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What Kind of Development We Want to Afford Sustainable Living?

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Abstract: The historical evidence is used to argue that the application of knowledge and modernization of the current economic and conservation approaches for directly relating to human dependence on nature are critical for advancing human well-being. Over the last ~50 years, despite our sound understanding of various ecological impacts at local, regional and global scales, we have largely failed to prevent decline in the health of natural systems worldwide. Our current approaches continue to promote utilitarian economy, focusing on materials. This paper advocates a shift from the current paradigms of economics and resource use, by proposing an ethical approach both to nature and economics, towards holistic development. The approach is based on peoples' well-being. It outlines how by integrating ethics, economy and nature, and finding simple solutions within the reach of public, sustainable development can become achievable much more efficiently and quickly than following our current lengthy and complex processes.

Key words: Nature, natural systems, ecosystem services, sustainable development, economics, human well-being.

1. Introduction

This paper offers a broad-scale integrated analysis of economy, society and nature's resources to emphasize the need for greater levels of realization and on-ground action at both the individual and societal level to achieve sustainable development. The modern economies are primarily focused on growth in materials, commonly perceived as development, as proven by rising GDP (Gross Domestic Product) which in contrast has failed to enhance people's life satisfaction [1]. With increasing choices, people always seem to want materials way beyond the necessities of life and spend a lot of time and energy in chasing them without realizing costs of their production or the pressure on natural resources. By linking human ethics with needs and economy, this paper aims to enhance our current understanding of development.

Good quality air, water and food are indispensable and irreplaceable to live, however, people seem to take them for granted in their daily lives. More than 50% of the world's population, living in urban and semi-urban centres, is largely disconnected from nature's raw resources that support major material needs [2]. Modern way of living, in isolation from nature's resources, makes us blind to our moral responsibility to look after nature.

Over the last 50 years or so, there has been an excessive increase in consumerism coupled with a reduction in the availability of natural resources. This exerts immense pressure on nature's resources which may well lead to severe social-economic mayhem [3, 4] for increasing levels of social inequality, exclusion and injustice, dampening development outcomes. We[1] are coming to realize that we must behave as responsible citizens of Mother Earth. The key questions are, firstly, *can* we, as individuals and society, do this, and secondly, do we have the *will* to do it?

Daly, H. E. [5] puts forth that the fundamental human morals 'Thankfulness' for good deeds, and

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[1] *We* or *us* refers to the people in general who use nature's resources, and return little of real value to nature.

'Repentance' for wrongdoings—common to all societies—have been forgotten for nature. People largely fail to be thankful for the basics of life—good air, water and food—and they seem to be unrepentant for exploiting nature's resources, and creating a huge amount of waste from what we discard.

We all need to revive our sense of care for the planet, our fellow human beings and other organisms with whom we share this planet. Because of our increasing disconnect from raw resources, we are forgetting our dependence on nature. The only exceptions are the agrarian and traditional societies whose livelihoods directly depend on nature or some eco-friendly people. This adage from the 14th Dalai Lama nicely frames the need for changing our current value systems and the use of natural resources: *Because we all share this planet earth, we have to learn to live in harmony and peace with each other and with nature. This is not just a dream, but a necessity* (The 14th Dalai Lama [6]); advocating a moral principle of care and share that we all need to embed in our daily living. Promoting human ethics for nature and linking them with economy can add value to the present scientific knowledge for realizing grass-root changes towards sustainable development.

To highlight the importance of the role of nature for human lives, two important frameworks have been developed to date. In 2003, the United Nations initiated the MA (Millennium Ecosystem Assessment)—the first global effort of its kind, which published several seminal reports demonstrating the links between nature's services and people's well-being (Fig. 1a) [7-12]. In 2012, the MA research was advanced by the IPBES (Intergovernmental Platform on Biodiversity and Ecosystem Services), connecting science with policy (Fig. 1b) [13]. To date, 127 nations are signatories to the IPBES. The platform particularly emphasizes the inclusion of nature's role in public policy through developing targeted policy documents and frameworks, to enhance human well-being and develop sustainable economies. However, none of these frameworks directly account for the natural resources in modern economy or challenge its ways. Indeed, our modern economy is an 'engineered economy' based on increasing choices of materials, while excluding or disregarding human ethics [14, 15]. Its progress is measured from GDP, completely ignoring nature's inputs to produce those products [1].

There is an immense amount of scientific knowledge available to researchers and policy makers, especially in ecological sciences including many databases, international conventions and organisations including NGOs (Non-Government Organisations) (Table 1). Additionally, there are state institutions, local organisations and departments dealing with environment related issues at the local and regional scales. But, despite all this available knowledge, organizational funds and support, policy instruments and modern technologies, earth's natural resources are degrading and declining faster than ever before [12]. For example, 30% of cropping land is experiencing high rates of degradation; > 50% of the area of six biomes has been converted to agriculture since the 1950s causing severe loss of forest cover; 20% of coral reefs and 35% of mangrove area has been lost, and > 30% increase in atmospheric CO_2 emissions has occurred since the 1750s.

