

Fostering Cultural Responses

To Eco-systemic Change



Sustainable development is a commonly used term today, yet it describes a concept that is still being considered by different kinds of societies, each in a manner of their choosing. While historically the growth of societies took a variety of pathways, today the prescribed pathway to the 'modern' society scarcely changes from one country to another. Hence, culturally what these societies have considered as 'sustainable' behaviour—each, according to its ecological context—is being replaced by a prescribed template in which interpretations are discouraged. **Rahul Goswami** states that such a regime of prescription has led to the obscuring of many different kinds of needs felt by communities that desire a 'development' that not only makes cultural sense, but also of the kinds of knowledge which will allow that 'development' to be sustainable.

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We can readily see some of this knowledge. To employ labels, whose origin is western, these streams of knowledge and practice are called traditional knowledge, intangible cultural heritage, indigenous wisdom, folk traditions, or indigenous and local knowledge. These labels help serve as gateways to understand both ideas, 'development' and 'sustainable'. It is well that these labels do good for today, more conspicuously than 20 years earlier. However, there is a concern for declining biodiversity, about the pace and direction of global environmental change, a concern over the unsustainable human impact on the biosphere, and the diminishing community identity.

There is widespread acknowledgement of the urgency of the situation—perceived across cultures, geographical scales (i.e., from local units such as a village, to national governments), and knowledge systems (which includes both formal and non-formal ways of recognizing these systems). The need for such a new dialogue on the situation is expressed in several global science-policy initiatives, both older and recent, such as the Convention for Biological Diversity (CBD),

which is now 22 years old, and the Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES), whose first authoritative reports became available in 2015.

Development whose sustainability is defined locally and implemented locally means that the 'investment', 'technology', and 'innovation' (terms that have become popular to describe development efforts) come from the people themselves. Many diverse agencies—civil society, youth groups, vocational networks, small philanthropies—assist such development and provide the capacities needed. This is the level at which the greatest reliance on cultural approaches takes place, endogenously.

Mendha Lekha, Maharashtra

The panchayat of Mendha Lekha in Gadchiroli district, Maharashtra, is well known for its practice of village sovereignty and the community-based management of natural resources. All decisions related to the management of the forest and the village are taken through the gram sabha. The sabha relies on the advice of what are called '*abhyas gats*', which are study groups.

There are many study groups for different aspects of the collective life of Mendha Lekha and these assemble regularly to discuss village and forest-related issues. Notably in recent years, the gram sabha has banned the cutting of fruit trees, stopped the use of bamboo by a paper mill; banned the use of chemical poisons for fishing, permits an *ahimsak* (harmless) honey extraction method which does no harm to the honeybee population; relies on voluntary labour for the construction of gully plugs so that erosion is prevented; and rosters a daily forest vigilance.

Pathanamthitta, Kerala

In the district of Pathanamthitta, Kerala, several sacred groves are venerated by the residents of the villages along the river Pamba, whose source lies high up in the Western Ghats. Here, they maintain sanctified areas of forest and have established rules and customs to ensure their protection. Here too, a public movement led by a heritage conservation trust successfully protected the wetlands of the district against a plan to construct an airport. The socio-cultural norms of the sacred groves prohibit the government from felling of trees, the collection of any material from the forest floor, and taking life of animals. Because of these protective restrictions, faithfully followed over generations, the sacred groves are now havens of biodiversity.

Solan, Himachal Pradesh

In the district of Solan, Himachal Pradesh, hill villages have noted with worry, the trend of climate change and variability which has become more unpredictable over the past decade. Spells of heavy rain which used to be rare, 25 to 30 years ago, are now common. Plant diseases have appeared, which were unknown only a generation earlier, and the yield of staple crops, upon



An elderly couple in Srinagar's Jawahar Nagar, one of the city's wards that was severely affected by the September 2014 flood.



which the village depends, such as *rajma*, *urad*, and maize, is dropping. Under such circumstances, the panchayat officials together with women and self-help groups hold teaching and practical sessions on water management. They have reintroduced organic farming for their habitat, including training in the preparation of different kinds of compost, vermicompost, and bio-pesticides. They are also collecting seeds of the hill millet species endemic to the region in order to widen the crop biodiversity they rely upon, for the millet is hardy and nutritious.

