

Development and Ecological Sustainability in India

Possibilities for the Post-2015 Framework

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This paper is aimed at policy-level discussions, as well as an aid to civil society to push for necessary changes to take Indian economy, society and polity towards the goal of human well-being with ecological sustainability as one fulcrum. A possible post-2015 framework of implementation of the Millennium Development Goals that combines sustainability and human well-being that could be applied globally, including its key principles, is attempted at here.

This paper is written with the objective of contributing to the ongoing discussion on post-2015 development goals that will succeed the current Millennium Development Goals (MDGs), specifically from the point of view of what directions India could take. It is aimed at policy-level discussions, as well as an aid to civil society to push for changes necessary to take Indian economy, society and polity towards the goal of human well-being with ecological sustainability as one fulcrum.

This paper focuses on environmental issues, specifically taking off from MDG7 ('Ensure environmental sustainability'). The paper does not go into a detailed discussion on the dimensions of the ecological and socio-economic crises humanity finds itself in (globally or as manifested in India); only a few broad comments on this are made in the first section. Nor does it deal in detail with the root causes of the crises. These are complex and varied, including the "developmentalism" or "developmentality"¹ that subjugates both nature and human cultures in making a fetish of material or economic growth, the forces of capitalism that have greatly intensified in the current era of globalisation, and the centralisation of power seen in state-dominated societies. These issues have been dealt with in great detail in many publications and it is not the purpose or focus of this paper to delve into them; rather, an understanding of these is assumed, and the intention is to go beyond into what could be approaches to deal with the crises.

The paper also does not focus on a number of socio-economic aspects that are not the central components of a focus on environment, but these aspects are mentioned wherever a connection is relevant.

Finally, while the paper attempts to be somewhat comprehensive in spelling out the goals, targets and indicators for sustainability (and related aspects of equity), it does not lay out details of what actions are necessary to achieve these, or who should take these actions. This is left for further discussion and elaboration.

Structure of the Paper

Section 1 provides a context of the poverty – development – equity – environment linkages in India. Section 2 comments on India's implementation of MDG7, as officially reported. As part of this, it describes the key conceptual and implementational gaps in achieving MDG7. Section 3 briefly discusses a possible post-2015 framework that combines sustainability and human well-being that could be applied globally. Section 4

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Annexures mentioned in the article are uploaded as a separate file in the EPW website.

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outlines the key principles for such a framework. Section 5 delineates goals and targets relating to sustainability, including key linkages with other goals and targets. The next section deals with what could be key indicators for environmental sustainability goals and targets, and some tools to help measure these indicators. Finally, Section 7 deals with the main challenges facing the achievement of such a framework, and some steps that could be taken next.

1 Poverty, Development, Equity and Environment

Sixty five years after gaining independence, it is clear that we are very far from achieving the basic objectives any society or civilisation should aim for – security of food, shelter, water, health and clothing, and fulfilment of human potential through educational, sociocultural and political opportunities. Depending on which measure one takes and whose estimates one believes, anything between a quarter and three-quarters of India's population suffers from deprivations of one or the other kind. This includes economic poverty, malnutrition and under-nutrition, lack of safe drinking water and sanitation, unemployment or underemployment, inadequate shelter, and other such situations that are violations of minimum standards of human rights and well-being. These are often so serious as to cause irreversible health damage, premature mortality and suicides. Many of these have roots in traditional socio-economic inequities and discrimination, which have been compounded, or added to, by the inequities and exploitation of modern times.²

In addition to this, we have the degradation of the natural environment on which we all depend for our lives, often to levels that are beyond recovery. Natural ecosystems are under stress and decline can be witnessed across most of the country with exceptions only in the case of some protected areas and community conserved areas; wild and agricultural biodiversity are under varying rates of erosion; well over half the available waterbodies are polluted beyond drinking, and often even beyond agricultural use; two-thirds of the land is degraded to various levels of suboptimal productivity; air pollution in several cities is amongst the world's highest; "modern" wastes, including electronic and chemical, are being produced at rates far exceeding our capacity to recycle or manage; and so on.³ A 2008 report suggests that India has the world's third biggest ecological footprint, that its resource-use is already twice of its bio-capacity, and that this bio-capacity itself has declined by half in the last few decades (GFN and CIU 2008). Economic globalisation since 1991 has significantly worsened the negative trend by increasing rates of diversion of natural ecosystems for developmental purposes, and rates of resource exploitation for domestic use and exports (Shrivastava and Kothari 2012). Climate change impacts are being felt in terms of erratic weather and coastal erosion, and the country has little in the way of climate preparedness, especially for the poor who will be worst affected (Bidwai 2011; Thakkar 2009). Projections based on the historic trend of materials and energy use in India also point to serious levels of domestic and global impact on the environment if India continues on its current

development trajectory modelled on industrialised countries (Singh et al 2012).

While discussions on the aspects above have been extensive, the interconnections between continued or new deprivations, including poverty, environmental degradation and inequities on the social, economic and political fronts have not been brought out in such a detailed manner. Or, conversely, neither have the positive interactions amongst poverty eradication, environmental sustainability and empowerment. Thus, planning and programmes of the government, and usually those even of civil society, focus on one or the other element of the picture, in the process ignoring or even having a negative impact on other elements. For instance, several poverty eradication or food security programmes are ecologically damaging (for example, chemical-intensive agriculture); conversely, several environmental protection programmes exacerbate poverty or create new forms of deprivation (examples being exclusionary protected areas for wildlife that forcibly displace resident communities, or watershed programmes that stop pastoralists' access without providing alternatives).

Several policy pronouncements of the Government of India, such as the National Environment Policy 2006 or the Approach Papers of various Five Year Plans, have promised the integration of development and environment. These policy frameworks, as also the implementation of the MDGs, could have been opportunities for a holistic pathway towards sustainable, equitable well-being for all of India's people. There is, however, little evidence that these policy pronouncements have been followed up with actual action to achieve such holistic well-being. Contrarily, in fact, the country has headed towards greater unsustainability and inequity. An integrated approach to human well-being that enhances the economic, social and political opportunities for those traditionally or currently deprived, curbs the obscene levels of wealth and consumption of the super rich, conserves nature and sustains the ecological basis and resilience so crucial for our existence, is not evident in the priorities of the government.

This is not to belittle a number of positive initiatives by the state relating to poverty, environment, employment and empowerment. Nor is it to hide the exciting and innovative work done on these fronts by many communities, civil society organisations, institutions and private sector agencies. All of these are indeed elements of a more sustainable and equitable future. However, at present these are submerged and overwhelmed by the sheer bulldozer effect of current macro-economic policies and political governance structures that are taking India further down the path of unsustainability, deprivation and inequity. A number of course corrections, including better implementation of progressive policies and programmes that already exist, reforms in other existing policies and programmes to make them more progressive and fundamental changes in pathways of development and governance are necessary if holistic human well-being is to be achieved. This must also avoid the pitfalls of myopic or false solutions such as carbon markets, geoengineering, and supposedly renewable sources like nuclear power and large hydropower. The post-2015

framework for “sustainable development”⁴ provides an opportunity to head in this direction.

2 India's Record on MDG7

India's latest report on MDG implementation (GOI 2011) contains a section on MDG7. On a number of indicators, such as forest cover, consumption of ozone-depleting substances, access to safe drinking water and sanitation facilities, some to substantial progress is reported; on others like CO₂ emissions, and growth of slums, the story is not positive (see Box 1).

A number of actions taken by the government have indeed helped in safeguarding the country's environment to some extent. For instance, the network of protected areas is likely to have staved off some key threats to wildlife and natural ecosystems in 4%-5% of India's territory. Legal and programmatic measures related to many other ecosystems and wildlife species, including those listed in the above report, have also contributed to biodiversity conservation. Similarly, the legal requirement of development projects having to obtain “environmental clearance” and “forest clearance” has brought in some focus on environmental impacts. A number of innovative water harvesting and distribution projects have helped reduce the number of people without access to safe and adequate water.

