Re-reading 'Our Common Future': Sustainable Development through the Prism of Technology, Institutions and Management

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I: From Limits to Limitation

Sustainable development was not defined but only articulated by the World Commission on Environment and Development appointed by the United Nations by a resolution in the General Assembly in 1983. The Report, beautifully titled as *Our Common Future*[1], continues to be the guiding principle though in recent days when we are talking more about green economy even though international development strategy has preferred to call the goals of its latest version as Sustainable Development Goals wherein 17 goals, and 169 targets within those goals, have been set through 230-250 indicators in quantitative terms for monitoring. India has deleted some of the goals, namely 12, 13, and 14 for non-availability of data while goal 17 does not exactly fall in the national arena.[2]

Our Common Future is the name of the Report of the *World Commission on Environment and Development* by a resolution of the UN General Assembly meeting in late 1983[3]. As directed by the resolution, the UN Secretary General Javier Perez de Cueller appointed Gro Harlem Bruntland as Chairman[4] (she was indeed chairperson) and Mansour Khalid as Vice Chairman, who together drew up members from several countries[5]—including India[6]. It sought services of Expert Special Advisors and constituted some Advisory Panels, wherein some Indians were also involved[7].

Published in 1987, some 35 years ago, *Our Common Future* caught the imagination of the entire scholarship concerned with the area and provided a backdrop for the Earth Summit (1992) in Rio de Janeiro (Brazil), which culminated in the Agenda 21[8].

It is worth noting when ecological perspective of interdependence of living organism was set before us, we did not respond. When the issue was posed as internation conflict, we showed our backs. When perspective was set as fraternal, concern for siblings, and intra-generational justice, the idea did not click. We gave short shrift. However, when the issue was posed as inter-generational justice, making room for our children, we responded with alacrity.

Now, we read from the original *Our Common Future*! A common mistake committed by most of the scholars about definition of sustainable development and they refer it to *Our Common Future*. It will therefore make sense if I exactly quote from un-numbered chapter, called *An Overview* where the message conveyed is: let us move *From One Earth to One World*. It has four parts: The Global Challenge; The Policy Direction; International Cooperation and Institutional Reform; and A Call for Action. Part 1 The Global Challenge has four sections. Section 3 is exactly on Sustainable Development, which four paras 27-30. I shall use only this section to make my point. Para 27 asserts

> *Humanity has the ability* to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. (Emphasis, mine.)

It is an assertion about our ability—belief in our ability—to make development sustainable, not a definition. Dictionary meaning of sustainability is ability to maintain. Maintain what? Dictionaries add level or rate. Economists may add that level can be a stock like pond or flow like river, then rate may be per unit of time. If capital K is a stock, sustainable capital means K_t is constant time-point after time-point. Investment I is a flow and it is per unit of time. Then, $I_t=k$ for t=1,2,3, … If gross value added Y is a flow, then increase in Y is ΔY. Then, $\Delta Y_t=k$, t=1,2,3, … means sustainability of absolute growth

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in Y. However, only few of us are happy with constant Y_t, and some of us are happy with constant g_t where g is growth in geometrical terms, but most of us want g_t to accelerate and to accelerate forever—even for foodgrains while knowing full well that population growth is now well neigh low (though in the 1980s, it was thought to be pretty high) and Engle's law will work out the limit. *Our Common Future* is not happy with continuous constant level even if does not want reckless increase. It keeps future generation in mind and their needs. If our generation's needs more varied then our parents', whose needs were more varied than their parents, we can expect our children to do likewise.

What is development? *Our Common Future* does not make a particular distinction between development and growth but seeks to usher in a new era of economic growth. This new era is supposed to take better care of environment yet it is not seeking redemption of wants.

Purist will raise dozens of questions about our ability to ensure that to happen as well as to ensure ability of the future generations to do. They question our ability to capture our needs and their needs. When we cannot assess needs of the present generation, how do we know the needs of future generations?[9] Further, given the ability, do we will? *Our Common Future* seeks national endeavours and international cooperation.