District of South Sikkim

Changes in the forest regions of the district of South Sikkim—deforestation and new settlement zones—has altered the forest structure, lowering the capacity of the forest to capture run-off water from the surface in comparison to the condition 30 years earlier, when the forest was denser. In response, the State government's '*dhara vikas*' programme (rejuvenation of springs) has helped reduce water run-off considerably and augment groundwater recharge. What has been instrumental is the return to methods, long held as traditional knowledge, i.e., multiple trenches together with small and shallow rectangular trenches dug in the water catchment area. These hold water and promote its percolation into the sub-soil of the hills. The community programme, assisted with resource mapping and geo-hydrology provided by the district administration and State government, has brought out very successfully, the adaptive capacities of the hill communities—based on their knowledge—which has contributed considerably to the transition of the state into one that practices only organic cultivation.

Nagapattinam, Tamil Nadu

The vernacular architecture houses of Nagapattinam district, coastal Tamil Nadu, are equipped with a wind-

catcher. Their thick external walls, wide verandahs, sloping roofs with overhanging eaves, terracotta roof tiles, internal courtyards, are all characteristic of eco-friendly and climate responsive traditional architecture of the region. In the warm and humid coastal climate, people rely on the knowledge of building materials that resist heat (mud and mud brick). This approach allows for the cooling and heating of interior spaces naturally. In contrast, 'modern' buildings with concrete roofs, small sunshades, thin walls and small openings only give rise to maximum thermal discomfort for their occupants, who must then cool these spaces artificially (with air-conditioners), thereby incurring expense and consuming more fuel (directly and indirectly) and also disconnecting the occupants from their communities and environment.

Traditional Knowledge Systems

What we observe with examples cited above is that coping with the effects of climate change is a daunting challenge, just as much as confronting the effects of destructive change such as resource extraction, over-exploitation of biodiversity, and the conversion of commons into settlement. Societies which harbour traditional knowledge are also those in which knowledge is regarded in ways that differ fundamentally from the scientific norm. Over the seasons, each practitioner learns more about insects, animals, soil types, weather patterns, and a myriad natural aspects as a profound systems-

based understanding of the world in which people understand their own place within the environment. Whether in Sikkim or Kerala or the distant reaches of the dry Deccan, when the effects of climate variations are experienced (such as monsoonal wet-dry spells becoming more volatile, rainy days marked with more intense downpours, and more frequent dry periods), communally-maintained biodiversity becomes as invaluable as the orally-preserved knowledge pertaining to its conservation and use—such as medicinal plants essential to village communities for their treatment of illnesses and wild relatives of crop species that can help improve cultivated varieties.

In domains such as traditional medicine, forestry, the conservation of biodiversity, the protection of wetlands, it is practitioners of intangible cultural heritage and bearers of traditional knowledge, together with the communities to which they belong, who observe and interpret phenomena at scales much finer than formal scientists are familiar with. Besides, they possess the ability to draw upon considerable temporal depth in their observations. For the scientific world, such observations are invaluable contributions that advance our knowledge about climate change. For the local world, indigenous knowledge and cultural practices are the means with which the effects of climate change are negotiated so that livelihoods are maintained, ritual and cultivation continue, and survival remains meaningful.

Under a formal view, these examples describe circumstances obtaining in complex systems, all of



which defy purely mechanistic analysis. They also describe a systems-level approach that embraces both biophysical and anthropogenic causes of change, not as separate influences but as closely interwoven and interactive processes. Encouragement for such a view is not particularly recent, having been given considerable international currency in 1992, in the Earth Summit held in Rio de Janeiro, Brazil, but which helped bring the unmatched depth of traditional knowledge (and its allied labels) into the multidisciplinary subject that we today know as earth systems science.

"Responses to environmental problems have been designed to address specific, narrowly defined problems within a framework that fails to consider the full range of consequences inherent in a complex, interactive system", the International Geosphere-Biosphere Programme (IGBP) observed in 2003, in its report, 'Global Change and the Earth System: A Planet Under Pressure'. "More generally, the emergent behaviour that often results from interactions among components of the system cannot be understood by studying the components of the system in isolation. The identification of cause-effect relationships is still useful, but now they are embedded in complex systems in which synergies, interactions, and non-linearities defy the classic, analytical approach".

Traditional Supporting the Modern

However they may be named and practiced—knowledge streams, cultural expressions, and intangible heritage—local wisdom is essential not only to those who depend on it in their daily lives but are also important aspects of our civilization, for what is now being called the 'green economy' and 'climate-resilient agriculture' have their roots (whether acknowledged or not) in the application of such knowledge and in the manner it has been transferred from one generation to another. These knowledge systems and their inheritance are important because it is only when economies fundamentally change that we may see reduced rates of use of resources which are growing ever scarcer (such as forests, water, minerals, or fossil fuels), and also because the speed at which we are experiencing the combined effects of ecological degradation and climate change has adversely affected (in particular the world's smallholder) farmers' ability to grow food.

