

## LOCATE SOCIAL COST AS ECOLOGICAL CAPITAL IN SUSTAINOMICS PARADIGM A CONCEPTUAL NOTE FOR PUBLIC COMMAND

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### ABSTRACT

With the Stockholm declaration of 1972, it is globally accepted that ecology is not only an economic development device but also a base for sustainable development and it should be looked after for future generations too. The term sustainable development was first used at the time of the Cocoyoc declaration on environment and development in 1970, which suggests the lessons of ecology, can and should be applied to economic process. The United Nations World Commission on Environment and Development report 1987 titled “Our Common Future” defines sustainable development as that “which meets the needs of the present without compromising the ability of future generations to meet their own needs”.

In other words, for development to be sustainable it must take in to account social, cultural, ecological as well as economic factors of living and non living resource base, and of the long term and short term advantages and disadvantages. The emergence of environmental economics, the sustainable development agendas put forwarded by global summits and the new trends in economic development indices such as HDI, PQLI along with new welfare economic thoughts established the economics of sustainable development as a new branch called sustainomics.

**KEYWORDS:** Consumer Welfare and the Social Cost, Environmental Economics, Growth and Development

### INTRODUCTION

Over the last four decades of discussions and actions towards a sustainable world supported by the mainstream economic thoughts especially the neo-classical economic theories and tools have been unsuccessful in making a shift in economic activities (production and consumption) for a common and lasting future. Generally the neo-classical economic tools except environmental economics consider society as a market and ecology as a factor of production. The cost theories and pricing practices under neo-classical economics fail to determine the value of invaluable factors viz. water, land, air and supporting ecosystems. So the cost theories and production theories revolved around monetary investment or financial capital and manmade capital. The ecological capital knowingly or unknowingly was exempted from the cost theories, even though they come under external costs or the so called word -land- one of the production factor.

#### Private and Social Costs: Mainstream Arguments

There are, however, certain costs which arise due to functioning of the firm but do not normally figure in the business decisions, nor are such costs explicitly paid by the firms. Instead, such costs are borne by the society. Thus, the total cost generated by the firm's decision may be divided into two categories: (i) those paid out or provided for by the firms; (ii) those not paid by firms including use of resources freely available and the disutility created in the process of production. The costs of the category (i) are known as *private costs*, and of category (ii) are known as *external* or *social costs*. *Private costs* are those which are actually incurred or provided for by an individual or a firm on the purchase of goods and services from the market. For a firm all the actual costs, both explicit and implicit, are *private cost*. Private costs

are internalized in the sense that "the firm must compensate the resource owner in order to acquire the right to use the resource." It is only the internalized cost which is included in the firm's total cost of production.

Social cost, on the other hand, implies the cost which a society bears on account of production of a commodity. Social cost includes both private cost and the external cost. *External cost* includes (a) the cost of 'resources for which the firm is not compelled to pay a price/ e.g., atmosphere, rivers, lakes and also for the use of public utility service like roads, drainage system, etc.; and (b) the cost in the form of 'disutility' created through air, water, and noise pollutions, etc. For instance, Mathura Oil Refinery discharges its wastes into the Yamuna river causing water-pollution causing danger to the beauty of Taj Mahal; mills and factories located in a city cause air-pollution by emitting smoke; cars, buses, trucks, etc., causes both air and noise pollution. Such pollutions cause tremendous health hazards which impinge a cost on the society as a whole. Such costs do not figure in the cost structure of the firms and hence are termed *external costs* from the firm's point of view, and *social cost* from society's point of view. The cost of category (b) is generally assumed to be equal to the total private and public expenditure incurred to safeguard the individual and public interest against the various kinds of health hazards created by the production system. But private and public expenditure serve only as an indicator, not as a measure, of public disutility.

### More Explanations on Social Cost

The conventional economic theories try to define the external cost and externalities as a first order derivative of production function. They consider that all types of production, product and services have their own exchange value. So the concept like external costs, opportunity costs, environmental costs and other costs revolve around the 'exchange value' or trade off canon. According to the Oxford Dictionary of Economics, external costs or diseconomies are damages to other people of the environment and ecology. In other words it is the 'Spill over Cost'<sup>i</sup> by the producer, but this far reaching cost paid by the society is often omitted.

