knowledge* provides an insight into alternative paradigms or knowledge for creative research, the three questions of 'what', 'how' and 'why' that constitutes a research. 'What' identifies events (positivism), 'how' explains the system (paradigms) and 'why' is the understanding of the process (praxis) that produces new perceptions and knowledge. However, for the current academic panorama, *creative perception is not high on the intellectual agenda.* (Because)*, time-honoured truths are to be learnt and repeated, and if such conceptions fail to account for experience, then it is people's perception of that experience that is at fault, not the theory and theorists that is wanting* (Cole 1999, emphasis added).

Beyond price mechanism and utilitarianism, Irene van Staveren (*Caring for Economics* 2004) proposes a value commitment in economic analysis and opines that Adam Smith's 'Theory of Moral Sentiments', based on justice (re-distribution of resources), liberty (in exchange of goods and services) and benevolence (giving) is a good starting point to study value commitments. Metaphysical or ontological analysis considers all economic actions as part of a caring economy, where a rational consumer as well as producer should be a civic person rather than a rational economic person. More or less, economic activities, especially production, distribution and price determination are associated with a scarcity dictum insisting utility, rationality and efficiency arguments and its measurement in economics. These measurements, cardinal or ordinal, however, are outside value judgment analysis. With the ontological approach to economics, *rational economic behaviour has been redefined as socially constructed, contextual, and relying on*

economic actors' deliberations over different value commitments, leading to a meaningful rationality (Staveren 2004). In this context, the book *Creative Social Research: Rethinking the Theories and Methods* (Giri 2004) discusses the various ontological issues and calls for a fundamental re-conceptualization and transformation of contemporary research methods in social sciences. The trans-disciplinary thoughts and its significance provided by the book occasionally persists the present research to follow a constructive trans-disciplinary course.

We are in a deadlock of values between our greedy and incessant pursuit of materialistic desires and the extreme suppression of those desires (Environment Agency Japan 1991). Historical vicissitudes of different civilization shows an array of incidents related to materialistic desires that lead particular civilization into environmental destruction and its own downfall. A report produced by the Advisory Panel on Environment and Culture of Environmental Agency of Japan (1991) calls for a new environmental culture. It observes that the science and technology adopted from the West for industrialization and rapid economic growth as well as the negation of traditional eco-friendly production techniques and the present ethic of economic actions and life styles has only widened the gap that separates us from nature. *To break the dead lock, we must make efforts to discover a new set of values that encourages such life style-not the simple pursuit of materialistic desires but non–materialistic, spiritual values through which we can live in harmony with environment and … create an environmental friendly culture* (Report on development and environment by Environmental Agency of Japan 1991: 9). The new culture visualizes an eco-friendly economy, recognizing the limitations of the environment, aiming for a proper harmony between humans and ecology as well as nurtures a collective consciousness such that we share the blessings of the environment with the people of the future.

Apart from positive economics and its quantitative technique, environmental economics is more normative and 'value oriented'. Ecological economics concerns

a new socio-ecological culture and ethics and claims an eco-centric morality rather than mainstream anthropocentric investigation. *Readings in Environmental Ethics: Interdisciplinary Perspectives* (Srivastava 2005) discusses the drawbacks of human-centered development ethics (where ecological needs may be in suppressed condition) and its unsustainability. The book goes through an interdisciplinary approach that analyzes nature's relationship to religion, literature, science, culture and society and its role and significance in the construction of an eco-economy. Above all, human being and his economic activities have been considered as a subset of ecology; and all living as well as nonliving organs and components have an equal right to survive in the ecology.

Since early 1990s, globalization is at the centre of diverse intellectual, political and economic discourse, along with set of economic changes, especially the commercialization of resources, liberalization in economic policies and privatization in the global economic vista - defining this epoch as a counter-revolution against Marxism. Furthermore, Marxism is mooted as a productive critique more to globalization than to capitalism. The analysis of globalization and its various components are pertinent to the present study. In this regard, the book *Globalization Unmasked: Imperialism in the 21st Century* (Petras and Veltmeyer 2001) systematically explains the various aspects of present globalization and its future as an ideology. Above all, the book analyzes the imperial features of globalization and the relevance of socialism with some empirical evidences from developing countries. Historical roots of globalization and the role of civil movements, as well as NGOs in development have also been discussed in the book.

Where the expectation for profit is high, capital will flow towards that direction in an excessive manner, thus directing the MNCs to ecologically sound areas of the Third World. The impossibility and lack of tools to determine the value of socio-ecological relations [the relation between nature, wildlife and the downtrodden people] has been the incentive for the exploitation of natural resources. The fragile

socio–economic, cultural and ecological relations and lack of decision-making power to control their natural resources compels the downtrodden people and women, particularly the tribes, to struggle for survival thus raising the social cost question to the international economic spectrum and forcing a universal discussion on 'natural resource democracy'.