However, the fact remains that once future generations, read our children, were brought in focus we immediately reacted positively without grasping the enormity. That is the beauty of this Report. It is this articulation hidden in the idea of sustainability that did the trick. So much so that scholars in practically started adding adjective 'sustainable' with a variety of concepts and in a variety of contexts.[10]

Let me continue reading from the same paragraph. To quote,

> The concept of sustainable development does imply limits—not absolute limits but limitations imposed by (1) the present state of technology and (2) social organization on environmental resources and by (3) the ability of the biosphere to absorb the effects of human activities. (Numbers introduced by me.)

In other words, the constraints are technological, institutional, and biological-ecological. It is suggested that all these constraints can be eased by the humanity. That is why, the Report says that limits are not absolute and they are mere limitations. Humanity is called upon to work on these limitations.

Let me further quote from the paragraph. It holds,

> But technology and social organization can be both managed and improved to make way for a new era of economic growth.

Thus, it makes clear that the solution lies in managing and improving technology and institutional arrangements. It calls upon, bear in mind, to usher in a new era of economic growth, not halting it. It is not believing in keeping constant the level of economic activity, year after, but in growing its level and, perhaps accelerating.

Actually, the concern of the Report is on widespread poverty and its removal. There might have times, given the technological development and institutional arrangement, when poverty might not be abolished. That situation exists no more. It clearly states that

> The Commission believes that widespread poverty is no longer inevitable. Poverty is not only an evil in itself, but sustainable development requires (i) meeting the basic needs of all and (ii) extending to all the opportunity to fulfil their *aspirations for a better life*. It holds that a world in which poverty is endemic will always be prone to ecological and other catastrophes. (Insertion of numbers and emphasis, mine.)

I might have reservation on their understanding that poverty necessarily breeds ecological catastrophe but I would prefer not to digress on that issue. Important part to note is that technology and social organization, read institutions, can be both managed and improved to make way for a new era of economic growth. What we call today is green growth, parting ways with brown growth, which we have been pursuing earlier. *Our Common Future* does not endorse steady-state economy, declining-state economy or de-growth, as against growth economy, which ecologists have focused on; and some of them have shown special concern for better inclusivity of 'underdeveloped' part of the world and the poor anywhere. By the way, in this para, reference to current generation and its aspiration.

Further, para 28 of the same Section seeks the nations to assure better share of the growth for the poor, which is required for sustaining growth. For such equity, it asks national political systems to permit greater and better participation of citizens in decision-making as well as seeks greater democracy in international decision-making. It is thus understood that *Our Common Future* does not want the poor to be only beneficiaries but also be partners in growth; and it holds that international governance is less than democratic and national polities iniquitous.

Next para (para 29) addresses two issues. One is the issue of life-style of the affluent. The other is population growth. The more affluent should adopt life-styles whereby they contain the consumption of such commodities, for example, as energy. Mind it that the suggestion is not equivalent to simple living (and high thinking) but sensible living. Countries where populations are growing rapidly have to contain it if sustainable development has

to be seriously pursued. In last four decades, population growth has substantially come down and some countries have to worry about ageing.

The final para (30) of this Section makes it ample clear that sustainable development is not a fixed state of harmony. It is a process whereby four arms (constraints) have to be so adjusted vis-à-vis each other that they are consistent with our needs and our children's needs—and aspirations. It is easier said than done. As we all keep saying, the Report also holds the endeavor requires political will. The para says,

> Yet in the end, sustainable development is not a fixed state of harmony, but rather a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are made consistent with future as well as present needs. We do not pretend that the process is easy or straightforward. Painful choices have to be made. Thus, in the final analysis, sustainable development must rest on *political will*. (Emphasis, mine.)

