

## The Judicious Management of the Natural Resources of a Country

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### Abstract

The real tangible wealth of any country is the natural resources which are extractable on a sustained basis. It is from this natural wealth that further capital (produced capital) is produced with the intervention of human capital. Since the extractable natural resources are limited, ultimately there is a limit to the wealth of a country. An increase in the wealth or growth in economy is not sufficient at all. The important thing is that what has been the distributary effect of the economic activities. With limited wealth, a country cannot have many excessively rich people without creating poverty. The wealth of a country is an asset which has to be utilized in a purposeful manner. If left to market forces, the limited wealth becomes distributed in a much skewed manner. If human capital is invested in evidently unnecessary pursuits, it will only result in the neglect of the essential needs of the society.

**Keywords:** Human capital; Natural resources; Natural wealth; Organic farming; Produced capital; Sustainability

The World Bank has published a report-The Changing Wealth of Nations 2018: Building a Sustainable Future. Wealth of a country has been computed as a sum of natural capital, produced capital & urban land, human capital and net foreign assets. It has been estimated that global wealth increased 66% from 1995 to 2014 (from \$690 trillion to \$1143 trillion, in constant US dollars at market prices). On a per capita basis, average wealth grew from \$126,921 to \$168,580, a real rate growth of 1.3% per year.

The World Bank report has for the first time calculated human capital which is measured as the net present value of life-time earnings of the labour force. There are two measures of human capital -

- a. The average years of schooling of the adult population (proxy for education related human capital), and
- b. Life expectancy at birth (a proxy for health related human capital).

It is reported that globally, women account for less than 40% of human capital wealth. It is because men have higher labour force participation rates than women in many countries and they often work more hours in "productive work". Women tend to work on average, more hours than men overall, but a much larger share of this work is dedicated to "domestic work", so they tend have lower earnings.

At the macro level, the World Bank report presents a rosy picture. Not only the global wealth has increased, but per capita wealth has also shown a substantial increase. But behind this rosy picture is masked the realities of poverty and inequality. The report itself mentions that 767million (10.7% of the total world population) live in extreme poverty, defined as income of less than US\$ 1.90/day. According to a report by UNICEF and the WHO (*Progress on Household Drinking Water, Sanitation and Hygiene, 2000-2017*), some 2.2 billion people around the world do not have safely managed drinking water services, 4.2 billion do not have safely managed sanitation services, and 3 billion lack basic hand washing facilities. This disparity between the macro and the micro picture is due to a misdirected economic growth. Just increase in wealth is not going to solve the real problems of the people. Something different from conventional economic approach needs to be adopted.

The real tangible wealth of any country is the natural resources which are extractable on a sustained basis. In case of renewable resources, the annual sustained yield will be the component of national wealth. In the case of non-renewable resources, it is for the country to decide what quantity may be extracted annually so that the resource is available for a pretty long time for future generations without any adverse effect on the environment. This decided quantity will be the component of the national wealth at that particular time. In case of fossil fuels, it is of utmost importance to limit total extraction keeping in mind the climate change scenario. According to Internal Energy Agency (IEA), the world cannot consume more than 20% fossil fuel reserves of the world if the increase in global temperature is to be kept below 2°C. Thus, there may be huge fossil fuel reserves all over the world, but only 20% of it may be utilised by human beings. It is for the global community to decide how much of the 20% and how long this reserve is to be extracted.

Suppose there is a natural resource A in a country, available in X quantity. x quantity of A can be extracted on a sustained basis (if A is a renewable resource) or extractable as per the decision of the country (in case of a non-renewable resource). Hence the Sustainability Ratio (SR) of A may be expressed as -

$$SR = \frac{x}{X}$$

The value of SR ranges from 0 to 1. If SR is low, it means that A has to be extracted very cautiously. Suppose a is the quantity of A which is actually extracted in a particular year. Then the Sustainability Indicator (SI) of A may be expressed as -

$$SI(A) = \frac{x - a}{X}$$

The value of SI ranges from -1 to +1. If  $a > x$ , SI will be negative. It means A is being extracted unsustainably. The more negative is the SI, the more unsustainable is the extraction. Zero SI means that the whole sustainable quantity is being utilised. A positive SI means the extraction is less than the quantity which may be sustainably extracted. SI indicates the change in the wealth of the country with respect to A. A negative SI means that the wealth of the country w.r.t. A is decreasing. Zero SI means, the wealth of the country w.r.t. A remains unchanged, and a positive SI means that the wealth of the country w.r.t. A increases, and this increased wealth is available for extraction next year.

Suppose a country has three natural resources, A, B and C, having extractable quantities x, y and z respectively. The actual quantity extracted in any particular year are a, b and c respectively. Hence, the Sustainability Indicators of A, B and C are -

$$SI(A) = \frac{x - a}{X} \quad SI(B) = \frac{y - b}{Y} \quad SI(C) = \frac{z - c}{Z}$$

To get an overall picture of the sustainable extraction of all the three resources, we may have a Composite Sustainability Indicator (CSI) as follows -

$$CSI = \frac{[(x + y + z) - (a + b + c)]}{X + Y + Z}$$

The CSI may give an overall picture of the sustainable harvesting of resources in a country. A negative CSI means that at least one of the natural resources of the country is being unsustainably extracted. But this CSI may sometimes mask the unsustainable extraction of certain resources. For example the SIA may be negative, but b may be much less than y. In such a case, although SIA is negative, the CSI may be positive. Hence, besides CSI, it is also important to monitor separately the SIs of all natural resources.