However, not only are a number of the targets and indicators reported above demonstrating weaknesses and failures, even the successes pose several question marks. For instance, the reported increase in forest cover has been criticised by several independent scientists and civil society groups as statistical jugglery. The so-called increase has been because the definition of what constitutes a forest has been widened to even include urban parks, and because no distinction is made between natural forests (usually mixed and biodiverse) and plantations (often mono-cultural) (Puyravaud et al 2010; Rajsekhar 2012). Quantity of forest is not an indicator of its quality;

a plantation cannot replace a rainforest. The loss of natural forest does not get reported in the process – according to one estimate, this loss may be as much as 1.24 million hectares (mha) between 1995 and 2005. Though India has a systematic, sophisticated forest cover monitoring programme in place, it does not seem to be able to (or willing to) go into a more nuanced approach that could reveal not only coarse level generalisations on the extent of forest, but also the more important specifics of forest quality and diversity. Additionally, there is no systematic assessment of the loss of non-forest ecosystems (grasslands, deserts, etc) and their species when plantations have been undertaken over them.

Similarly, while increase in the extent of protected area (PA) coverage is positive, this does not automatically translate into better conservation of biodiversity. This is not only because substantial biodiversity would be outside the PAs but also because monitoring of conservation outcomes within PAs themselves is sketchy, sporadic and missing out most species. Marine areas remain seriously under-represented, with only a marginal increase from 1.6% to 1.7% of territorial waters being covered between 1990 and 2010. This means crucial ecosystems like coral reefs, mangroves and beaches are hardly covered. Implementation of India's commitments under the United Nations (UN) Convention on Biological Diversity (CBD), especially through legislation and plans, could have involved a more systematic attempt at mapping important sites for the conservation of the full range of biodiversity, evaluating their status, and taking steps for their effective conservation. This would have also meant incorporation of biodiversity concerns across all land-water uses and not only within PAs. Such a comprehensive approach does not appear to have been put into place, even though India does have a National Biodiversity Action Plan and a Biological Diversity Act. A previous attempt at conceptualising such an approach, commissioned by the

Box 1 India's Achievement of MDG7 (as officially reported)

Target 7A (Integrate principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources):

- (i) Forest cover has increased by 3 million hectares (m.ha.) in the last decade; between 2005 and 2007, it has increased by 72,800 hectares; the Green India Mission aims to increase forest and tree cover in 5 mha, and improve forest quality in another 5 mha.
- (ii) Protected areas cover 4.90% of the country's land area, having increased by about 70,000 hectares from 1999 to 2011.
- (iii) Energy intensity (energy used per unit of GDP) has remained more or less at the 1970–71 levels, having increased significantly in the 1970s and 1980s but declined again in the last two decades.
- (iv) CO₂ emissions have “experienced dramatic growth”, with India becoming the world's third largest CO₂ emitting country; coal burning is the single biggest contributor.
- (v) Consumption of ozone-depleting substances per capita is still very low;⁵ CFC consumption has sharply declined.

Target 7B (Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss)
(missing from the report, presumably integrated into the above)

Target 7C (Halve by 2015, proportion of people without sustainable access to safe drinking water and basic sanitation):

- (i) Proportion of households without access to safe drinking water has reduced significantly from about 34% in 1990 to about 9% in 2008–09, and India is on its way to 100% coverage for safe drinking water by 2015 (surpassing the MDG targets).
- (ii) Proportion of households without sanitation facilities has reduced from about 76% in 1990 to about 50% in 2008–09 (at which rate, 43% will remain without such facilities, missing the MDG target by about 5 percentage points).

Target 7D (By 2020, a significant improvement in the lives of at least 100 million slum dwellers):

- (i) Slum population increased from 46.26 million in 1991 to 61.82 million in 2001; while the number of slums declined about 13% from 1993 to 2008–09, the latest estimate of slum population is not available.
- (ii) Marginal improvement is reported in facilities to slumdwellers, between 2002 and 2008–09.

Source: GOI 2011.

Ministry of Environment and Forests (MOEF), funded by the Global Environment Facility (GEF)/United Nations Development Programme (UNDP) and coordinated by civil society organisation Kalpavriksh, was scuttled by MOEF itself.

Another issue is the fact that “per capita” estimates tend to hide significant inequities. For instance, in the case of consumption of ozone-depleting substances, the report gives no indication of the skewed nature of such consumption, wherein the rich consume and emit much more than the poor, but because the latter are very numerous, the average tends to be small. The rich are, in this sense, “hiding behind the poor” (for an interesting assessment of how this happens vis-à-vis carbon emissions (Greenpeace India 2007).

Failure in a number of targets and sectors does not take away from the achievements that are recorded in the report (or in other studies), such as the greater access to drinking water (GOI 2011), the reduction in energy intensity of some sectors (Rao et al 2009), and others. At the very least these show that, given political will, trends towards sustainability can be achieved.

However, beyond the specific indicators reported by India, there is a more serious issue. There is no indication of a comprehensive or systematic integration of the principles of sustainable development into India’s policies and programmes. Nor is there evidence that the rate of biodiversity loss has been reduced, or that ecosystem resilience has increased. There are a number of flaws and weaknesses related to how these targets are being addressed (Kohli and Menon 2005, Kohli et al 2009, Kothari 2011 and 2012, Saldanha et al 2007):

(i) Measures like environmental impact assessment/environmental and forest clearance have remained piecemeal (for example, missing out on sectors like tourism), badly implemented, and so filled with holes that it has been easy for the most destructive projects to slip through.

(ii) There are no procedures for assessing the cumulative impacts of related projects (like a series of hydro projects on a single river), nor for assessing the impacts of sectors (such as the mining or power sector as a whole), nor are there any procedures for social impact assessment (which is related to environmental impacts).

(iii) During the process of putting together Five Year Plans, annual budgets and macroeconomic measures that drive the country’s development process, there is absolutely no assessment of their environmental impacts. Nor does sustainability get built into the design of macroeconomic policies (such as taxing speculative finance that has a bearing on the environment, or heavily taxing mining activities); environment is mostly an afterthought or an aside.

(iv) Despite repeated talk and recommendations at many policy forums, natural resource limits as a constraint or framework within which economic planning should take place (including even through the limited approaches of natural resource accounting or budgeting) have never been employed.

(v) The annual *Economic Survey* of the Government of India deals with environment in a handful of pages as a separate section, with little or no interconnections drawn with the economic sectors that form the bulk of the report; the Surveys

of 2012 and 2013 have an additional chapter on “Sustainable Development and Climate Change”, but linkages with other chapters remain weak or absent.

(vi) There is no national land-water use plan, which could specify priorities on how various kinds of lands and regions are to be used in a way that would ensure ecological (and related livelihood) security. As a result of this, even the most fragile and ecologically crucial areas are subject to damaging activities – land use changes such as from agriculture to industry are undertaken with little heed for their consequences, often at the behest of those interested in “real estate” values rather than production of goods, and water sources crucial for drinking and agriculture are diverted to industries.

(vii) There is no set of indicators on sustainability in use by the Planning Commission or any other government body at the center or in the states. There is some reporting on sustainability by corporations and organisations, following up on the National Voluntary Guidelines on Social, Economic and Environmental Responsibilities of Business by the Ministry of Corporate Affairs and using frameworks such as that of the Global Reporting Initiative, but this is still very preliminary and piecemeal, and in any case not mandatory.

(viii) Forestlands are being diverted for industrial, developmental and other projects at an increasing rate in the last couple of decades. The same is possibly true of coastal areas, though figures are not readily available as in the case of forests. Fisheries exploitation has reached proportions already resulting in decline in fish stocks in parts of the Indian Ocean which are near the shore. Productive agricultural lands are being diverted to special economic zones (SEZs), industry, and other such uses, or from food crops to non-food cash crops. In all these cases there are no comprehensive measures to ensure that sustainability is achieved. Even legislations such as the Forest Conservation Act or the Coastal Zone Regulation notification under the Environment Protection Act are observed more in the breach.