The economic activity is identified, among other main drivers such as habitat change, over-exploitation, invasive alien species, pollution, climate change, population change, as the most critical driver causing above changes in the natural systems [12]. Our current levels of economic activity reflect human greed to obtain materials at the cost of nature's resources. As Daly (1996) says '*our ability and inclination to enrich the present at the expense of the future, and of other species, is as real and as sinful as our tendency to further enrich the wealthy at the expense of the poor*'.

The current tragic state of natural systems, as described by the MA [8], is a result of greed for materials and comforts, ignorance, negligence and the

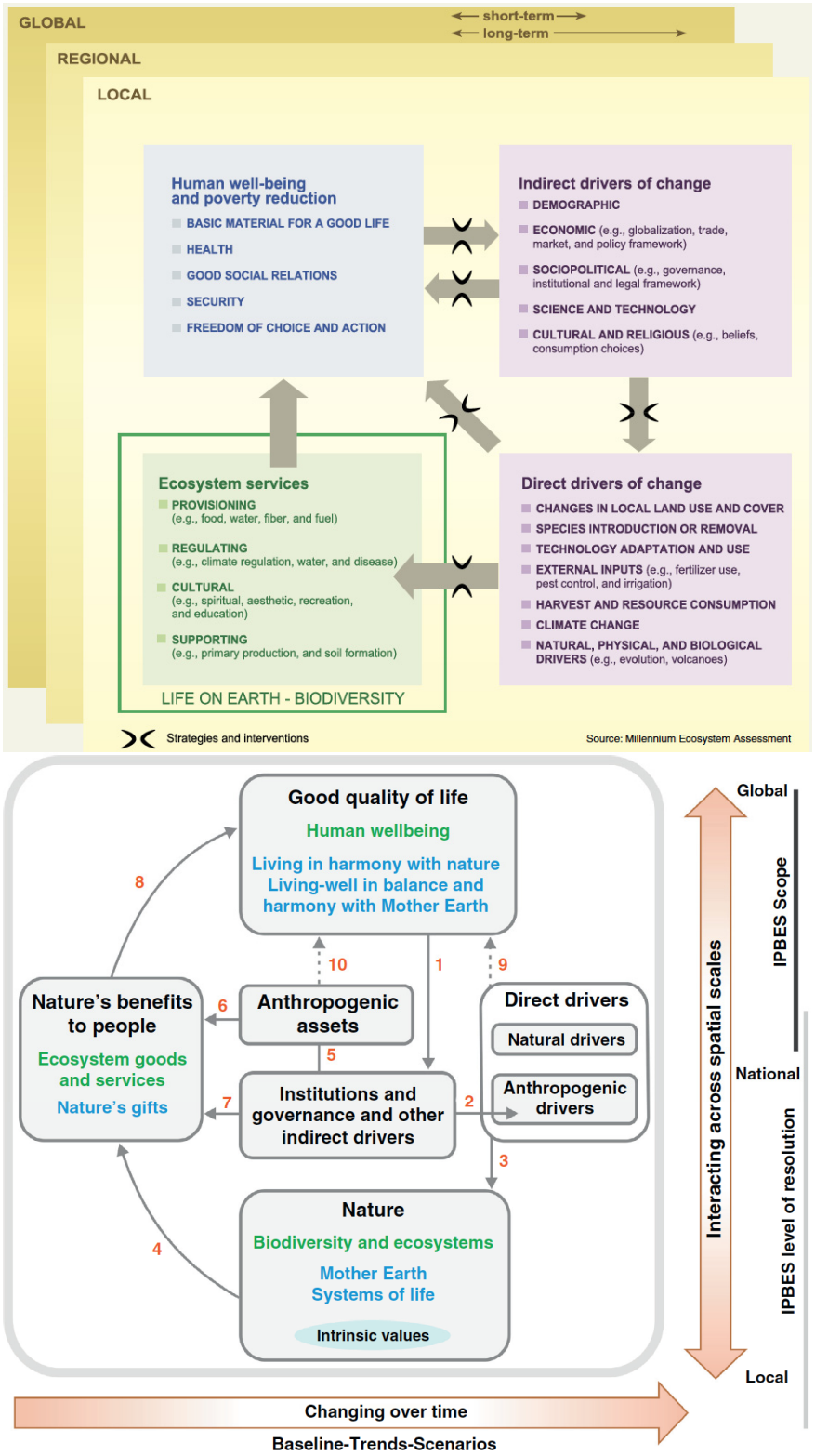

Fig. 1 The MA and IPBES frameworks.

a. The MA framework links human well-being and the ecosystem services (on the left-hand side), which are influenced through various direct and indirect drivers of change (on the right-hand side) [7].

b. IPBES framework offers six main elements: Nature, Nature's benefits, Good quality of life, Anthropogenic assets, Direct drivers and Institutions and governance. The arrows denote the links between elements, along with temporal and spatial scales (side arrows) [13].