Thus the real tangible wealth of a country consists of the extractable natural resources. It is not sufficient to prepare an inventory of the available natural resources of the country. It is also necessary to calculate the Sustainability Ratio (SR) of all natural resources. Without SR the figures of natural wealth may be misleading and give a false sense of richness or well-being. Along with SR, it is also

essential to calculate the Sustainability Indicator (SI) of all natural resources. A glance at the SRs will be able to give a factual picture of the wealth of the country. Similarly the Composite Sustainability Indicator (CSR) of the natural resources will give an overall picture of sustainability of all the natural resources of the country. The produced capital and the economy of the country may be growing, but if the country has negative SIs or a negative CSR for its natural resources, it means that the growth is not sustainable and sooner or later, the economy will collapse.

It is from natural wealth that further capital is produced (produced capital) with the intervention of human capital. It is common wisdom that the population of a country must be educated, healthy and skilled to make the best use of the natural wealth and to produce added wealth (produced capital). Repeated studies and reports are not necessary to prove this fact. Here comes the crucial role of the government to see that the produced capital is directed towards meeting the essential needs of the people. This can be done by suitable policy interventions and incentives.

The authors of the World Bank report on the changing wealth of nations have done a commendable job in compiling the valuable information and presenting it before the global community to be utilised in policy and decision making. It may have been unintentional, but conventional economic thinking also appears to have been pervading all through. Human capital has been assumed to be the net present value of life time earnings of the labour force. Investments in health and education are supposed to result in more income and earnings and increase in human capital. If it is assumed that the sole purpose of human capital is to create more human capital in the form of monetary earnings, then it appears to be a very narrow perception of the human capital. Earnings may be a tangible form of an intangible human capital. But the intangible form is the higher self of human beings which strives to achieve self-esteem and self-actualization through various means. It may not result in monetary earnings, but it is essential for the family or household units and for the overall well-being of the society. This intangible component needs to be emphasized every time we talk of overall human capital. Whenever there is a mention of human capital, the intangible component of human capital may inquire -

- i. Has the extraction of available natural resources been sustainable?
- ii. Is the capital being produced essential for the society i.e. is it a need or it is just for the purpose of economic activity and growth?

The wealth of a country is the sum of natural capital and produced capital-

$$\text{Wealth of a country} = \text{Natural Capital} + \text{Produced Capital}$$

Human capital intervenes to enhance the value of natural capital. Thus, ultimately there is a limit to the wealth of a country. The wealth of a country may increase, but it may have happened by making the rich richer, and the poor still poorer. An increase in the wealth or the growth in economy is not sufficient at all. The important thing is what has been the distributary effect of the economic activities. If this is not taken into account, then a country may have billionaires on one side and people below poverty line on the other side. With limited wealth, a country cannot have many excessively rich people without creating poverty. This question of inequality has been discussed in the following chapter.

Another measure of the human capital is the life expectancy at birth (A proxy for the health related human capital). Although life expectancy has increased all over the globe, number of diseases and health expenditure has also increased. More diseased people, more hospitals, more medicines, more doctors, and so on. This is the scenario of health economics. It is essential that a country should have all the basic facilities for the health care of its people. But the reality is that about 70% people of the world depend on traditional health care and indigenous medicines. The conventional system of formal health care is highly dominated by an allopathic approach which is not only out of reach of the common person, but it has its own drawbacks by creating more diseases as side effects. This health industry is run by commercial interests led by drug companies. An affordable and close to nature health care is essential for a healthy economy.

The conventional economic thought also appears to have expressed itself while dealing with the issue of gender. It has been mentioned that women work for longer hours than men, but a much larger share of this work is dedicated to "domestic work", so they tend to have lower earnings. It has not been wise to belittle the role of women in society. Just because they do not get paid for their domestic

work, it does not mean that they are doing something unfruitful. Moreover who else is going to pay the women or the men also for their personal or family work which they do at home? The human society exists mainly because of the non-earning activities of the women. It would not be prudent to devalue the role of women by calling them uneconomic. If a value is put to the domestic activities of women, then the human capital will increase substantially. This intangible human capital is essential for the sustenance of society. A family is a unit of human society and it is essential for the upbringing of children and care of the aged. Any economic study should also take into account the family units and family economy. A noble aim of gender equity often falters into the direction of gender sameness and almost assumes that men and women in a society reside separately and there is no interdependence among them. With this assumption there is a pursuit of gender sameness and a waste of human capital.

Agriculture also is an important economic activity. Agricultural production forms a substantial component of the GDP and the wealth of any country. But the economic studies do not focus into the why and how of agriculture. In India, the State of Punjab is a leading producer of food grains. But it is also one of the largest consumers of chemical fertilizers and pesticides in the country. The result is that the land is becoming infertile and there is an adverse impact on the health of the people. People there suffer from a number of diseases especially cancer. With this type of agriculture, there may be growth in GDP, enhancement of national wealth, and increase in economic activities in the field of medicines and production of agricultural chemicals, but at what cost? Certainly, at the cost of human capital. Wouldn't it have been better if there was less economic growth and less increase in national wealth, but people would have remained healthy and human capital would have increased? Agricultural production could also have been boosted by an integrated approach using eco-compatible strategies. According to International Federation of Organic Agricultural Movements (IFOAM), the four principles of organic farming are, that it should -

- i. Sustain and enhance the health of soil, plants, animals and humans as one and indivisible.
- ii. Be based on the living ecological systems and emulate them and help and sustain them.
- iii. Build a relationship that ensure fairness with regard to common environment and life processes.
- iv. Be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

With the dangers of climate change looming large, it is now still more important that organic and multi-tiered agriculture is adopted as a mitigation and adaptation strategy.

The wealth of a country is an asset which has to be utilised in a purposeful manner. If left to market forces, this limited wealth becomes distributed in a much skewed manner. If human capital is invested in evidently unnecessary pursuits, it will only result in neglect of the essential needs of the society.

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