As mentioned above, available reports suggest that India’s current pathways of development are unsustainable. It does not appear that the MDGs have made much of a dent in this situation, or that India’s planning processes have changed significantly enough to address this issue.

Gaps in Globally Specified Indicators

The indicators specified at a global level are clearly not the only ones that could or should be included within the overall goal of environmental sustainability. Each country is free to go beyond these to add other priority actions and related indicators. Judging by the country report, there is no evidence that India has done this – at least not explicitly in connection with the MDGs. A number of environmental aspects are missing from the indicators reported: levels of air, water, soil and noise pollution, status of natural ecosystems other than forests, number of threatened species, levels of toxic chemicals in food and water, trends in recycling, sustainability of production and consumption patterns, and many more.

A glimpse of possible additional goals, targets and indicators that India could take up, both domestically as also

lobby for inclusion in the post-2015 framework, is provided in Section 4 below.

Another crucial aspect that is weak or missing from India's approach to achieving MDG7 is the linkages between this and other MDGs. The fact that environmental sustainability is linked to all other aspects of a country's economic, social and political life, and therefore to the other MDGs, is not adequately realised or reflected. This is particularly important for MDG1, on poverty, and MDG2, on gender equity. As stated above, hundreds of millions of people in India depend on nature and natural resources in a direct manner and on a daily basis. A healthy environment is a crucial part of food, water, cultural and livelihood security for fishermen, pastoralists, forest-dwellers, small farmers and natural resource-based craftspersons. Conversely, any deterioration in environmental health has a direct impact on such people. Women and children are in many cases the worst affected.

If poverty is seen not only as financial or economic deprivation, but also as deprivation from the resources needed for a fulfilling life, then one can see a number of ways in which poverty and environment intersect. Environmental degradation can create or exacerbate poverty (e.g., by destroying fish or forest resources on which people depend for livelihoods), and conversely poverty can drive people to desperate measures that lead to environmental degradation (e.g., through excessive fuelwood extraction). Environmental protection can also create or exacerbate poverty (e.g., the example given above of exclusionary conservation), and conversely poverty eradication programmes can lead to environmental degradation (e.g., clearing forest to extend agriculture, or encouraging significant increases in livestock rearing leading to overgrazing, or promotion of water intensive agriculture in watershed programmes). Examples of all these linkages can undoubtedly be found on the ground.

Similar linkages can be seen between gender equity and environment. Environmental degradation can disproportionately affect women's access to survival resources, or their health status, while conversely, inequities in women's access to decision-making forums can allow unsustainable resource exploitation decisions to be taken. Environmental protection measures taken largely by men could reduce women's access to natural resources, and conversely programmes to enhance women's access could lead to excessive exploitation of resources.

Given the above, any holistic approach to MDGs 1 and 2 should necessarily have environmental sustainability as a central component. Still, the Indian government does not give it the requisite emphasis either in its report on MDG implementation, or in its various planning and policy documents such as the approach paper to the Five Year Plans. Environment remains just another stand-alone topic to be dealt with. There is no systematic assessment of the levels of dependence on nature, or of the ways and extent by which poverty is actually being created or exacerbated by environmental degradation. The same can be said about gender equity and environmental sustainability.

3 Evolution of MDGs into a New Framework

If the intent and outcome of the Rio+20 Conference is to be taken forward, and countries/peoples of the world are serious

about ecological sustainability becoming one of the fulcrums of human well-being, then the MDGs need to evolve into a new framework.⁶ As the report of the UN System Task Team on the post-2015 development agenda says: "The outcome of and follow-up to the Rio+20 Conference on Sustainable Development will provide critical guidance and the proposed vision and framework for the post-2015 agenda must be fully aligned with that outcome" (UN 2012). Rio+20's outcome document spoke about "Sustainable Development Goals" (SDGs); in this paper we will use the same term, despite our discontent with it. The theme of sustainability would be running through all the goals, as should the themes on equity and human rights, even as more specific environmental targets such as halting the erosion of biodiversity could be specified in one of the goals. The post-2015 framework needs to explicitly and clearly build the linkages within all the goals.

The UN System Task Team referred to above has proposed that the four key dimensions of the post-2015 framework should be (1) inclusive social development, (2) inclusive economic development, (3) environmental sustainability, and (4) peace and security. The Team has justifiably left the task of working out the specific framework and the specific goals, targets and other things to the international process underway leading up to 2015.

However, if Rio+20's message is to be heeded, sustainability needs to become not one specific goal, but a theme running across all goals. With this in mind, a suggested set of goals for the post-2015 framework, which links to but goes beyond the MDGs, is as follows:

- Ensuring the basis of equitable access to nature and natural resources to all peoples and communities, including the conservation and resilience of ecosystems, ecological cycles and functions, and biodiversity (an expansion of MDG7).
- Ensuring adequate and nutritious food for all through production and distribution systems that are ecologically sustainable and equitable (currently part of MDG 1).
- Ensuring adequate and safe water for all, through harvesting and distribution systems that are ecologically sustainable and equitable (currently part of MDG7).
- Ensuring conditions for prevention of disease and maintenance of good health for all, in ways that are ecologically sustainable and equitable (currently partly in MDG 6).
- Ensuring equitable access to energy sources in ways that are ecologically sustainable, as much as technically and economically viable (currently missing from the MDGs).
- Ensuring equitable access to learning and education for all in ways that enhance ecological sensitivity and knowledge, as much as cultural, technical, technological, socio-economic and other aspects (an expansion of MDG 2).
- Ensuring secure, safe, sustainable and equitable settlements for all, including adequate and appropriate shelter, sanitation, civic facilities, public transportation (currently partly in MDG7, partly absent).
- Ensuring that in all the above, the special needs of women and children are met through rights-based and empowerment approaches (currently in MDGs 3, 4, and 5).

Some further aspects of this post-2015 framework are dealt within the next few sections; Section 4 is global in scope, while Sections 5-6 are more India-specific though relevant for other countries.

4 Principles for the Post-2015 Framework

Discussions on recasting of the current MDG framework, with the inclusion of perspectives from the sustainable development processes (the Rio+20 outcome statement being the latest), are going on in various forums. Both governments and civil society are participating, and there is already a bewildering plethora of documents and discussion platforms. There is not, however, anywhere near adequate discussion within India, at least not with a focus on environmental sustainability and linked issues of equity and governance. In this section there is an attempt to delineate some basic principles, while the next section proposes some key goals, targets and indicators.⁷

Principle 1: Ecological Integrity and Limits: The functional integrity and resilience of the ecological processes, ecosystems and biological diversity that is the basis of all life on earth, respecting which entails a realisation of the ecological limits within which human economies and societies must restrict themselves.⁸

Indigenous peoples of the world have long realised that the earth places natural limits we cannot exceed.⁹ Modern science and experience is now confirming this in various ways, such as in the case of climate change, or the depletion of the oceans. The principle of ecological integrity and limits, also encompassing the space needed for other species to thrive, is therefore crucial.

Principle 2: Equity and Justice: Equitable access of all human beings, in current and future generations, to the conditions needed for human well-being – sociocultural, economic, political, ecological, and in particular food, water, shelter, clothing, energy, healthy living and satisfying social and cultural relations – without endangering any other person's access; equity between humans and other elements of nature; and social, economic and environmental justice for all.

Principle 3: Right to Meaningful Participation: The right of each person and community to meaningfully participate in crucial decisions affecting her/his/its life and to the conditions which provide the ability for such participation, as part of a radical, participatory democracy.