II: The Problematique

The problematique of sustainable development has been seen from a variety of angles. Population was considered to be the biggest culprit against the people at least since the days of Malthus at the close of eighteenth century when total world population was less than 1.0 billion, which is hardly 3/4th of the population of India which stands at 1.4 billion on 1st of April 2021 as per the United Nations estimates. Boserup (1965) had contested Malthusian pessimism grown out of limits on food supply, of course much later, in her study on agricultural growth that population growth leads to intensification of agricultural operations.[11] Ecologists Ehrlich couple, Paul supported by his better half Anne, published a book with provocative title *The Population Bomb*[12] in 1968 which created a scare of worldwide famine and social upheavals in 1970s and 1980s because of overpopulation. Nothing came true. A section of scholarship points out towards the fact that we have higher life expectancy, better fooding, clothing, and housing in most parts of the world, decade after decade. Thanks to drastic reduction in infant mortality, a lot of wastage could be avoided. World population is approaching its peaks even if growth has still to slow in some pockets. Yet, in many countries, sex ratio is an issue and, in many others, ageing is an issue—which is the result of low birth rate and low mortality. Therefore, on this front, one may not be complacent and approach the problem very judiciously as they critically impinge upon societies and economies.

Philosophical discourse, oriental and occidental, generally discussed controlling of greed or even moderation in standard of living. It was often said that the Mother Earth has enough for everybody's need, and I add irrespective of our numbers, but not for anybody's greed—not even a single person's. Simple living has also been advocated quite often. Economy is a subset of Ecology and therefore cannot transgress the outer limits is one view. Yet, given the sapient nature of humans, *Our Common Future* does not freeze the consumption level or consumption basket but cautions the affluent to moderate their consumption level and seeks improve the level of lower strata.

In *The Coal Question*, William Jevons had raised resources issue from pure economic angle as back as 1865. He asked the English people, "Are we wise in allowing the commerce of this country to rise beyond the point at which we can long maintain it?" A hundred years later, beginning of 1970s, comes the Club of Rome in picture, a club with membership of reputed individuals across the globe which include scientists, economists, businessmen and businesswomen, high level civil servants, who claim to share a common concern for future of humanity. Their very first Report, *The Limits to Growth*, which employed a global model incorporating several interconnected facets of (a) resources, (b) population, (c) technology, etc., questioned the viability of continued growth in terms of human ecological footprint. One of their latest Reports called *Bankrupting Nature* (2012), which harps on depletion of resources and environmental threats, suggests us to de-focus on growth. They extended the conclusions made by ecologists Ehrlich couple.

It is a different matter that Ehrlichs later asserted that the *Bomb* book served its purpose well as it alerted people to use resources more sensibly and brought population question in development debate and it did along with *The Limits to Growth*. The two international conferences, one on environment and the other on population, were organized back to back in Stockholm on Human Environment in 1972[13] followed by one in Bucharest on Population in 1974[14].

Between the two Club of Rome Reports referred to, there were scholars who advocated in early years of 21st century for *de-growth*, *shrinking the economy* and a little before there were movements in the West for the *Economy of the Enough*. Several scholarly works followed, including that of Schumacher, the man known for his book *Small is Beautiful*. Let me not miss the message given in the books *The Economy of Permanence* written in 1945 and *Gandhian Economic Thought* in 1951 by our own Joseph Chelladurai Carnelius Kumarappa with a clear message of plain living on the one hand and conservation of resources on the other hand though he was one of those few who were all for improving efficiency of traditional technology—largely based on current economy rather than reservoir

economy[15]. Yet, in the course of human evolution, as Marshall observed, wants give rise to activities, activities also rise to new wants. Human taste also change.

However, all these proponents largely miss the role of *technology and institutions* in management of resources. Community of Scientists and Technologists has been divided on this matter. One section—including economist Julian Lincoln Simon, maintained in his *The Ultimate Resource* (1981) and *The Resourceful Earth* (1984) (with Herman Kahn) that new resources keep coming out, getting discovered, and developing, while some of them disappear. Interestingly, there was a wager about scarcity of resources between ecologist Ehrlich and economist Simon that ran between 1980 and 1990 and, finally, Ehrlich paid the bet.[16] Simon further challenged Ehrlich, raising the bet to $20000, to choose any resource and any time period, but Ehrlich offered to bet on rise of temperature, instead, which Simon declined but passed away soon after.