Externalities can arise between producers, as well as between customers. Externalities can be negative or positive. As the business point of view, the firm's efficient output is the level at which the price of product equals to the 'Marginal Social Cost of Production'<sup>ii</sup>. Marginal Cost is the cost of producing the final or the marginal unit of the commodity. It can be measured. But the main problem is that, how can we calculate or quantify the Marginal Social Cost. So the most widely accepted concept of cost is the total cost supplemented by 'money cost of production'<sup>iii</sup>, 'real cost of production'<sup>iv</sup> and 'opportunity cost of production'<sup>v</sup>.

Generally, the major components of total costs are: 1. Material costs 2. Wages and 3. Other Costs. These can be broadly classified as

1. Prime Cost = Direct material + Direct Wages + Direct Expenses.
2. Production Overhead = Indirect Material+ Indirect Wages + Indirect Expenses.
3. Cost related to other functions = General administrations +Sale promotion and marketing.

In this regard the producer accounts the total cost of the production and sets the price with a normal profit.

The main drawback of this cost accounting technique is that it does not take into account the externalities, from the society's point of view. The divergence between the so-called pricing mechanism (based on total cost) and the "efficient allocation" (of resources among people) dictum by the welfare economics compels economists to re-examine the social cost as a problem faced by society.

### Why and How: Social Cost

The total expenses or costs in the production process can be classified under two major heads- economic costs or financial costs and external costs or social costs. Economic cost is the cost incurred to collect Land, Capital, Labour and Technology for production and its maintenance and operation. The Cost Benefit Analysis, Input-output Analysis, the optimum allocations of resources and factors of production techniques suggests a producer to select one combination of factors of production, which will give him more profit. Now the price determination is based on these techniques especially the Scale of production and Scale of returns. The cost beyond these like pollution caused by the firm, displacement of the people by the plant implementation and compensation to the health problems arising in the surroundings are considered as external cost from the viewpoint of the producer. Most decisions regarding price and production are taken on the basis of money value of input and output rather than their physical quantities and external costs.

‘An externality exists, when one agent’s activity has an effect (either positive or negative) in the welfare or cost of another economic agent and the utility insufficiently takes account of that impact in its own private decision making<sup>vi</sup>’. Neo classical economists would refer most of these costs as external costs. But the social cost and external cost differ on many grounds.

Primarily, it is impossible to analyze the social cost without its structural relations to other costs. ‘Social cost implies the cost which a society bears on account of production of a commodity. Social cost includes (a) the cost of resources for which the firm is not compelled to pay a price (b) the cost in the form of disutility created through air, water and noise pollutions<sup>vii</sup>’. This definition provides a clear vision about the basis of social cost that is the value or price of the nature and its mismanagement through pollution, over utilization and misutilization. In other words, it is the disutility created by producer or consumer of goods and services on common heritages like water, air, soil and so on. Also the producer/consumer is not willing to pay the actual price or value of these commons due to the inefficient cost estimating techniques. They are not ready to accommodate the value of common resources in their cost accounting, because natural resources are the gift of nature.

Secondly, the cost analysis is based on the production function or it can be started from the functional relationship of factors of production. According to the traditional classification, there are four factors of production – Land<sup>viii</sup>, labour<sup>ix</sup>, capital<sup>x</sup> and organization<sup>xi</sup>.

There is no commonly agreed meaning for ‘land’ as ‘nature’ and the economic theories considering it as a place/location where capital, labour, technologies and organizations are functioning properly, which has a rent value. So the pricing mechanism treated the value of land as rent. The failure to present land as natural resources and its value determination are questioned by the environmentalists and the marginalized people in the neo-colonial liberalized global economy.

Thirdly, natural resources may be a free good, but it is also a public good. If it is a free good, it has no production cost, but those bearing a processing cost. If the natural resources are treated as public good, it must fulfill the public good criterions, which are: Non excludability of consumers<sup>xii</sup>, joint consumption<sup>xiii</sup>, non-rival consumptions<sup>xiv</sup>, Zero marginal cost<sup>xv</sup> and Non – appropriation<sup>xvi</sup>. When all producers agree to follow these norms when they use the natural resources it will protect the ecology and human survival. But in actual practice nature or land is a free good. These lead to environmental deterioration and then subsequently affect the survival of living beings. These are out of the cost analysis techniques.