Table 1 A snapshot of main scientific databases, major conventions and NGOs dealing with natural environment.

Databases	International conventions, organisations and NGOs
Web of Science supporting 256 disciplines with 12,000 journals, 50, 000 books and 160,000 conference proceedings.	Convention on Biological Diversity, signed by 168 countries, suggesting the importance of earth's biological resources towards humanity's economic and social development; IPCC (Intergovernmental Panel for Climate Change) recommending climate related policies; IUCN (International Union for Conservation of Nature and Natural Resources) guiding conservation policies; UN (United Nation)'s special ES related initiatives—MA and IPBES.
Science Direct supporting > 3,800 journals and 35,000 books.	UNEP (United Nations Environment Programme) assisting member states in implementing environmentally sound policies and practices; WRI (World Resources Institute); TEEB (The Economics of Ecosystems and Biodiversity); GEF (Global Environmental Facility); Global Development and Environmental Institute; International Institute for Environment and Development.
Scopus supporting > 22,000 journals and 34, 000 books, ~67 million records; PubMed about another 27 million records.	NGOs: Greenpeace; Friends of the Earth International; World Wide Fund for Nature; The Nature Conservancy.

parochial approach of modern economies. It seems we lack the *will* to change our utilitarian economic approach despite our awareness of the state and importance of nature's systems. Across the globe, the government policies largely fail to consider nature's benefits into decision-making despite many ecologists, conservationists, and even some economists advocating such an approach over the last few decades [16-23]. Moreover, various international, national and local initiatives have argued for including or underscoring nature's services into economic models.

On the contrary, the current economic models are perceived largely as pathways for development[2] i.e. growth [18] (in materials and choices for people). With increasing financial capacity, particularly the disposable income of people in the developing world, many more are becoming materialistic, thus exerting extensive pressure on nature [12, 24].

For the continued survival of human society, a sustainable scale of development is essential. It is development without growth (in materials). Sustainable development is the qualitative improvement of human quality of life, not the quantitative increase of materials, within nature's assimilative and regenerative capacities [5]. Our high levels of knowledge yet our lack of willingness to act begs the question—how can we realize the importance of nature and achieve sustainable development?

Based on literature and desktop analyses, this paper offers evidence of excessive resource use both in the past and present, followed by two suggested future scenarios. Then, it outlines three key approaches to help realize people's dependence on natural resources for sustainable development: applying an integrated economic approach to development focusing on people's well-being; embedding ethics in economic models and to conserve nature; learning lessons from Indigenous and local communities to live in harmony with nature. Overall, the paper aims to address the broad themes of economics, development, and conservation of nature, which are applicable to many developed and developing countries.

2. Historical Evidence of Resource Misuse: the Demise of Two Important Ancient Civilizations

It is difficult to determine definitive relationships between environmental and social changes because

[2] Development (non-italic) refers to usual perception as 'growth' whereas *development* (in italics) to sustainable development focusing on people's well-being. The word '*development*' is used because it's commonly applied in economics and suggests advancement/betterment; the need is to change its perception from advancement in materials—growth—to the advancement of human well-being.

each society responds in different ways at different times in a given set of socio-political circumstances. But, similarities between some ancient civilizations and the modern society on the usages of natural resources and related consequences are now becoming apparent, offering valuable lessons for the present and future generations.

Weiss, H. and Bradley, R. S. [25], de Menocal, P. B. [26] and Diamond, J. [27] pointed out that several civilizations from the prehistoric and early historic era suddenly collapsed primarily due to abrupt changes in climate. Particularly, prolonged droughts and increased temperatures affected food and water resources, thus impacting people's survival. We chose the Indus and Mayan, the key well-developed ancient civilizations, to demonstrate how their usage of natural resources impacted on their survival.

2.1 Indus Valley or Harappan Civilization

The Indus region, from north-east Afganistan to north-west India, flourished from ~9.5-3.3 ka BP [28]. The Indus people established a highly sophisticated urban culture, with their own 'Dravidian' script, well-developed houses, public and private wells, wide roads and underground drainage systems; proving to be one of the most extensive ancient civilization [28]. Mohenjo-daro, one of the excavation sites, is currently listed as a UNESCO world heritage site.

The floodplains of the Indus ('Sindhu' river in Sanskrit or Hindi) and Ghaggar (also known as 'Saraswati') rivers supported Indus civilization. Both rivers and their channels offered fertile soils for agriculture, and people mastered the art of growing a variety of crops such as wheat, barley, cotton, mustard and sesame. However, the waning of monsoons ~5-4 ka BP, coupled with large-scale droughts, led to changes in people's subsistence strategies. Particularly, these events caused reduced seed ubiquity and density of wheat and barley, which ultimately lessened food availability, and led to de-urbanisation and the slow decline of this great civilization [28, 29].

Among a number of factors including change in monsoon and river dynamics, socio-economic and political situations, the catastrophic floods and severe droughts that affected agricultural productivity and the availability of food resources, were the key triggering socio-political turmoil and ultimately the demise [25, 28]. It is thought highly likely that reduced agricultural productivity disrupted the Indus economy, making survival difficult for people, however, this requires further investigation (Ancient History Encyclopedia).