Principle 4: Responsibility: The responsibility of each citizen and community to ensure meaningful decision-making that is based on the twin principles of ecological integrity and socio-economic equity, conditioned in the interim by a “common but differentiated responsibility” in which those currently rich within the country take on a greater role and/or are incentivised or forced to give up their excessively consumptive lifestyles in order for the poor to have adequate levels of human security. This principle should also extend to the

impact a country has on other countries, with a “do no harm” component as a basic minimum component.

Principle 5: Diversity: Respect for the diversity of environments and ecologies, species and genes (wild and domesticated), cultures, ways of living, knowledge systems, values, economies and livelihoods, and politics (including those of indigenous peoples and local communities), insofar as they are in consonance with the principles of sustainability and equity.

Principle 6: Collective Commons and Solidarity: Collective and cooperative thinking and working founded on the socio-cultural, economic and ecological commons, respecting both common custodianship and individual freedoms and innovations within such collectivities, with interpersonal and inter-community solidarity as a fulcrum.

Principle 7: Rights of Nature: The right of nature and its entire species, wild or domesticated, to survive and thrive in the conditions in which they have evolved, along with respect for the “community of life” as a whole.

Principle 8: Resilience and Adaptability: The ability of communities and humanity as a whole, to respond, adapt and sustain the resilience needed to maintain ecological sustainability and equity in the face of external and internal forces of change, including through respecting conditions, like diversity, enabling the resilience of nature.

Principle 9: Subsidiarity and Ecoregionalism: Local rural and urban communities, small enough for all members should take part in face-to-face decision-making, as the fundamental unit of governance, linked with each other at bioregional, ecoregional and cultural levels into landscape/seascape institutions that are answerable to these basic units.

Principle 10: Interconnectedness: The inextricable connections amongst various aspects of human civilisation, and therefore, amongst any set of development or well-being goals – environmental, economic, social, cultural and political.

If this set of principles, and others along similar lines, are to be accepted and adhered to, humanity needs to reconceptualise and reconfigure economy, society and polity. Ecological limits and socio-economic imperatives can be seen as two boundaries for human activity, leading to fairly major shifts in macroeconomic policy and practice, as also in political governance from local to global levels.¹⁰

5 Goals and Targets for the Post-2015 Framework

The above principles – or for that matter any set of principles that holds environmental sustainability, basic human security, and socio-economic equity as non-negotiable – would lead to a set of goals that build on, but go substantially beyond, what is contained in the MDGs. The discussion below is focused on environmental sustainability bringing in other aspects when directly and inextricably linked. Most of what is listed below

can be read into various global agreements that countries have signed on or accepted, including the outcome declaration of the Rio+20 Conference.

The goals below either emanate from splitting current MDG7, or from linking MDG7 to other MDGs, and incorporating into these the objectives and actions set by nations in global agreements.

The goals and targets below are a mix of those that entail a basic systemic change (“revolution”) and those that are expanding or using spaces within the existing system (“reforms”). Hopefully, there are no contradictions between the two, with the reforms being seen as transitional towards the revolution. There is also a mix of the short-term and long-term. Additionally, no timelines have been given below. These are aspects that need to be dealt with in further iterations and elaboration of this approach.

Each of the goals and targets below should include a special focus on those currently marginalised or disprivileged with respect to human well-being, including women and children, dalits and adivasis.

Additionally, the goals and targets mentioned below will often play out differently in cities and in villages. A conscious and concerted focus is needed on reducing the enormous ecological footprints of big cities, sustained through the parasitism of urban areas on rural ones, and the denial of opportunities for the latter to evolve vibrant economies and sociocultural processes. Those areas in transition from villages to small towns and small towns into cities can build in principles and strategies of sustainability at an early stage.

Goal 1: The integrity of natural ecosystems, wildlife populations and biodiversity, must be safeguarded by reducing and eventually eliminating resource and biodiversity loss, and regenerating degraded ecosystems and populations.

- Expand, by 2025, the coverage of areas specially dedicated to or helping to achieve biodiversity conservation, to at least 17% of terrestrial and 10% of marine area, through means that are fully participatory and democratic.¹¹
- Integrate, by 2025, conservation principles and practices in land-water use activities across the board, including in urban areas.
- Phase out, by 2025, the use of chemicals in agriculture, industry and settlements that lead to irreversible ecological degradation and the poisoning of wildlife.

Goal 2: All people must have access to safe and adequate resources to fulfil basic needs, in ways that are ecologically sustainable and culturally appropriate.

- Ensure safe and adequate drinking water to all, largely through decentralised harvesting and distribution systems.
- Ensure safe and adequate food to all, focusing primarily on agro-ecologically sound practices and localised production-distribution systems, including localised procurement for the public distribution system and other food schemes for the poor.
- Ensure unpolluted air and safe sound levels for all.
- Ensure safe, adequate and sustainable shelter/housing to all, facilitating community-based, locally appropriate methods.

- Ensure energy security for all, optimising existing production sources and distribution channels, regulating demand (denying, especially, luxury demand),¹² and focusing most new production on decentralised, renewable sources.
- Ensure adequate sanitation facilities to all families and communities, using methods that are sustainable and locally manageable.

Goal 3: All families and communities must have access to dignified livelihoods that are ecologically sustainable and culturally appropriate.

- Encourage, secure and enhance existing natural resource-based livelihoods (forest-based, fisheries, pastoralism, agriculture, crafts and quarrying) that are already ecologically sustainable.
- Convert and replace unsustainable, unsafe and undignified livelihoods in all sectors (including those listed in 3.1, and industry, transport, services, etc), to dignified, “green” jobs.¹³
- Invest heavily in livelihoods relating to ecological regeneration and restoration (and on generating knowledge regarding appropriate methods for this), in areas where degradation has taken place in the past.

Goal 4: All production and consumption must be ecologically sustainable and socio-economically equitable, using a mix of incentives and disincentives.

- Convert and replace unsustainable agricultural, fisheries, mining, industrial and other production processes to sustainable ones.
- Ensure extended producer responsibility for sustainability at all stages from raw materials to disposal/recycling/reuse, through incentives and legislation.
- Curb and eliminate unsustainable consumption including advertising that encourages such consumption (utilising an “Above Consumption Line” measure as counterpoint to “Below Poverty Line” measure).
- Encourage innovations in, and make mandatory the use of, technologies of sustainability including those that reduce resource-intensity of products and processes, and discourage, eventually eliminating, those that are inherently unsustainable and inequitable.
- Move towards a zero-waste society.

Goal 5: All infrastructure development must be ecologically sustainable and socio-economically equitable.

- Integrate practices of sustainability into existing infrastructure; replace fundamentally unsustainable practices with sustainable ones (for example, focus on public instead of private transportation).
- Ensure all new infrastructure is built on principles of ecological sustainability.

Goal 6: All service and welfare sectors must integrate principles and practices of ecological sustainability.

- Ensure that health services focus on preventing ill health due to environmental degradation, including unsafe or inadequate

food and water, and on curative practices that are ecologically sound, including nature-based indigenous systems.

- Integrate local and wider ecological, cultural and knowledge systems into education policies and practices, and ensure that ecological sensitivity becomes a part of every subject.
- Convert all tourism and visitation to practices that are ecologically sustainable, culturally appropriate and local community-driven.

Goal 7: Macro frameworks of economy and polity must be geared to ecological sustainability, human security and socio-economic equity.

- Encourage the development and propagation of macroeconomic theories and concepts that acknowledge and respect ecological limits on one side and socio-economic equity on the other, replacing current theories and concepts that lead to unsustainability and inequity.
 - Reorient financial measures such as taxation, subsidies and other fiscal incentives/disincentives to support ecological sustainability and related human security and equity goals.
 - Evolve a long-term national land and water-use plan, based on decentralised and participatory processes.
 - Ensure that socio-economic planning is based on ecological linkages and boundaries, including at landscape/seascape levels that may cut across political boundaries.
 - Develop and use a robust set of human well-being indicators, through appropriate tools, to replace the current GDP and economic growth-related indicators.
 - Integrate principles and practice of radical/participatory democracy into all decision-making, with the smallest rural and urban settlements as the basic units, and landscape level institutions building on these.
 - Create institutions of independent oversight on environmental matters, including an office of a constitutionally mandated environment (or “sustainable development”) commissioner;¹⁴ this should include a mandate to monitor India’s ecological footprint both domestically as also abroad.
 - Ensure preparedness for natural and human-induced disasters (including those related to climate change).
- (Note: At a global level, there would be a target of restructuring governance to give a central voice to the peoples of the world, and reducing the heavy focus on nation-states; this is not dealt with here as the focus is on India).