Fourthly, the existing cost accounting methods failed to realize the basic dictum of welfare economics, that is ‘any change that makes at least one person better off without making someone else worse off makes definitely an improvement in social welfare<sup>xvii</sup>, or must achieve ‘economic efficiency<sup>xviii</sup>. If any worse off happened, the public finance prophets like A.C. Pigou argued to impose a tax on the products to compensate the worse off. But these taxes are mostly lower than the actual damage on the ecology due to producers’ action. Taxes do not become a checking measure for the utilization of natural resources, because producers retain these tax costs through the enhancement of the price of the commodity. Actually the liability falls on the heads of consumers. It is justifiable from the side of pricing theories. But these prices are higher than the actual benefit and the producers do not take any steps to regenerate the natural resources and control the pollution.

Fifthly, in production process the producer take into account only the opportunity cost of the factors of production. ‘The opportunity cost equals the expected returns from the second best use of resources forgone to avail the gains of their best use<sup>xix</sup>. It arises because of scarcity and alternative uses of resources. Some combinations of resources provide best utility to the producer and enhance the profit, but it may be harmful to the society. In these cases the society’s combinations for those resources may be another one and that may provide an overall development and benefits to the society. Society’s point of view it can be called ‘social opportunity cost<sup>xx</sup>’.

Lastly, the conventional economic theories consider the external cost as social cost. It is true at the first stage of production process, that the external costs are paid by the producers to counter, control the pollution and give some compensation to the affected people. But the producers of the commodity and services ignore the consequences that are faced by the people living in the surroundings of the production unit in future. The ecological imbalances lead to an imbalance in all the sectors of life. It questions the existence of human beings and other living beings and bio-organisms. This threatens the survival of the future generations also. The ecological imbalance pushes a society into poverty by ill health, reduction of productivity of land, scarcity of safe drinking water, low hygiene etc and to human under development. Thus the external cost realizes the economic problems from the side of producer; but the argument is that social cost must become a cost analysis from the side of society and should necessarily take into account the future generations also.

### **Locate Social Cost as Ecological Capital**

According to A.P. Thirlwall (Growth and development – 1994) *Social cost is the gross amount of private cost, total external cost, rental premium, option value<sup>xxi</sup>, Quasi option value<sup>xxii</sup> and the existence value<sup>xxiii</sup> i.e. social cost is the full cost of a production process and the efficient resource allocation. Therefore, social cost may be defined as a cost of survival and existence of present generation with option, quasi option and existence values for widening the social choices in future too.*

The prominent questions regarding natural resources are:

- Are natural resources a working capital or fixed capital?
- Are natural resources only a factor of production or beyond that?
- Can we counter all environmental pollution with a Pigouvian Fee?
- Can we convert all functions of ecology into money or financial capital?

All these questions revolve around two concepts viz. natural capital and market failure. Both these terms are positive in nature with a normative connectivity to the social system. When working with environmental problems it is not possible to restrict attention solely to positive economics. All economic analysis on these terms is concluded with neo-

classical positivism, it may be Pigovian fees or willingness to pay or accept the compensation, otherwise concluded by the trade-off<sup>cxxiv</sup> truism.

Fundamental to environmental economics is the notion of market failure. Repairing that market failure typically requires government intervention. What kind of government intervention? That is a normative question. For example, well defined property rights are normative solution for environmental pollution. Is it true? *The Tragedy of Commons* (Garrett Hardin – 1968) highlights, what happens when property rights are not well defined? Does the proceeding discussion imply that property rights to all common property resources (CPRs) should be handed over to individuals? ‘The existence of CPRs in developing countries like India introduces a measure of equality in income distribution. Dependence on common property is greatest among the poor because they do not possess income generating private property, assets and therefore depends on CPRs for fuel, food, crop wastes, cow dung, weeds, fodder, organic manures like dry leaves and forest litter etc. CPRs also support a variety of income – producing activities like milk production of fishing. The support provided to the poorest sections by the common pooling of resources sometimes serves to redress the bias in favour of larger and richer farmers that most technological advances in agriculture seems to have.’<sup>xxv</sup> So the privatization, commercialization and monopolization of natural resources (properly defined property rights solution) threatened the very survival of the poor, marginalized people and the existence of the ecology also.