2.2 Mayan Civilization

The Mesoamerican, Mayan, civilization flourished from ~7-1 ka BP across central America. Concentrated in the central-lowland of Yucatan Peninsula, supporting tropical rainforests, the Mayans were highly resource-specialized who possessed significant infrastructure of engineered cities, water systems and managed landscapes. It was thought that the burning and clearing of forests for agriculture or setting orchards caused a severe decline in rainfall, consequently limited the availability of water [30]. Well-engineered water reservoirs could serve the people during short-dry spells, but not during long-dry spells. Instead, these reservoirs made people highly vulnerable, probably due to lack of people's adaptability to reduced water resources [31]. Over-and ill-use of forest and water resources, coupled with social and political complexities, appeared to cause the collapse of > 90% the Mayan civilization [30, 32, 33].

Despite being an engineered society, the Mayans could not escape the catastrophic environmental effects that permeated through their social, political, and cultural domains, and most likely led to their demise [30, 31].

There are several other agriculture-based civilizations who suffered similar demise. For example, the Mesopotamian civilization—a cultural and technological cradle of the Western world—farmed lands earlier fertile, later more marginal, stressing available soil and water resources

and creating a highly vulnerable system that ultimately resulted in ecological backlash and led to their demise [25]. 'Collapse' by Diamond [27] points out climate change and environmental problems, among several other factors, causing downfall of past civilizations while alerting modern societies.

Analogous to the ancient civilizations, our modern society faces the challenges of climate change, the uncertain and reduced availability of water and food resources due to droughts, floods, degradation of land, over exploitation of productive land and use of marginal land for agriculture, and excessive misuse of resources; suggesting a need to learn from the past, adapt and limit resource use, to sustainably use natural resources through careful planning for and acting towards the kind of development and economy we really want.

3. Contemporary Examples of Misuse or Over-exploitation of Resources

Local, regional and global assessments of natural systems, conducted by the MA [8-12] from 2000 to 2005 and IPBES assessments in 2017 (the catalogue of assessments), clearly demonstrate their fast decline over the last century. More than 50% of forestland has been converted for agriculture [12], yet we fail to attain global food security [24]. Instead, this conversion instigated high rates of species extinction [12]. Both terrestrial and marine systems are being over-used in meeting human needs. Consequently, human activities have caused land degradation, pollution, loss of biodiversity, and changes to climate [12, 24, 34-36], resulting in multi-fold socio-economic and ecological consequences, including increasing inequality both within and between the developed and developing world [24].

At this point, it is acknowledged that there are millions of regional, local and individual studies that highlight declining health of terrestrial, freshwater and marine systems across the world, which are not cited here.

The irony is that despite all the technological progress and extensive use of resources, we still fail to meet the basic need for food for the millions of the world's population who are under-nourished as indicated by the HDR (Human Development Reports) [37, 38] and the UN reports [24] (Fig. 2) [12].

There are a number of consequences of modern societies using and exploiting natural resources to develop and maximize economies. One of the main ones is the growing inequality among people in the developing and developed world over the past 20-30 years. So much so that we face social mayhem [3, 5, 14, 39-42]. For example, economic inequality is on the rise in most developed (OECD) countries. It is even more evident in nearly every developing country [3, 40]. As Keeley, B. [3] points out, "the gap between rich and poor is at its highest for the last 30 years, with the top 10% now earning 9.6 times more than the poorest 10%." Widening the income gap between the rich and poor, especially in the developing world, contributes to inequality in education, health and other social services, setting up unjust and unfair social systems [3, 40].

The following examples illustrate how maximizing economies at the expense of natural resources impact on people:

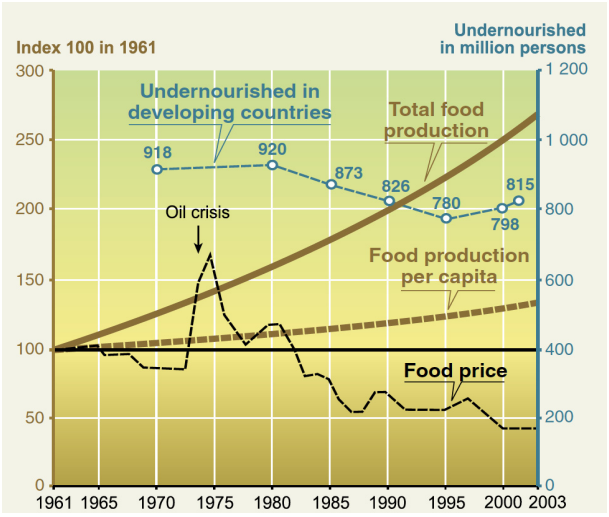

Fig. 2 Despite increased total food production and the large-scale conversion of forest into agriculture lands, the undernourished people are still high [12].