6 Indicators, Indices and Tools

A sample of indicators relevant for the above goals and targets is presented in Annexure 1 (hosted on the EPW website).

There is no composite index in official use today, which could at a glance tell us whether India is on a path of sustainability. Frameworks used currently, such as the UNDP’s Human Development Index – though significantly more preferable to the gross domestic product (GDP) growth rate as an indication of development – are still woefully inadequate with regard to sustainability.

One attempt towards a composite sustainability index was commissioned by the former minister for environment and

forests, Jairam Ramesh (CSTEP 2011), but the draft available does not necessarily take into account several issues and factors listed above. Another attempt takes on board greater complexity, proposing a Composite Sustainability Index and doing a preliminary analysis of how various states in India are faring (Roy and Chatterjee 2009), but this too overlooks a number of important parameters. Indeed, as Stiglitz et al (2009) have pointed out, a single composite index may be misleading and unable to represent the complexity of environmental factors that are important.

More substantive work is required to develop a set of indices that is robust, relatively easy to calculate, amenable to public understanding and participation, and capable of integrating complexity and nuances. Some of the exciting new work being done outside India, such as the Happy Planet Index proposed by the New Economics Foundation (NEF 2012 (<http://www.neweconomics.org/projects/happy-planet-index>), and Bhutan’s Gross National Happiness (<http://www.grossnationalhappiness.com/>) could be assessed for their suitability. Others include the Environment Sustainability Index, Green GDP or ea-NDP (environmentally adjusted Net Domestic Product), and Adjusted Net Savings, but these have serious limitations as stand-alone measures (Stiglitz et al 2009). Another is the Environment Vulnerability Index, which takes into account 50 indicators related to weather, geography, biodiversity, natural resources and human activities (<http://vulnerabilityindex.net/>).

Perhaps it would be best to have a prioritised set of indicators from amongst the many in use around the world today; the set presented in Annexure 1 could be a menu to prioritise from. It is important that they be considered both in relation to India, as well as regions within India, and the world since the former may not adequately capture the impacts of India’s activities on people in other countries, and vice versa.

Also needed are a set of tools for assessment. Preferably, these should be widely usable and not dependent on a small set of experts, fully transparent, and subject to peer reviews. Some tools that are slowly being considered in official circles, and/or by civil society and the private sector in several countries, are: (i) Ecological footprint: First proposed by Mathis Wackernagel and William Rees at the University of British Columbia in 1990, and propagated worldwide by the Global Footprint Network (www.footprintnetwork.org). His tool calculates the ecological impact of a unit of population, from an individual to the entire human species, depicts it in terms of land area used by each unit, and compares this to a global optimum level to show whether the unit is exceeding its “quota” of the earth’s resources. The only known attempt at calculating this for India is from the report of the Global Footprint Network (GFN) and Confederation of Indian Industries (CII) reported above, but their methodology is not clear in the paper. GFN also publishes updates on its website (<http://www.footprintnetwork.org/en/index.php/GFN/page/trends/india/>). Systematic and periodic use of this tool could be made at various levels, from individual settlements to districts, states and the country as a whole. Some criticism of this method of assessment, though, contained in Stiglitz et al 2009, needs to be considered.

(ii) Carbon footprints: Several organisations and processes are using different methods to calculate the carbon footprint, basically greenhouse gas (GHG) emissions, of a country/region/city, organisation, event, product or person. As a single parameter, it is useful to gauge some aspects of sustainability, though this will not cover all aspects (see http://en.wikipedia.org/wiki/Carbon_footprint for several initiatives on this).

(iii) National accounts of well-being: Proposed by the New Economics Foundation and building on recommendations made several decades back before being displaced by purely economic/financial indicators and methods, this measures people's subjective well-being ("their experiences, feelings and perceptions of how their lives are going"). It is based on the realisation that indicators like income or economic wealth are highly unreliable in assessing whether people are actually satisfied and happy, and what needs to be measured are a number of factors in people's personal and professional lives, including social relationships, self-esteem, emotional well-being, sense of belonging, and so on (NEF 2009; <http://www.neweconomics.org/projects/national-accounts-well-being>).

(iv) Gross national happiness tools: Used by Bhutan and getting increasingly sophisticated, see <http://www.grossnationalhappiness.com/gnh-policy-and-project-screening-tools/>

(v) Environmental accounting/budgeting: Predominantly economic in nature, these attempt to portray environmental assets, and damage to these assets in monetary terms, including showing how they may be contributing to or reducing overall GDP or NDP. These have been heavily criticised for attempting to quantify or monetise the essentially qualitative values of the environment, but they may be of use as part of larger sets of tools and measures that include the sociocultural, normative and physical aspects of the environment. They could also include periodic assessments of the creation or exacerbation of poverty by ecological damage, including loss of ecosystem-based livelihoods.

(vi) Sustainability reporting: Several private or public sector companies are voluntarily reporting on their sustainability performance, using frameworks such as the Global Reporting Initiative's Sustainability Reporting Guidelines (latest version 3.1, at <https://www.globalreporting.org/resourcelibrary/G3.1-Guidelines-Incl-Technical-Protocol.pdf>).

The Indian government, and each state government, could be required to present an annual Sustainable Development-Human Well-being report. Ideally this should replace the current *Economic Survey* if sustainability – equity is to become the fulcrum of future development. It would also replace the State of Environment reports of the MOEF, and UNDP's Human Development reports. However, it is important that such a report be produced in a participatory and transparent manner. Indeed, the process of preparing such a report could itself become a tool towards assessing and furthering the goals of sustainability and equity.

As part of this, there could be a periodic assessment of the resilience of ecologically fragile or crucial regions such as the Western Ghats or the Himalaya. For example, are development projects and processes in these areas reducing or maintaining

their short- or long-term ability to produce ecological functions so important for us?

Non-governmental entities with substantial environmental and social impacts should also be required to report on their performance vis-à-vis sustainability, human rights and equity. Frameworks such as Global Reporting Initiative's (GRI) Sustainability Reporting Guidelines mentioned above could be adopted for the purpose.¹⁵

7 Challenges and Next Steps

Moving towards a comprehensive framework of sustainability, along with human security and equity, is obviously easier said than done. A number of serious obstacles and challenges will need to be overcome, which include:

(i) Knowledge, capacity and expertise gaps: Despite the enormous strides in science, our understanding of the ecological dynamics of our world is still limited. The chasm between modern and traditional knowledge has meant that the insights and information of the latter are not available to today's decision-makers, and the capacity to deal with the huge ecological problems we have created is limited. There are major problems with data generation, reliability and access. Clearly, a major effort is needed to harness all forms of knowledge, generate new information and understanding, build capacity to move into new pathways of sustainability, and put all knowledge and data on these aspects into the public domain.

(ii) Political apathy and hostility: Current political governance systems mostly centralise power in the hands of a few, even in countries with universal suffrage that are called democratic. There is an inherent resistance to major change in centralised political systems, and often those in power are either themselves profiting from the current economic system, or heavily influenced by others profiting from it. All this creates a major hurdle to the sort of change needed. However, such apathy and hostility is slowly changing, and will change faster as public mobilisation creates greater pressure from below, global agreements create pressure from above, and political leaders themselves realise the benefits of change.