In this regard, Andre Beteille's (1988) '*The Backward Classes and the New Social Order'* and Jesse C. Ribot's (2004) *Waiting for Democracy*, *the Politics of Choice in Natural Resource Decentralization* provide an insight about the local accountability on natural resources and the voice of backward classes over common heritage. Just as right to life and right to survive are the fundamental human rights provided by all nation states to its citizens, so is clean air, water and other natural resources and an unpolluted ecosystem is their right. Rights supported by duties as well as responsibilities thus creatively intervene in natural resource protection, and management of natural resources becomes citizens' duty. Decentralization of power politics equips people with decision-making power and assures a healthy ecosystem. *Environmental Controversies* (Agarwal and Dubey 2002) analyzes the present Indian ecological conflicts as well as the linkages between development and environment. Decentralized governance offers wide job opportunities and social choices enriching the development course and providing sustainable livelihood to the vulnerable sections of the society. 'Whose resources and whose voices?' is the fundamental question revolving around natural resource democracy.

2.5 IDENTIFICATION OF RESEARCH GAP

The reviewed literature provides a clear vision about the subject matters such as ecological economics, environmental economics, development economics and water-related issues. The proposed research aims to compile these disciplines onto a common ground identifying water commercialization and related issues as the basic research problem.

However, the discussed studies are paradoxically away from the general perception that water is a common pool resource. Most of the studies associated with water issues revolve around two basic notions: that water is a scarce resource and that pricing techniques requires its fair distribution. A full-fledged social and ecological investigation is undermined from the international water debates. Commercialization and privatization of water sector in developing nations is the flipside of the debate. In the international water spectrum, Multi National Corporations and Trans National Companies are the key players who, funded by public money (loans from IMF and World Bank with subsidy) reap private profits through over-extraction of water. The expansion of bottled water industry that exports water from water rich regions of the world is driving water dependent communities into a deprivation trap, denying them their livelihood and forcing them to live in a threatened ecosystem. The prevailing accounting techniques consider capital investments and the benefits produced from that, challenging social capital, ecological soundness, cultural capital as well as social choices and other aesthetic values along with socio-ecological fertility.

At the same time, ecosystem development is claiming financial assistance from international money donors to implement programs. The epistemological difference in this case is that development concepts are now shifting towards 'widening social choices and individuals freedom'; therefore, the dependence on such funds creates hurdles for the natural resource dependent communities and their development course. It is significant to observe that water scarcity has a spiralling effect on ecology and human development and that ecological values and social values are beyond pricing techniques.

Accounting techniques such as cost-benefit analysis, travel cost analysis, contingent valuation methods, hedonic pricing and other ecosystem valuation methods are rooted in neo-classical analytics. Besides, the development theories face a neo-classical domination, where price is the value and national income is

the development indicator. These quantitative techniques induce economies to overexploit natural resources for increasing national income and growth. Thus, ecological ethics are threatened and a rational (profit seeking) producer is induced to invest more in natural resource-based goods production.

It is to be observed that the literature discussed in the chapter is inconsistently biased because, the neo-classical and institutional economic school of thoughts along with a weak ecological ethics, strengthen the privatization and commercialization practices in the water sector. Unfortunately, these critical issues are beyond the purview of the present study.

The proposed research has the following objectives that the previous studies have yet not appropriately addressed.

1. To examine the features of cost-leading prices and its futility to social and ecological cost assessment of rural water resources.
2. To understand water as a 'public-commercial' good.
3. To identify "water for life" as one of the indicator of development.
4. To examine issues related to sovereignty, livelihood and gender equity on water.
5. To develop case studies and analyse them in support of the above stated objectives.

The clarification of concepts like social cost, social opportunity cost and environmental cost will help policy makers to check the deterioration of common properties. The study also seeks a space in natural resource democracy and green politics. It claims a space in development economics and strives to make a paradigm shift in development theories. The study deals with water economics as one of the subject matter of ecological economics. The "water for life" indicator widens the significance of the HDI and HPI as development measures. In the recent Indian socio-political arena, where natural resource conflicts are very

sensitive, the study enables to create awareness among people about the economic significance and democratic space of the common properties with particular reference to water. The proposed study seeks to highlight the significance of natural resources in the widening of social choices. Finally, the study tries to answer the complex questions as to who are the custodians of natural resources and who will serve the stewardship of natural resources? The study desires to broaden the new development concepts – freedom as development, commodity capability approach and sustainable development.

In sum, the proposed research investigates the problems on three grounds viz. economic, social or development and ecological and their interrelationships. Beyond the neo-classical economic ethics and institutional economic shortcomings, the study searches for a paradigm co-existence based on ecological ethics and ontological analytics with the belief that ecology, society, economy and ethics are the four pillars that can construct an eco- economy.

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