Jevons too could see foresee use of wind and solar energy while being occupied with depletion of coal reserves but could not think of, for example, use of petroleum and natural gas. Even he could not see them as natural resources unless Daimler came to invent internal combustion engine in decades after Jevons published his work. The other section—including ecologist Ehrlich, thinks that catastrophe awaits humanity sooner than later. Even Nicholas Georgescue-Roegen, a physicist turned economist, argued that all natural resources get irreversibly degraded when put to use in economic activity[17] but he still dissuaded the Club of Rome to adopt an anti-growth political stance because, as he pointed out, sunshine will continue to be available for billions of years, which man cannot do anything about, negative or positive. Therefore, new sources of known resources for a given technology set and new resources for future technology set will keep getting discovered.

Thus, the problematique of sustainable development hinges around (a) population, its size, sex composition, age structure and distribution across globe, (b) actual and potential resources and their spatial distribution, (c) present and future technology, and their rate of diffusion, (d) actual, aspired, and desired consumption standard, and (e) attitude towards environment and ecology as well as towards science and technology.

III: Role of Technology, Institutions and Management

The relationship between man and nature is technology and it is about procuring goods and tolerating attendant bads[18], inventing tools and formulae, discovering resources and converting wastes to resources, which come in trail as man feels better off on balance. In short, technology is about transformation of materials from less useful forms to more useful forms. Given the scarcity of resources at any point of time[19], development in technology implies lessening transformation cost, discovering new sources for existing resources, and discovering new resources. The same logic can be extended to transportation cost.

The relationship between man and man is an institution. In pure economic terms, transaction rules under which role of different actors in contribution to production by different stakeholders is determined and entitlement in distribution of the produce among them is determined by institutions, including market. Institutions are formed because completely free and ad hoc transactions may be quite costly and time consuming. Institutions are generally improved, but not always, to reduce transaction cost.[20] This idea can be extended in different other fields.

Normally, it is suggested that technology and institutions impact each other. There was a time when artisans employed tools and there came a time when assemblage of tools in the shape of factories employed these artisans as workers. Self-employment gave way to employer-employee institutional arrangement. Marx argued that institutions (production relations) fall behind technology (production forces) in the race. Yet, the substitution between technology (using oxen for ploughing) and institutions (using slaves) has not been much discussed.[21]

As the proverb goes, necessity is the mother of invention, which is attributed to several authors in different contexts in Latin and Greek.[22] Technology is a social product. In this context, science can be said to be product of a curious mind. Institutions belong to the same category as technology. They are invented by human society (and probably by other societies as well). Resources have a role in fashioning a technology but technology also keeps discovering new resources. We can rephrase the proverb: necessity is the mother of invention of technology and discovery of resources. Needs or wants keep spiraling. Humans have a taste for variety too. Relationship between man and man keeps changing as per dictate of technology. Relationship between owner, leaser and labourer is not the same in cultivation under plough and that under tractor. It is not the same under village industry and in the corporate world. There is a strong relationship between them even if it is not unique. But I guess there is dominant diagonal if we make matrix of bivariate distribution of technology and institutions. Importation of technology may disturb this relationship between man and man in a given society as it did in India in the late nineteenth and early twentieth century in terms of spinning of cotton and weaving of cloth, compelling Gandhi to advocate the use of charkha—in view of many, a retrogressive step. While this method of

technology diffusion keeps enriching all societies in the long-long term, it dislocates livelihoods of many a people in the immediate and in the intermediate.

As we moved from agricultural civilization (with attendant services and sort of handicrafts), where some societies developed industrially on their own steam while many other societies imported that brown technology and used it for quite some time. They went on inventing and adding to that brown technology for couple of centuries without let-up—little realizing the full consequences. It is true that mortality rates in industrial towns were far higher than in the countryside, leading to inventions in medical field. Once the dangers were realized, human mind started working on green technology and (let me add) clean and lean at that. And we have succeeded a great deal. We are now seeking technologies which are more symbiotic with nature. Institutional relationships also received metamorphosis. Most of us suffer from some nostalgia and keep pointing out things that have gone from better to worse. We tend to suffer from some amnesia too and fail to see things that have gone from worse to better, say, in terms of abolition of slavery or apartheid or untouchability. Much of it may owe to improvement in technology. You do not require muscle power (slaves) and even animal power for agricultural operations, industrial operations, or transportation. Of late, wastage started reducing and waste to wealth technologies got boost. The new mantra is: reduce (use more efficiently), reuse (rather than throw away as waste), and recycle (conserve rather preserve). We also started discarding brown technologies and the ones that deplete reservoir resources like coal, and adopting green technologies and those that use flow resources like tides, sunshine and wind.