(iii) Corporate power: The enormous profits that corporations make from the currently unsustainable economic system, coupled with their hold on most nation states and their lack of accountability to the public, are a major source of resistance to change. People's movements and responsive governments have to move to reduce the clout of corporations, facilitate alternative, people-based production, business, trade and exchange, and regulate/incentivise corporations towards practices of sustainability.

(iv) Military interests: The military is a powerful influence in most countries, is not known to be particularly interested in or sympathetic towards issues of ecological sustainability, and indeed has a strong vested interest in continuing the status quo. It is important for ecological and justice-equity movements to have a strong peace and demilitarisation angle, along with ongoing dialogue on how ecological and socio-economic security are much better ways to secure populations than the military.

(v) Public apathy and attitudes: Decades of the current system have created a sense of apathy or helplessness, or worse, have

co-opted the public into believing that salvation lies in unending consumption. Much sensitisation work is needed by civil society and governments to create mass public awareness of the abyss we are falling into, and of the need to explore different pathways towards genuine human well-being.

To move towards a post-2015 framework that integrates ecological sustainability, human security and equity, the steps below are proposed:

- (i) Assessment of various visions and frameworks being proposed globally or in individual countries, from which India could learn, adopt and evolve its own framework as suitable for its ecological, cultural, economic and political context (see Annexure 2 uploaded on the EPW website for a sample of these).
- (ii) Consolidation of information already available on trends in sustainability and unsustainability (such as those on use of agricultural chemicals, or air pollutants, in Roy and Chatterjee 2009; on forest cover, carbon emissions, drinking water and sanitation in GOI 2011; on energy intensity of industries in Rao et al 2009, and so on).
- (iii) Initiation of public discussions and consultations involving all sections, particularly local communities, in rural and urban areas to expand the understanding of the fundamental problems with the current system, as also to generate inputs to the post-2015 framework at both national and global levels.
- (iv) Review of current macroeconomic and political governance structures, assessment of current levels of ecological unsustainability, and related human insecurity and inequity, using tools such as those listed above, and delineation of specific macroeconomic and governance changes needed to move towards a framework of sustainability.
- (v) Discussion on new framework at political levels, including in relevant parliamentary standing committees, towards a political

commitment in the National Development Council to conceptualise the Thirteenth Five-Year Plan within this framework.

It is very unlikely that the Indian government will on its own move towards a radically different framework than the one currently in operation. There is a crucial role for people's movements, civil society organisations, academic think tanks, and progressive political leaders to push it in this direction.

Moreover, it should be obvious that India cannot forge such paths alone, not least because of the incredibly complex ways in which it is already intertwined with other nations and with the earth as a whole. It will need to do so in partnership with other countries, and within the context of evolving global frameworks. Still, it cannot simply be a recipient of these frameworks. It must be one of the champions of new global processes towards sustainability and equity, pushing especially the vision of earth, and within that, humanity, as one, even while respecting the diversity of peoples and communities within this whole. Without a simultaneous transformation at the global level, an exposition of which is not the purpose of this paper, its own efforts, even if comprehensive and strong, are likely to be undermined by wider economic and political forces.

So even as the above exercise is carried out for domestic purposes, at the international level India and its communities must also advocate a central focus on sustainability, along with human security and equity for the global post-2015 framework. Section 2 above gives an indicative list of new goals that India could advocate at the global level. Given that ecological collapse and global inequities will have the most serious impact on people in countries like India, such advocacy is not only to show its responsibility towards the earth, and indeed all humanity, but also to safeguard the interests of the peoples and nature it harbors.

NOTES

- 1 For a discussion on this and other related 'isms' and ideologies, see Deb (2009) and Shrivastava and Kothari (2012).
- 2 Detailed facts and analyses on these are available in a series of UNDP Human Development Reports, a recent report by the Working Group on Human Rights (WGHR 2012); Shrivastava and Kothari (2012) contains a detailed account of how economic globalisation has added to the deprivations.
- 3 Facts and analyses for some of the trends are given in Shrivastava and Kothari (2012).
- 4 The term "sustainable development" has serious limitations, including the faulty assumption that societies can keep "developing" in terms of material/economic growth, and the lack of centrality to equity and justice issues. I would much prefer using "human well-being" in its place to denote the conditions in which people have security of access to basic needs, livelihoods, education, health, and social relations (see also Section 6); or perhaps even just "well-being" to avoid unnecessary anthropocentrism. However, "sustainable development" is being used here, interchangeably with "well-being", since the global frameworks emerging for the post-2015 process are likely to be centered around it, building on earlier frameworks starting from the 1992 Earth Summit and the latest outcome statement of the Rio+20 Conference. In this sense, both "sustainable development" and "well-being" here refer to processes of securing human needs while maintaining ecological sustainability (see footnote 3) and ensuring equity within and between generations.
- 5 The paper only provides 1995-97 figures.
- 6 A useful description of how ecological and ecosystem functions are linked to various aspects of human well-being appears in the series of reports produced under the Millennium Ecosystem Assessment, see <http://www.millenniumassessment.org/en/Synthesis.html>
- 7 These principles are adapted from the "People's Sustainability Treaty on Radical Ecological Democracy" proposed for the Rio+20 process by several civil society groups (<http://sustainabilitytreaties.org/draft-treaties/radical-ecological-democracy/>), and from Kothari 2009 and Shrivastava and Kothari 2012.
- 8 Rockström et al (2009a and b) describe this as the "planetary boundaries", which include biodiversity loss, land use change, climate change, freshwater use, nitrogen and phosphorous cycles, ocean acidification, chemical pollution, atmospheric aerosol loading, and ozone depletion.
- 9 This is not to say that indigenous peoples have always and everywhere been ecologically sustainable, but that their cosmo-visions, and often their practices, have been based on implicit or explicit notions of sustainability.
- 10 This is likely to require even a re-examination of the idea of strictly bounded nation-states, as such political boundaries are artificial constructs that hinder ecologically sound decision-making, as also cultural exchange (see brief

discussion on this in Shrivastava and Kothari (2012), and Dhara (2008)).

- 11 The Strategic Plan for Biodiversity 2011-2020 agreed to by Parties to the Convention on Biological Diversity in 2010 contains this as Aichi Target 11.
- 12 Dhar (2011) has put forth calculations on how much energy could be allowed per person without endangering the earth through "energy overdraw" and without creating energy inequities.
- 13 Useful analysis and recommendations on this are contained in UNEP 2008.
- 14 Recommended by the Environment and Forests Steering Committee for the Eleventh Five Year Plan, see Planning Commission (2007); see also Kothari (2006).
- 15 This is not to imply an acceptance that all such organisations will have a legitimate place in a future scenario of sustainability and equity, but sustainability reporting will remain essential till they exist. See GIZ (2012) for the current status of such reporting in India.

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Annexure 1 of "Development and Environmental Sustainability in India: Possibilities for the Post-2015 Framework", Ashish Kothari, Paper Commissioned by Oxfam India, February 2013)

Indicators for sustainable development / human well-being goals and targets for India

(Note: These focus on environmental sustainability, and need to be complemented with goals/targets and indicators for other aspects of human well-being; some of these are included here insofar as they are closely linked to environmental sustainability. Also, there is a need to build in some prioritisation below, based on criteria such as urgency and impact, since not all targets can be achieved at the same time and scale)