In the developing world, acquiring land for development has led to wide-scale displacement and upheaval of local and Indigenous communities within and between nations [43]. For example, in China, the National Research Center for Resettlement noted that over 45 million people were displaced by development projects between 1950 and 2000 [44]. In India, dam projects alone displaced up to 40 million people [45]. Moreover, land grab by multinational or influential investors for development purposes has compromised the interests and livelihoods of millions of poor people, causing grievances and conflict in many countries across Africa and Asia [46]. The current refugee migration from the Middle-East and Asia can be partially attributed to a lack of locally relevant development with little fair and equal work opportunities, thus social upheaval and suffering that contributes to political unrest we face today [4, 39]. Millions of people are leaving their homelands for various reasons, and the trend is increasingly alarming across the developing world.

Ultimately, coupled with environmental calamities, unfair social systems can result in multi-fold socioeconomic-political problems as evidenced by inequality, injustice, and violence—including terrorism at various local, regional and global scales [4, 18]. The Secretary-General of the OECD, Angel Gurría, warned that "high levels of inequality generate high costs for society, dampening social mobility, undermining the labour market prospects of vulnerable social groups, and creating social unrest" [3]. The consequences of modern economic development focusing on large scale investments and monetary returns while imperiling the livelihoods of world's rural populations are socially, environmentally and politically devastating.

4. Applying Two Basic Scenarios to Scope Our *Well-being*

All human beings, whether in the developed or developing world, want to live well and lead a meaningful life. To reflect this, the concept of human well-being, that is 'a state of being comfortable, healthy, or happy', is very useful [5, 15, 18, 20, 21, 47-49]; in contrast to commonly applied measure, GDP, of development or growth (in materials).

The MA [7] considered five constituents of human well-being: the basic materials for life; good health; security; social relations; and freedom and choice. A certain level of economic choices and opportunities are necessary to support life, but more beyond that does not produce greater satisfaction.

Two basic scenarios are applied: BAU (Business As Usual) and LHN (Living in Harmony with Nature), to scope human well-being. The data to measure human well-being is based on various global, regional and local studies, including several reports by the HDR [37, 38], IPBES (catalogue of assessments [13]), IPCC [35], MA [7-12], WRI [36, 49] and the UN [24]. This simplistic analysis aims to show the status of human well-being in 20 or 50 years time were we to continue to live as we do today (Table 2).

To continue benefiting from nature in the future, each one of us needs to realize our dependence on, and embrace a way of life that is in harmony with, nature [50]. As HDR [37] suggests, the world should focus more on sustainable work that doesn't put people at risk. But, how do we realize our dependence on nature? And second, how can we change our current approaches to development, economy and nature?

5. Realizing our Dependence on Nature and Transforming Our Current Approaches to Development

Re-visiting our past (fate of ancient civilizations), scenario planning (wise future thinking), applying integrated and ethical economic approaches, and learning from Indigenous and local communities to live in harmony with nature (as discussed below) can all help us transform our current approaches to achieve sustainable *development* and better care for nature.

Table 2 Trends in our well-being under BAU and LHN scenarios in 20 and 50 years time (acknowledging scientific and technical advances).

Well-being constituents	BAU		LHN	
	20 years	50 years	20 years	50 years
Basic materials for life	↖	↓	↖	↑
Good health	↖	↓	↖	↑
Security	↖	↓	↖	↑
Social relations	↖↓	↓↖	↖	↑
Freedom and choice	↖↓	↓	↖	↑

↓ - denotes a decline; ↖ - low improvement; ↑ - good improvement; ↖ - modest improvement.

Our notion of development in this paper is about improving the quality of life, i.e. well-being. From now on, we use the term *development* (italicized) for *human well-being*. This paper looks at *development* not only from an economic perspective but also from ecological and social perspectives.

There is need to mine the immense *silos* that exist of ecological, social and economic knowledges, but more importantly, an urgent need is to bridge the gap between these *silos* (disciplines). Bridging the knowledge gap is a major important difference between Indigenous/local and modern, largely urban, societies. The former's knowledge is gained, integrated, and practised through customs and traditions, whereas the latter's knowledge, though extensive, is typically formally acquired and not always integrated. This difference is clearly evident in how people live in rural and remote places because they depend on nature for their day-to-day living in contrast to urban or semi-urban people who are formally educated but often less knowledgable about nature's service despite their greater dependence on, and need for materials to support their way of life. The urban society comprises > 50% of the world's population, with > 70% in the developed world [2]. Commonly, the urbanites (knowledge acquirers) have a greater say in policy decision-making, irrespective of regional or national boundaries, whereas Indigenous/local peoples (practitioners) have very little say. Thus, it becomes very difficult to change modern society's pattern of excessive consumerism, associated resource-use and indifference to nature. This paper, based on synthesis of knowledge from various resources, suggests three pathways to move towards sustainable *development*.