Likewise, all societies invent sort of institutions—many of them are quite common across societies, notwithstanding differences in cultures. But we have history of importation of institutions—particularly political ones. They take time in getting roots.

Now the issue is: where is management in all this? Let me pose a few questions to underline importance of management. Are we using technology most efficiently? Other things remaining the same, does the same technology yield the same output in every place. For instance, plant load factor is found to be quite low even while there is demand for use of full capacity of power plants. Are the plant load factors of same capacity the same across plants? Managerial slack is the answer, says Leibenstein, naming it as X-inefficiency. Management is the answer for improving the situation by making full use of capacity of, say, plants and of capability of people. Better coordination can yield better results. Better leadership can yield better results. Take the case of West Bengal power supply. Two decades ago, during Pooja festival, there used to be no cuts, no outages but otherwise there was hardly a day when there were no cuts. Small changes within a given institutional set-up can be thought as management.

Are all families equally well managed? Are all institutions equally well managed? Do all nations perform equally well? Despite the guidelines for corporate governance, do all corporations in any given sector perform equally well? Under the same RBI guidelines, do all banks have the same level of NPA as percentage of loans granted? Do all public universities in UP under the same set of rules perform equally well? Do they do the same in private sector? Some are better than others. That is the genesis of setting up IIMs in India.

We may always find some alibi. It comes naturally to humans. For my success, I am the reason but for my failure, someone else is the villain. Management is the crux of the matter. Management within the same set up can be better though it will never be the same across set-ups as men managing them will differ. Most of us keep comparing with peers; only some of us compare with the best; only few of us think of realizing their potential.

IV: In Liu of Conclusion

Do we mean that this optimistic scenario suggests us to be reckless with natural resources—depletion and pollution, not to observe any restraint, and forget about conservation? Sane philosophical advice of restraint on indulgence, conservation of resources, and respect for nature will remain important. If we don't want to face constraints, better we observe restraint. The disciplined students do not suffer from threat of punishment. We need not live a life of poverty or make virtue out of helplessness but should not arrogate power to subdue the earth, the nature, or our co-inhabitants.

Let me end this paper with a question which a red-Indian Chief posed before a white European Chief when the latter sought to buy a piece of land from the former in early days of colonization of America. It was: how can I sell something which does not belong to me? He added 'Earth does not belong to me; I belong to the earth'. Such an attitude would allow humanity to exist for indefinitely long time and this is what we all wish. Keeping with the present ethos, let us hope to keep faring better as we have been doing centuries after centuries—inventing technologies, discovering resources, and devising institutions—to afford better life in material terms. And, let us hope that we live longer, as we do, as well as healthier and happier lives. And, for that, halt, look, and go!