Goal/Target (note: timelines may need to be set)	Policy Indicator	Programmatic Indicator	Indicative Outcome	Comment
<i>Goal 1: The integrity of natural ecosystems, wildlife populations, and biodiversity, must be safeguarded, by reducing and eventually eliminating resource and biodiversity loss, and regenerating degraded ecosystems and populations</i>				
Target 1.1: Expand the coverage of areas specially dedicated to or helping to achieve biodiversity conservation, to at least 17% of terrestrial and 10% of marine area, through diverse governance types and means that are fully participatory and democratic	Legislative measures in place to support enhanced conservation focus at specific sites, through diverse governance types and democratic means, including suitably amended Wild Life Act, Biological Diversity Act, Indian Forest Act and Forest Rights Act	Extent of government and civil society schemes and programmes in place to support achievement of target Extent of diversification of governance types of conservation sites, with focus on shared governance (co-management) and community-led measures	% of terrestrial and marine area under special conservation focus % of conservation estate under community and shared governance	India is committed to expand its 'protected area' coverage, using diverse governance types and through democratic means, under the CBD Biodiversity Targets ('Aichi Targets'); Target 11 sets the terrestrial/marine coverage mentioned here
Target 1.2: Integrate conservation principles and practices in land/water use activities across the board, including in urban areas	Legislative measures in place, including those mentioned above, and others dealing with land/water use and settlements	Extent of government, corporate and civil society schemes and programmes integrating conservation principles into land/water uses	% of ecosystems of various types with healthy trend towards conservation % of degraded ecosystems on path to restoration/regeneration % of area suffering land degradation and desertification processes Trends in urban biodiversity (or of indicator species)	Quantitative targets such as extent of forest cover need to be supplemented with qualitative measures showing the health of the ecosystem Land degradation includes erosion, waterlogging, salinisation, micronutrient deficiency and other processes reducing its natural productivity and health
Target 1.3: Phase out the use of chemicals in agriculture, industry and settlements, that lead to irreversible ecological degradation and the poisoning of wildlife	Legislative measures in place to phase out/prohibit use of ecologically damaging chemicals	Extent of government and civil society schemes and programmes supporting organic, biodiversity-safe methods	% of agriculture converted to organic methods % of industry using safer products replacing dangerous chemicals % of settlements using safer products replacing dangerous chemicals	
Target 1.4 Eliminate invasive species causing irreversible ecological damage	Policy and legislative (?) measures in place to prevent and eradicate invasive species	Extent of government programmes and their coverage of invasive species	% of area subject to invasive species	
<i>Goal 2: All people must have access to safe and adequate resources to fulfill basic needs, in ways that are ecologically sustainable and culturally appropriate</i>				
Target 2.1: Ensure safe and adequate drinking water to all, largely through decentralised harvesting and distribution systems	Policy measures in place, focusing on universal access to safe drinking water, and provisioning through decentralised systems	Extent of government and civil society support for safe drinking water access through decentralised systems	% of population with secure, sustained safe drinking water % of water harvesting and distribution systems that are decentralised and community-managed % of water sources/waterbodies (surface and ground) that are polluted beyond drinking standards	
Target 2.2: Ensure safe and adequate food to all, focusing primarily on agroecologically sound practices and localised production/distribution systems including localised procurement for the public distribution system (PDS) and other food schemes for the poor	Policy and legislative measures in place, mandating clear, time bound movement towards ecologically sustainable food production systems (agriculture, pastoralism, fisheries)	Extent of government and civil society support for sustainable agriculture	% of cultivated lands using ecologically sustainable methods % of pastures and pastoral lands under sustainable practices % of PDS with local procurement of diverse foods	Ecologically sustainable agriculture is that which uses organic inputs, encourages biodiversity, is carbon neutral (?), gets most or all of its inputs locally National Food Security Bill 2011 advocates local procurement for PDS (though it has no operational clauses to implement this)

Annexure 1: (Continued)

Goal/Target (note: timelines may need to be set)	Policy Indicator	Programmatic Indicator	Indicative Outcome	Comment
Target 2.3: Ensure unpolluted air and safe sound levels for all	Policy and legislative measures in place for eliminating air pollution and unsafe levels of noise	Extent of government schemes supporting elimination of air and noise pollution at source and in ambient situations	% of people exposed to unsafe air pollution % of people exposed to unsafe noise levels (or considering they are in noisy surrounds) Average air and noise pollution levels in representative settlements and industries/ industrial complexes	Over time this should be disaggregated into various kinds of pollutants
Target 2.4: Ensure safe and adequate shelter/housing to all, facilitating community-based, locally appropriate methods	Policy in place for safe, adequate and sustainable shelter/housing for all	Extent of government and civil society schemes and programmes for such shelter/housing (focusing especially on the poor)	% of rural and urban population with access to such shelter/housing	
Target 2.5: Ensure energy security for all, optimising existing production sources and distribution channels, and focusing most new production on decentralised, renewable sources	Policy in place for adequate, sustainable and efficient energy for all, including standards of sustainability	Extent of government schemes for incentivising efficiency, waste reduction, and decentralised renewables, and disincentivising wasteful production and use	% of rural and urban energy sources and consumption meeting sustainability standards	
Target 2.6: Ensure adequate sanitation facilities to all families and communities, using methods that are sustainable and locally manageable	Policy in place for adequate and sustainable sanitation for all	Extent of government and civil society schemes/programmes supporting such sanitation	% of rural and urban population with adequate, sustainable sanitation	
(Note: a special focus on those currently marginalised or disadvantaged with respect to the above, including women and children, should be built into all these targets).				
<i>Goal 3: All families and communities must have access to dignified livelihoods that are ecologically sustainable and culturally appropriate</i>				
Target 3.1: Encourage, secure and enhance existing livelihoods directly based on natural ecosystems and resources (forest-based, fisheries, pastoralism, agriculture, crafts, and quarrying) that are already ecologically sustainable	Policy and legislative measures are in place to secure tenurial rights and appropriate support for livelihoods based on natural ecosystems and resources (e.g. laws similar to Forest Rights Act (FRA), for marine and freshwater fishers, craftspersons, pastoralists other than those covered by FRA, etc)	Extent of governmental and civil society schemes and programmes supporting such livelihoods	% of households in each category of livelihood with secure tenurial rights to the commons they depend on % of households extended support for continuing/enhancing such livelihoods % change in real or attributed economic value of natural resource based livelihoods	
Target 3.2: Convert and replace unsustainable, unsafe and undignified livelihoods in all sectors (including industry, transport, services, etc), to 'decent', 'green' jobs	Policy and legislative measures in place, including amendments in industrial/mining/urban/other related laws, to ensure transition to 'decent', 'green' jobs	Extent of governmental, corporate and civil society programmes to facilitate transition	% of workforce in each sector, with 'decent', 'green' jobs (including, separately, those continuing with such jobs from the past, and those converted from unsustainable, unsafe and undignified work) % of population suffering workplace-related diseases and accidents	'Green' jobs are defined as "work in agriculture, industry, services and administration that contributes to preserving or restoring the quality of the environment"; 'decent work' is defined as "opportunities for women and men to obtain decent and productive work in conditions of freedom, equity, security and human dignity" (UNEP 2008)
Target 3.3: Invest heavily in livelihoods relating to ecological regeneration and restoration, in areas where degradation has taken place in the past	Policy measures in place to prioritise ecological regeneration and restoration, through labour-intensive measures	Extent of government and civil society programmes supporting such livelihoods	Number of people (or human days?) employed in ecological regeneration and restoration, in relation to amount of area needing such measures	
<i>Goal 4: All production and consumption must be ecologically sustainable and socio-economically equitable, using a mix of incentives and disincentives</i>				
Target 4.1: Convert and replace unsustainable agricultural, fisheries, mining, industrial and other production processes to sustainable ones	Policy and legislative measures in place to reorient each production sector with sustainability as a central focus	Extent of government, corporate and civil society programmes supporting such reorientation and conversion	% of each sector's production coming from sustainable operations Amount & % of area off-limits to commercial-scale extractive industry Rate of change of energy and carbon intensity of each sector % of industrial/extractive projects and sub-sectors subject to EIA and clearance procedures	

Annexure 1: (Continued)