When we consider the genetic holdings in India, taking as the foremost example, the National Genebank in the National Bureau of Plant Genetic Resources,



the astounding variety therein, has been possible to identify, catalogue, and safeguard only because of the undocumented efforts of tens of thousands of cultivating households, who have contributed to the 105,000 varieties of rice 32,800 varieties of wheat, 52,400 varieties of millets, 64,700 varieties of legumes, and 57,700 varieties of oilseeds. Yet, this plant-genetic richness does not represent all that is available, saved, and under cultivation in the *tehsils*, *mandals*, blocks, and *talukas* of our country—cereals whose growing periods range from 45 days to over 120 days, leafy iron-rich vegetables which are indispensable for treating expecting mothers, the old and infirm, lesser-known small millets, whose hardiness is legendary, and whose nutritional powers are known to shifting cultivators and shepherd communities.

So there is the tangible, changing, physical world of our terrestrial and marine biospheres and of those who know them well, as practitioners and cultivators, possessing corpuses of knowledge whose scale and depth we can scarcely fathom. And there is the effort, nationally and internationally, which attempts to reconcile the needs of 'modern' societies with the systems that supply such societies with food, water, and material based upon the use of nature's products, material that is inorganic in nature, the fuels that such societies need. Some of this transactional relationship (the haves and have-nots, but here the haves are the knowledge bearers, the have-nots mostly are the urban contributors to the growth of what is problematically called gross domestic product) is outlined for us in various policy documents and guides. These have most recently taken the form of low-carbon development approaches and India's reports to the UN Framework Convention on Climate Change, to name but two.

Internationally (or multi-laterally), the framework called the UN Sustainable Development Goals (SDGs) seeks to address similar concerns. There are 17 such goals, with 169 targets distributed amongst these

goals. What sort of indicators the goals and targets will depend on, to judge how well or how poorly we are performing, is still under discussion. As a treaty, the UN SDGs have begun to work from January 2016 and their intention is to assist 'transformation', i.e., what changes societies must plan for in order for our individual and collective footprints to be smaller (in some cases very much smaller) than they are today.

Yet for all the optimism and to an extent, misplaced belief in the power of international treaties to bring about change (that the climate negotiations have continued for 21 years without contributing to a fundamental change in the manner in which economies function shows just how ineffective they are), there is missing a narrative of change in the SDGs. Put simply, they are a fairly good collection of points that need action and discussion, but they are not connected by means of an ideology that can be universal. This is not surprising, because such an ideology cannot exist, for the reason mentioned earlier, the knowledge systems that determine communities' and societies' relationships with the natural world are myriad.

Bereft of such an ideology therefore, and without a narrative of change, the SDGs are an ambitious (and costly) framework of epic size but without an epic story. That is why the ultimate end (as in, a means and an end) of the SDGs as a working combination is unclear, and so we have on view, at this point, an industrial catalogue that describes transformational machines (each goal and its associated targets), but scant reasoning as to how their use will bring us closer to an ultimate end that is in consonance with the myriad contemporary, non-competing, quite plural knowledge systems that have brought us here in the first place.

In its 'Review of Targets for the Sustainable Development Goals: The Science Perspective', the International Council for Science (ICSU) in partnership with the International Social Science Council (ISSC), in



In Pathanamthitta district, Kerala, the leader of a farmer's association displays a collection of root crops, tubers and traditional agricultural implements

2015, noted that "development research has provided multiple perspectives on how attaining human well-being in the long term, as an ultimate aim, is dependent on an enabling development context, where global public goods, resources, and capital (both manmade and natural) are safeguarded, and where economies can prosper". The questions of barriers (for sections of society) and drivers (such as market-determined behaviours, finance, and technological lobbies), inequalities and the causes for their continued existence, consumption and accumulation, and institutional structures and capacities, are skirted by the SDGs as they currently exist.

The Way Forward

Where do knowledge practitioners, the bearers of intangible cultural heritage, and exponents of cultural expressions come in? What is the role of their facilitators, such as administrators, researchers or communicators? A part of the answer is to engender localization as much as possible, enable the decentralization of the ways in which traditional knowledge streams define 'sustainable', 'development', and 'well-being'. There can indeed now be a renewed dialogue about how citizens and communities can contribute, with a variety of networks and alliances mobilizing sources of knowledge as well as processes for generating new knowledge and understanding which concern the governance of ecosystems and biodiversity, maintaining social cohesion, promoting health, and education, in ways that ensure these will survive for future generations. ■

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