5.1 Inclusive and Integrated Economic Approaches to Development

An integrated, modernized concept of *development*—focusing on peoples' well-being enabling them to lead their lives as they want—is essential, as advocated by Costanza, R., et al. [1] and Sen, A. [15, 48]. But, to facilitate this, some key reforms are required. Firstly, we need a new vision for *development* that focuses on enabling people, i.e. enhancing capabilities, freedoms and rights, and better social justice through offering appropriate opportunities, as suggested by Sen, A. [15]. Secondly, *development* needs to be linked with the supplier of fundamental services that support people's living, i.e. nature, by incorporating efficient allocation, sustainable scale and fair distribution of nature's resources [5]. Blending *development* and use of natural resources at a sustainable scale can help us develop the ideal integrated framework to improve both human well-being and the state of nature's resources which support well-being.

A simple integrated model of *development* focusing on people's well-being and nature is illustrated in Fig. 3. Nature is shown as the basis for supporting the socioeconomic and cultural fabric of households and businesses. The model shows the importance of

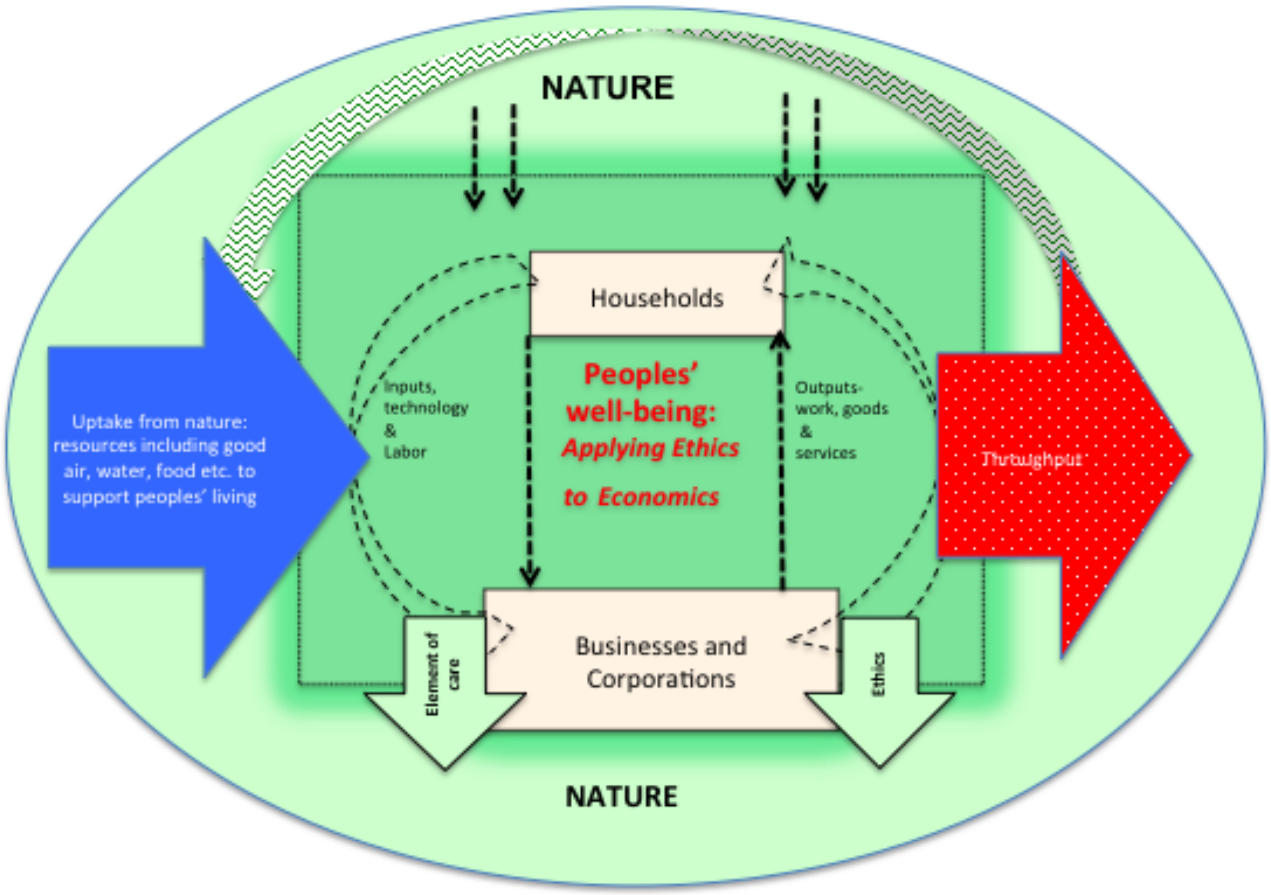

Fig. 3 An integrated model for well-being focused *development*.

continual flows (goods and services) from nature to human well-being. To sustain these flows, the waste (the throughput including recycled materials that also require energy and resources) needs to be matched with the carrying capacity of nature's systems [5]. At each individual business and household level, a balanced uptake from, and throughput to, nature becomes an integral part of the total economic activity, i.e. input and output in order to operate at a sustainable, efficient, equitable scale to enhance human well-being. Most importantly, this model emphasizes integrating ethical principles with economic activity to achieve *development*. However, this kind of *development* requires wise policy support and recognition. It also needs the policy makers and the public to think of *development* as supporting peoples' capabilities, rights and freedoms and opportunities for employment, beyond simply material needs, while still valuing, caring and accounting for the natural environment.