Goal/Target (note: timelines may need to be set)	Policy Indicator	Programmatic Indicator	Indicative Outcome	Comment
Target 4.2: Ensure extended producer responsibility for sustainability at all stages from raw materials to disposal/recycling/reuse, through incentives and legislation	Extended producer responsibility (EPR) legislation in place	Extent of incentive schemes enabling EPR in each sector	% of units in each sector, practising EPR % of area under unsustainable extraction (for each sector) % of area subjected to waste dumping (for each sector) Amount of un-recycled and un-treated wastes emitted by production units (sector-wise)	EPR is a strategy to reduce a product's environmental impact, in which the manufacturer is made responsible for the entire life-cycle of the product, including recycling, reuse and disposal
Target 4.3: Curb and eliminate unsustainable consumption including advertising that encourages such consumption	Legislative measures in place to curb unsustainable consumption	Extent of incentive and disincentive schemes and programmes related to consumption	% of population living unsustainable lifestyles (or 'Above Consumption Line') % change in advertising that encourages consumerism % change in awareness programmes and their public reach, regarding sustainable consumption % change in energy intensity of consumer products	An index called 'Sustainable Consumption Line' needs to be developed, combining various products/forms of consumption, with the 'Above Consumption Line' measure being a counterpoint to the 'Below Poverty Line' measure
Target 4.4: Encourage innovations in, and make mandatory the use of, technologies of sustainability including those that reduce resource-intensity of products and processes, and discourage (eventually eliminating) those that are inherently unsustainable and inequitable	Sustainable technology policy in place	Extent of government and civil society schemes and programmes supporting development and use of sustainable technologies	% change in resource intensity of products and processes in each sector % of products and processes in each sector that are zero-waste	
Target 4.5: Move towards a zero-waste society	Policy and legislative measures in place for prevention, reuse and recycling of waste	Extent of governmental schemes facilitating and incentivising zero-waste processes in domestic, industrial and other entities	% change in amount of solid waste going into landfills or other dumps % of government operations achieving zero-waste target (including those clearly moving towards it) % of households and settlements (rural and urban) achieving zero-waste target (including those clearly moving towards it) % of industries achieving zero-waste target (including those clearly moving towards it)	Various short-term sub-targets can be set, such as steady reduction of hazardous waste and of dumping into waterbodies, while the zero-waste target could be longer-term
<i>Goal 5: All infrastructure development must be ecologically sustainable and socio-economically equitable</i>				
Target 5.1: Integrate practices of sustainability into existing infrastructure; replace fundamentally unsustainable practices with sustainable ones (e.g, from private to public transportation)	Policy measures in place to provide clear and time-bound direction to make existing infrastructure sustainable	Extent of government schemes with appropriate mix of incentives and disincentives for such integration and replacement	% of infrastructure projects and subsectors subject to EIA and clearance procedures % of each kind of infrastructure with sustainability integrated % of population using public transportation (or serviced by public transportation?)	
Target 5.2: Ensure all new infrastructure is built on principles of ecological sustainability	Policy measures in place to ensure sustainability in all new infrastructure	Extent of government schemes incentivising such sustainability	% of new infrastructure projects incorporating environmental sustainability	
<i>Goal 6: All service and welfare sectors must integrate principles and practices of ecological sustainability</i>				
Target 6.1: Ensure that health services focus on preventing ill health due to environmental degradation (including unsafe or inadequate food and water), and on curative practices that are ecologically sound (including nature-based indigenous systems)	Policy and legislative measures, including amendments where necessary in health, agriculture, water and settlement related laws, in place	Extent of government and civil society programmes providing environment and health linkages	% of rural and urban health centres with explicit focus on environmental connections to health % of rural and urban health centres with multiple health systems including those essentially based on nature and natural resources	

Annexure 1: (Continued)

Goal/Target (note: timelines may need to be set)	Policy Indicator	Programmatic Indicator	Indicative Outcome	Comment
Target 6.2: Integrate both local and wider ecological, cultural and knowledge into education policies and practices, and ensure that ecological sensitivity becomes a part of every subject	Policy measures mandating ecological integration into teaching and curricula	Extent of government support for such integration	Number of subjects and courses that have integrated ecological sensitivity and methods	
Target 6.3: Convert all tourism and visitation to practices that are ecologically sustainable, culturally appropriate, and local community driven	Policy and legislative measures in place, to ensure tourism is sustainable, equitable and community-driven	Extent of governmental, corporate and civil society support for such tourism	% of tourism projects/facilities subjected to EIA and clearance procedures % of tourism projects/facilities certified to be ecologically sound and community-run	
<i>Goal 7: Macro-frameworks of economy and polity must be geared to ecological sustainability, human security and socio-economic equity</i>				
Target 7.1: Encourage the development and propagation of macroeconomic theories and concepts that acknowledge and respect ecological limits on one side and socio-economic equity on the other, replacing current theories and concepts that lead to unsustainability and inequity	Sustainability- and equity-centred macroeconomic theories and concepts in place, recognising and respecting natural resource limits	Extent of use of such theories and concepts in official planning processes	% of economics, development, and other related courses that are centrally focused on sustainability and equity	
Target 7.2: Reorient financial measures such as taxation, subsidies and other fiscal incentives/disincentives to support ecological sustainability and related human security and equity goals	Policies and legislative measures to reorient finance towards sustainability in place		% of financial measures of each kind, oriented to sustainability and equity Rate of increase of subsidy and incentives for sustainability- and equity-centred activities (in relation to extent of such financial measures needed)	
Target 7.3: Evolve a long-term national land and water-use plan, based on decentralised and participatory processes	Policy in place to mandate a national land and water-use plan based on decentralised processes and with a long-term perspective	Extent of government facilitation of local, state and national level land and water-use plans	Extent of planning that is based on long-term local, state, and national level land/water-use plans	Such a plan should incorporate a national target of the % of territory under natural ecosystems based on ecological understanding (replacing the current arbitrary figure of 33% forest cover)
Target 7.4: Ensure that socio-economic planning is based on ecological linkages and boundaries, including at landscape/seascape levels that may cut across political boundaries	Policy and legislative measures in place to mandate planning at ecologically defined landscape/seascape levels	Extent of government funding for and facilitation of such planning	Extent to which planning is taking place at landscape/seascape levels, encompassing units defined by ecological boundaries	It is not suggested that such a process immediately replace planning based on currently defined political units, but that it add a layer to such planning, and eventually replace it where appropriate
Target 7.5: Develop and use a robust set of human well-being indicators, through appropriate tools, to replace the current GDP and economic growth-related ones	Policy measures in place to supplement or replace GDP/growth as indicators with human well-being indicators	Extent of government support to develop such indicators on a continually evolving basis	Extent to which planning and assessment processes are using well-being indicators	Several indicators of human well-being have been proposed (see Section 6 of paper), India needs to choose/modify as appropriate
Target 7.6: Integrate principles and practice of radical/participatory democracy into all decision-making, with the smallest rural and urban settlements as the basic units, and landscape level institutions building on these	Policy and legislative measures are in place to mandate radical/participatory democracy from the smallest units, strengthening 73rd and 74th Constitutional Amendments and related laws as appropriate	Extent of government schemes and programmes facilitating governance from smallest to landscape and larger levels	% of natural resource related budgets being spent by institutions of self-governance at various levels Number of gram sabhas and urban ward (area sabha?) committees empowered to take local natural resource related decisions Number of decision-making institutions in place at ecologically-defined landscape/seascape levels % of projects and sectors subject to participatory environmental audits	

Annexure 1: (Continued)

Goal/Target (note: timelines may need to be set)	Policy Indicator	Programmatic Indicator	Indicative Outcome	Comment
Target 7.7: Create institutions of independent oversight on environmental matters	Constitutional amendment creating an office of Environment Commissioner (independent of government) passed	Adequate government support for such an office in place	% of complaints coming to, or taken up suo moto by, commissioner, dealt with	
Target 7.8: Ensure preparedness for natural and human-induced disasters (including those related to climate change)	Policy measures in place for mandating disaster preparedness	Extent of government schemes and programmes for assisting communities in disaster preparedness	Trends in reducing human impacts of disasters	

Annexure 2: A Partial List of Frameworks, Reports and Proposals for Sustainability

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