Here it is recognizing ecology as capital- those benefits and services supplied to human societies by natural ecosystems. Ecology is not only a running capital for production of goods and services but rather than a fixed capital, it is an accumulative capital by the process of ecological succession. Therefore, social cost is a tear and wear of this accumulative capital. Capitalising ecology in the production process is the solution to avoid negative social costs. But the term capitalise doesn’t mean monetising the ecology, rather than it bearing a qualitative statuesque in natural resource utilisation same as social capital. Hence, it is important to re-vitalise the role of human being as a socio-political-ecological person over rational economic individual. Here, consumer’s choice and producer’s choice of techniques are more important in the sustainomics regime.

### **Sustainomics**

Mohan Munasinghe (2007) proposed the term sustainomics to describe “a trans-disciplinary, integrative, comprehensive, balanced, heuristic and practical frame work for making development more sustainable”. “Sustainomics” is a multi-dimensional paradigm that envisions sustainable development as the integration of environment and development concerns and a greater attention to them leading to the fulfillment of basic needs, improved living standards for all, better protected and managed ecosystem and a safer, more prosperous future.

### **An Institutional Construct for Sustainomics**

‘Institution’ though a misguiding terminology expresses a meaning of a group of individuals’ establishment for a common cause. It may be a family, class or clan entity, political or social entity or nation state- an institution at the macro level. Ecological succession is also a product of institutional behaviour that starts from microbial bacteria’s institutional actions and progressing through the participation of complex organisms that are symbiotically organised for a common cause which is survival. Obviously, all living beings in the ecology are interrelated to each other, mutually or symbiotically. This can be called an institution since there is a shared common feature, common environment, growing and reproducing within the system. As a single being it is difficult to survive without sharing commons- water, air, soil and energy. The new institutional construct considers the ecosystem whole as an institution without thrust aside the functions and role of micro institutions like human being, vegetation, animals, birds, micro organisms, marine species, earth-worms,

reptiles and abiotic substance; and positively looks for a harmonious existence among all institutions with their capability to regenerate and restore the ecological functions. The institution of human beings, as an apex entity with logic and rational capabilities, has to lead and propagate the regenerating process of ecosystem in more sustainable ways. Before getting into the present ecological and economic issues and crafting and defining a better future, the human institution has to go through a structural economic change that ought to be answering the following questions.

1. How do we become more mindful of our actions and its impact?
2. How do we change the way we live?
3. Do we need to accumulate so much wealth?
4. How much is enough?
5. Is there a realistic middle path? If so, how do we define it? How do we live it?
6. What is our responsibility towards influencing the future well being of our species, of our planet and all its life forms?

Institutions of other beings are not answerable to these questions, because they are symbiotically linked to each other and enjoy a horizontal / parallel 'progress' or existence along with the ecosystem.

### **Shift in Production and Consumption**

The mainstream economics is a science of self; utility maximising consumer, profit maximising producer, wealth increasing individual and growth aiming nation states; where pedagogy itself is an end of human centred logic and rational action. Sustainomics is an attempt to evaluate the ethical quality of economic activity in two ways: effects of economic activity on individual consumer, on society and on ecology and secondly, which kind of desire is at the root of any economic action. In the case of pricing and valuation, the new economics takes commodities' ability to meet the need for well-being. Unfortunately, the present economic pricing methods project an artificial value created by self interests. It is a commodity's capacity to satisfy the desire or pleasure. Thus, there are two types of consumption: "right" consumption and "wrong" consumption; the former is ethically, ecologically, economically just and the latter is market-oriented consumption. Right consumption is the use of goods and services to satisfy the desire for true well-being. It is consumption with a goal and a purpose. Considerably, sustainomics is a realization of true well-being and right consumption that does not harm oneself or others. In short, the new paradigm of economics is neither a production-based supply-push economics nor a consumption-based demand-pull economics; moreover it is simply the right economics for right well-being guided by promised need-based consumption.

Neo-classical economics defines consumption as the act of buying goods and services. On the other hand, here sustainomics recognises that the current producers and consumers are incompetent to ensure a sustainable economy. So the economy needs a paradigm shifts in consumer's thoughts and practices. In the new economy, only those can survive who minimise the consumption of resources and develop least disruptive forms of consumption and production. Nevertheless, to get back to supply side economics, supported by neo-liberal economic policies and values, makes the sustenance of the common future into a gridlock. At this juncture, what are the ecological impacts of consumption, what are the driving forces behind the increasing consumption and how do they relate to the quality as well as choices of life are the relevant questions.