Nature supports human well-being, yet only households and businesses and corporations outputs represent the state of development. For sustainable development, uptake and throughput (waste) needs to meet the local ecosystems capacities with a focus on peoples' well-being applying ethics to nature and economics (inner dark green glowing box indicates origin of raw resources from nature that support development).

5.2 Advancing Human Ethics to Economy and Nature

Limiting our needs to the necessary materials for affording sustainable living and applying integrated knowledges to manage and improve natural systems that supply those materials, is a much-needed approach [51, 52]. To do so, a radical change for how

we value materials and nature is absolutely required. As the 14th Dalai Lama says, *"Human happiness and human satisfaction must ultimately come from within oneself. It is wrong to expect some final satisfaction to come from money* (materials) *or from a computer."* Satisfaction for materials '*fulfillment or gratification*, *just the right amount—lagom* (in Swedish) or *contentment—Santushti* (in Hindi)' is a key element of human ethics that can prove useful in transforming the paradigms of *development* and valuing nature, but how do we seek it?

Satisfaction or the *feeling of being well and contented* is linked to spirituality [53]. Spirituality, irrespective of religious beliefs, is a vital aspect of human life allowing to constantly explore the meaning of our lives and to improve ourselves. Nature offers us this exceptional service and delivers multitude benefits such as health, resilience, compassion, self-esteem and equitability. Spiritual experiences help us to habitually meditate on the entire vista and the main purpose of our living while evoking the end of life. Consequently, this day-to-day realization can make us to be wise for material needs and usage, and to inculcate moral responsibility to look after nature.

Many local and Indigenous people protect and respect nature's components because of instilled spiritual beliefs, cultural practices, norms and customs. Due to these ethics, several developing countries, despite high population, support rich biodiversity because of reduced per capita use of resources in contrast to the developed world where its ~10 folds than the former [24]. For example, the state of Uttar Pradesh in India is highly dense, 828 person/km^2, but supports the highest diversity of cranes due to people's ethos not to kill cranes (no government regulation); instead people leave some feed for cranes in their rice fields despite being poor and under-developed [54, 55].

Additionally, our isolation from raw resources, which are required to produce goods and materials, is one of the main reasons for our failure today to comprehend nature's role in our lives, in addition to increased accessibility and transportation of processed materials at the costs to the environment. Inculcating right moral or spiritual values can make us envisage ourselves as part of nature, rather than separate from nature. We need to adopt simple but active attitudes towards solving common environmental problems that help resolve our addictions for goods and materials [51]. Our current local, regional, and global socio-political and environmental situations beckon a mass cross-border radical movement to save 'our home' by inculcating a sense of 'satisfaction' for material needs and practising right ethics.

5.3 Learning from Exceptional Local and Indigenous Populations Surviving to Date and Applying Knowledges

Many local and Indigenous people across the globe live in harmony with nature through their cultural norms and practices, such as addressing nature as 'Mother' and the biodiversity components as parts of nature [56, 57].

Indigenous people in Australia are testament to such a philosophy for continuing to survive on a dry continent for the last > 50,000 BP [58]. People, through experiences, have unique socio-economic, cultural and emotional relationships with their land and sea systems [59-61], and they treat their land, '*country*', as a living entity [61, 62].

Many traditional agrarian societies, in particular, depend on nature and use resources judiciously understanding the value for their sustenance, and have developed their specific customs suiting local conditions. Such indigenous and local views can guide the modern societies to live in harmony with nature. Unarguably, although our modern lifestyles are much more dependent on nature than the traditional lifestyles for simply demanding more materials, we grossly fail to realize or act to sustain the use of nature's resources.

6. How to Achieve Sustainable and Well-being Focused *Development*?—A Way Forward

It is a compelling time to find, invest and implement solutions to maintain the flow of nature's services (ES) for human well-being, especially realizing the fate of our ancient civilizations. There is a need to share and implement holistic, systems solutions, in partnership with the locals, applying individual and collective efforts, across the world. To achieve sustainable *development*, the current socio-economic and political systems require modernization, some outlined below:

Integrated economies focusing on people's well-being: our current GDP-based economies require a radical transformation to embrace the critical role of nature for supporting humankind [1, 5]. Our future economies should focus on improving individual as well as societal well-being through better human rights and freedom, justice and social systems, fair distribution of resources and access to services, enhancing peoples' capabilities while offering them appropriate and equitable opportunities [14, 15, 48].

Development: there is need to understand and apply a holistic meaning of '*development'* beyond increasing choices or materials, for enhancing people's quality of life [15, 47, 48]. This kind of *development* should recognize and reward the local and Indigenous people who live in harmony with nature and contribute towards ES flows for the greater humankind, promoting equitable *development*.