Notes

1. Report of the World Commission on Environment and Development was published under rubric Our Common Future was published in 1987. Unfortunately, it has quite a few typos.
2. https://www.niti.gov.in/sites/default/files/2020-07/SDX_Index_India_Baseline_Report_21-12-2018.pdf
3. The Commission was set up by General Assembly resolution adopted in 38th session in the fall of 1983, asking the Secretary-General to appoint Chairman and Vice Chairman and direct them to jointly appoint remaining members.
4. A former Prime Minister of Norway, Gro Harlem Bruntland was Parliamentary Leader of the Labour Party at that point of time. Born in 1939, she became Prime Minister three times (1981, 1986-89, and 1990-96) but she started her political career as Minister of Environment during 1974-79. She completely retired from Norwegian politics in 1997. Later, she served as Director General of World Health Organisation (1998-2003).
5. Gro Harlem Bruntland (Chairman) and Mansour Khalid (Vice Chairman) jointly appointed 21 members, including Secretary-General of the Commission, belonging to different countries. The Commission, in its first meeting held in October 1984 in Geneva decided to have a Secretariat, quite a few individual experts as well as three panels to advise.
6. One of the Members was Nagendra Singh, then President of International Court of Justice, besides holding many other positions concurrently or in the past, which related to his involvement in this kind of work.
7. Indians involved in this venture were quite a few: as Senior Economic Advisor, Nitin Desai; as Special Expert Advisor on Decision Support Systems on Environment, Ashok Khosla; Member on Advisory Panel on Energy, Prem Shankar Jha; Member on Advisory on Industry, Naval Tata; Chairman, Advisory Panel of Food Security, M.S. Swaminathan; and Member on Advisory Panel of Food Security, K. Chowdhry.
8. Agenda 21 meant an action plan of the United Nations with regard to sustainable development to be accomplished by the onset of 21st century.
9. As Amartya Sen asserted somewhere, rather wryly, in some other context, 'can we speak about those who are yet to be born?' Our Constitution wisely chose to permit adequate space to generations to come to choose their course of conduct.
10. From sustainable marketing to sustainable democracy to sustainable society.
11. Ester and her husband Mogens Boserup worked in India in late 1950s in a Myrdal's project. Her experience in India help her develop her dynamic theory of agricultural development and her belief that the power of human ingenuity far exceeds the power of demand.
12. Ehrlichs wanted to name it simply as Population, Resources, and Environment but named so on publishers' suggestion, which made good marketing sense. Paul Ehrlich very much regretted as he miscategorised as someone exclusively focused on human numbers.
13. United Nations Conference on the Human Environment was organized in Stockholm during 5-16 June. It was the first ever world conference to consider environment a major world issue and to start a start a dialogue between industrialised countries and developing countries on the link between growth and pollution. It led to creation of the United Nations Environment Programme (UNEP).
14. It was the third World Population Conference, after Rome (1954) and Belgrade (1965) held Bucharest during 19-30 August 1974 to discuss the relationship between population issues and development.
15. Kumarappa chose to categorise resources as current and reservoir types. Later, scholars chose to call them as renewable and non-renewable.
16. Simon challenged Ehrlich in the Social Science Quarterly where Ehrlich's published his claim that if he were a gambler he would bet that England will not exist in the year 2000. Simon offered to stake US$10,000 as his estimate said that the cost of non-government-controlled raw materials (including grain and oil) will not rise in the long run. Simon asked Ehrlich to Ehrlich to choose any raw material he wanted and he would wager on the inflation-adjusted prices decreasing as opposed to increasing. Ehrlich chose copper, chromium, nickel, tin, and tungsten. The bet was formalized on 29.09.1980 with payoff date on 29.09.1990 with bet of $200 per commodity. Ehrlich lost the bet and paid as prices of all five commodities declined through the wager period. that were bet on declined in price from 1980 through 1990, the wager period. During this decade the world rose by ever-largest increase of more than 800 million. But prices of each of the selected metals fell in inflation-adjusted terms while in case of three of them prices fell in nominal terms too. marginally, some hugely. Tin's and tungsten's prices fell down by 50 percent.
17. A part of energy, irrespective of its form, gets entrapped in non-usable form in any closed system.
18. There is hardly any good-producing activity which does not produce any bad. Goods and bads are twins.
19. It is scarcity of a good that gets it priced. Only when demand for a good at zero price exceeds its supply at zero, the good is said to be scarce.
20. Institutionalisation of slavery in 16th-17th centuries cannot, for example, said to be an improvement though it was efficient system for technology available to the owners of farms. Its abolition in America led to a great civil war.
21. Are slaves to be treated as animal power which is a substitute for human muscle power or as humans under subjugation?
22. Plato is said to have written in Republic 'our need will be the real creator'. Latin phrase is translated as 'the mother of invention is necessity'. This is the major point Danish Economist Ester Boserup in her book.