The most common and potent question in sustainomics is, who owns natural resources and how to govern and allocate them among the competitive uses of present and future generations. Good governance has many dimensions: creating a fair legal policy and regulatory framework in which the rights of people to access resources are secured;

improving the effectiveness, accountability and transparency of government agencies; ensuring the participation of the poor in decision making; enhancing the role of civil society; ensuring basic security; political freedom and others[UNDP-2004]. The institutions and civil societies have to play a vital role in natural resource governance such as harvesting, extracting, reproducing, processing, transporting, utilizing and storing in most economically productive, socially benign and ecologically sustained way. Because, resources are subject of power, and those who control them can exercise this power in various ways. Thus, the representation of various interests in natural resource decision making and the role of politics are important components in addressing governance dynamics. Thus, good governance is political, philosophical and socio-economic enquiry and that should be ensuring a natural resource democracy among the various sections of natural environment.

## CONCLUSIONS

Social and ecological co-ordination along with perfect information about the ecological, economic and social system ensures a sustainable world in future. Real and right demand and supply or production and consumption are the part of sustainomics in general and it should be locate social cost as a wear and tear of ecological capital rather than trade-offs. Neo-classical economic theories and tools will not provide a clear solution to sustainable development; therefore, more constructive multi dimensional and trans-disciplinary approaches are in evitable for common future. Sustainomics, therefore, is a blend of positive and normative sides of economics and a paradigm co-existence of neo-classical quantitative and heterodox qualitative economic school of thoughts, which may pave out the short comings of mainstream economics.

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<sup>i</sup>A Connection Between Different Parts of the Economy

<sup>ii</sup> The Marginal Cost of Production plus the marginal external cost of dumping effluent.

<sup>iii</sup> It means, the aggregate money expenditure incurred by a firm on the various items entering into the production of a commodity.

<sup>iv</sup> According to Marshall, the real cost of production is expressed not only in money but in efforts (of workers) and scarifies (of capitalists) undergone in the making of a commodity.

<sup>v</sup> The opportunity cost of production of a commodity is the commodity that is sacrificed.

<sup>vi</sup> Olav Hohmeyer 1992 Social Cost of Energy Page 8.

<sup>vii</sup> D.N. Dwivedi –2003 Micro economics, Theory and Applications. Page 247

<sup>viii</sup> According to L.M. Fraser, “Land stands for all natural resources which yield an income or exchange value

<sup>ix</sup> According to S.E. Thomas, “Labour consists of all human efforts of body or of mind which are undertaken in the expectation of reward

<sup>x</sup> Capital is a produced factors of production insofar as it is made and created by man himself.

<sup>xi</sup> Organization combines the different factors of production, in the right proportion and initiates the process of production and also bears the risk involved in it.

<sup>xii</sup> Nobody can be excluded from its consumption, nor can consumers be forced to pay for their benefit.

<sup>xiii</sup> Its Consumption is collective and all consumers are supplied with it jointly.

<sup>xiv</sup> A larger consumption of public good by some does not affect the share of others, nor is their satisfaction level affected.

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<sup>xv</sup> If number of consumers increases, cost of supply of a public good does not increase.

<sup>xvi</sup> If number of consumers increases, cost of supply of a public good does not increase.

<sup>xvii</sup> Pareto Criterion of welfare

<sup>xviii</sup> Having regard to implied and actual values, the chosen trade – off between production and conservation is achieved at least the cost and so that no reassignment of property rights would improve production or bio diversity objectives without making some one worse off

<sup>xix</sup> D.N. Dwivedi – 2003 MicroEconomics, Theory and Applications .

<sup>xx</sup> The amount of other good which has to be forgone because resources are used to make some particular good. When any goods or services are produced, the resources used to make them are not available for other purposes.

<sup>xxi</sup> An option value is the value placed on an option that allows use to be made of the environment in the future.

<sup>xxii</sup> Quasi – option is the value placed on an option given an expectation that there will be increases in knowledge

<sup>xxiii</sup> Existence value is the value placed on a good or service independent of any actual or possible future consumption.

<sup>xxiv</sup> The process of deciding whether to give up some of one good or one objective to obtain more of another

<sup>xxv</sup> Anindya Sen – 1999 – Micro Economics, theory and applications. Oxford University Press –P. 316

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