Public awareness: there is adequate scientific and local knowledge demonstrating how climate change, land degradation, over-use of resources, and pollution of land, water and air affect peoples' well-being across the world. The nations, NGOs, and local agencies including educational institutions need to better communicate with the public in simple non-scientific, but in interactive and coherent ways by directly relating the environmental impacts to people's well-being. Currently, the IPBES is focusing on bridging the gap between science and policy [13], whereas an equal or more compelling is to connectwith, and raise awarenessamo, whereas an equal or more compelling is to connect with, and raise awareness among, the public to change opulent lifestyles particularly in the developed world, and achieve solution-based outcomes.

Action-based approaches: at the government level, there is a need to recognize, support and invest in solution-based approaches that promote sustainable development, including the 'action'-based changes that are brought by many local groups, NGOs and individuals at the local, regional and global scale. Some examples include community conservation efforts—http://www.communityconservation.net/community-stories/; Satoyama in Japan—http://topdocumentaryfilms.com/satoyama/; Auroville—a universal township in India, with ~50,000 people from 49 Nations around the world live in harmony with nature (http://www.auroville.org); Environmental activists such as Jadav Payeng planting 550 ha of barren land (http://www.jadavpayeng.org/home); many Eco-villages around the world (https://theecovillage.com.au, http://www.earthaven.org and http://www.ic.org/directory/ecovillages/); and many industrial and residential buildings using green technologies and energy sources.

There is a need to spread such stories around the world, and to commence a mass movement demonstrating how living in harmony with nature (as was proclaimed by the UN's General Assembly in 2011) is a real possibility that can enhance people's well-being.

Ethical and moral values: Incorporating right ethos into our day-to-day living, economy, policies, education and decision-making processes can play a significant role in how the public and corporates value and manage nature. Sen, A. [14] strongly advocates

for linking ethics and economics to enrich our philosophy of living to deliver better socio-economic and environmental outcomes.

A key principle of applying 'contentment or satisfaction' and re-focusing policies on enhancing the quality of life is to help reduce the use of resources while improving human well-being. However, this demands a profound shift in our current thinking and policy decision-making.

Equity: equitable distribution of natural and social benefits and costs across the spatial—local, regional and global—and temporal—present and future—scales to minimize the differential in people's quality of life that may exist among various ethnic or gender groups of a state or even among the states will help promote societal well-being in the global community, with better harmony as well as environmental outcomes, while evading socio-political conflicts. Moreover, it will further minimize the social, health or justice system costs.

Accounting for the natural-cultural losses/gains: annual assessments of loss of natural assets, cultural landscapes, nature-based socio-cultural and economic activities, and languages at the local and regional scales over time can raise awareness among the public and policy decision-makers for what is gained or lost over time in the name of development.

7. Discussion

Looking at the past and declining current state of natural systems (7-12), there is a need to develop integrated sustainable strategies across the nations, both at the public and policy levels. Sustainable strategies that focus on people's well-being while recognizing and respecting local differences. Importantly, ancient Hindu, Jain, Sikh and Buddhist scripts and Indigenous cultures directly emphasize on nature being Divine '*Vashudhaiva Katumbkam'*—community of all beings on earth including plants and animals, 'Mother' or earth as sacred, '*Bhumi Ma'*, and guide humanity to limit material needs to achieve satisfying and unifying levels of living.

For transforming modern economies to support well-being focused *development*, understanding the value (importance) of nature, the nature of 'value' for enhancing human well-being, and rural (non-marketable) economies is imperative to avert adverse socio-economic, ecological and political consequences that has happened a few times in human history causing the demise of civilizations or uprooting rural populations [25, 27]. The proposed transformations, discussed in the previous section, require institutional, political and governance support for designing appropriate strategies. A political will to support change, and embrace the idea of integrated living—for an efficient, equitable and sustainable economy that operates within the limits of nature's capacity, along with locally appropriate, non-partisan, bottom-up (polycentric) governance and institutional structures is vital. These transformative initiatives require substantial national and international cooperation, otherwise, as Shiva, V. [4] says, we are likely to witness unprecedented environmental, political and social disruptions that will impact on all of us, irrespective of our borderlines.

International platforms such as IPCC and IPBES (and earlier the MA) continue to conduct regional and global assessments for informing policy makers. Various local and inter-state agencies continue to invest in looking at the problems and developing guidelines, frameworks, conventions and other policy instruments. However, the relevance of high-level policy decisions to on-ground actions or change is likely to be dubious until local people are empowered and fairly involved in decision-making processes. In fact, the current policy approaches and related instruments should be equally complemented with direct incentives for people who contribute towards greater societal and nature's benefits. Direct and simple actions improving nature's services for peoples' well-being can offer effective and quick outcomes

compared to the complex modern policy approaches that hardly reach the public.

Applying and advocating an ethical approach to economy and nature, considering socio-ecological and economic connections, re-focusing *development* on human well-being, and encouraging people to become the practitioners to live in harmony with nature, we will be able to fulfil our responsibility towards nature without remorse for exploiting nature's systems.

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