



Concept paper

Dimensions of Sustainable Development for Education for Sustainable Development (ESD)

by Prof. Dr. Erach Bharucha and Hannes Siege (March 2013)

This paper draws upon reflections, discussions and state of the art evidence from practical implementation of an international network of experts and leaders from ministries, universities, teacher training institutes and NGO's in India, Germany, Mexico and South Africa.

As a think tank, the ESD Expert Network jointly develops and realizes innovative concepts and strategies to strengthen individual competencies and institutional capacities to implement Education for Sustainable Development (ESD) in the participating countries. Concepts, materials and experiences are shared with a broader professional public through international conferences and the network's website www.esd-expert.net. The network and related implementation activities such as trainings for multipliers of ESD in schools and a ESD leadership training for young professionals are supported by the German Federal Ministry for Economic Cooperation and Development (BMZ) through the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ).

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The paper starts with an overview about the debate on environment and development from Stockholm 1972 to Rio 2012. Hannes Siege shows that the international consensus defines sustainable development as a triangle of environmental, economic and social dimensions. ESD conveys the values and principles that form the basis of sustainable development. It underlines the complexity and interdependence of environment, economic and society. Dealing with ESD and the dimensions of ESD in this context means to focus on linkages between these three dimensions. Hannes Siege identifies and analyses these linkages and the resulting target conflicts in general perspective. Erach Bharucha discusses this outline using the example of India. He describes what kind of consequences and challenges education has to deal with – regarding environmental, economic and societal needs in India's specific situation as an emerging country.



1. The debate on environment and development from Stockholm 1972 to Rio 2012

Serious environmental changes, such as the dangers of global warming, the extent of worldwide poverty and the consequences that accompany all of these, raise immediate social, economic, and environmental challenges. They lead to an increased awareness that globalisation must be shaped in accordance with the objectives of sustainable development, both nationally and internationally. Today the international consensus defines sustainable development as a triangle of environmental, economic and social dimensions. The guiding principles of sustainable development have been developed over the years through agreements on international conferences. They will be outlined in this paper with reference to India, one of the partner countries in the transnational Expert Network for Education for Sustainable Development. In India concepts of sustainable living have been enshrined in Hinduism and were activated by Mahatma Gandhi already in the 1930's and 40's.

The United Nations Conference on the Human Environment in Stockholm 1972 set the stage for an environmental agenda which reflected a growing concern that natural resources were limited and therefore economic growth as well. Indira Gandhi brought out new concepts in the international thinking that poverty should be looked upon as an environmental concern and that polluter's should pay and compensate for environmental damage. This also became a part of thinking during the industrial development phase of India in the last decades of the 20th century and led to instituting mandatory Environmental Impact Assessments. However, the Stockholm Agenda took root mainly in industrialised countries and had at that time little impact in the developing world. As a result of the Stockholm conference, UNEP was founded. This brought the environmental agenda closer to the developing countries. In the aftermath of Stockholm, environmental education emerged as the education system's response to the environmental crisis. Also in India, where early efforts came from organizations such as The Bombay National History Society (BNHS), WWF, Center for Environment Education (CEE), C.P.R.-Environmental Education Center and BVIEER in the 1980's and 1990's with the implementation of Nature Education and Environment Education. A Public Interest Litigation (PIL) in the Honourable Supreme Court led to a verdict which forced Government to introduce environmental education into the curriculum.

The concept of Sustainable Development emerged in India informally out of the Earth Summit "United Nations Conference on Environment and Development (UNCED)" in Rio 1992. This conference was the starting point for an international appreciation of the sustainable development model as a combination of developmental and environmental components, including the social and economic dimensions. The Summit led to the adoption of the Agenda 21, an action agenda to achieve sustainable development worldwide. Sustainable development means that, "The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations".¹ The resolutions adopted at the Earth Summit 1992 in Rio and its follow-up conferences, such as Johannesburg 2002, have become a part of the political frame of reference of the international community.² So in India, a process of preparing and implementing a national strategy for sustainable development was initiated after the World Summit in 2002. Key elements of sustainable development appeared in the subsequent Five-Year Plans (FYPs). The Government's commitment to sustainable development was also reflected in specific and monitorable targets for a few key indicators of human development and conservation of natural resources. This became firstly part of the Tenth Five-Year Plan (2002–2007).

¹ Rio de Janeiro, 3-14 June 1992

² This principle of the Earth Summit 1992, originally put forward by the Brundlandt Commission in 1987, has become a piece of worldwide common property; see e.g. European Commission, *Communication on a Draft Declaration on Guiding Principles for Sustainable Development*, Brussels, 2005



Efforts have also been made to achieve the UN Millennium Development Goals (MDGs) especially pertaining to poverty eradication (MDG 1) that have been subsumed under the country's monitorable development goals. This has emphasized the key policies and programmes formulated by the Government which indirectly pertain to the three pillars of sustainable development –social, economic and environment. MDG 7 ensures “Environmental sustainability”. MDG 1 and MDG 2 focus on Education, but not as “learning about sustainability”, but acquiring basic competencies such as literacy, numeracy and basic science as a pre-requisite for development. Each MDG carries indicators, which are extensively monitored and which have been the basis for both national development planning and the bi-lateral and multi-lateral development aid policies.

The World Summit Rio+20 in 2012 specifically focussed on the relationship between the economic and environmental dimensions of sustainable development by addressing the issue of “green economy” to combine the fight against poverty with the environmental challenge. The final document of Rio+20 made clear that the international consensus had shifted further from the environmental to the development agenda. The final document reads: “Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development. In this regard we are committed to freeing humanity from poverty and hunger as a matter of urgency”³. The international community confirmed the main thrust of the MDGs: eradicate poverty. However, they did not make much headway in regard to the main environmental challenges, such as climate change and loss of biodiversity.

This shift of balance in the international consensus towards a poverty eradication agenda based on economic growth marks the growing influence of the developing countries, especially the emerging economies such as India, China, Brazil etc. One of their concerns is the push for compulsory emission standards, which they perceive as a kind of luxury problem industrialized countries have, which the poor can't afford and which will disadvantage them in the race to catch up. Part of the argument is that the ones, who messed up the things by entertaining unsustainable lifestyles, do not have the right to impose restrictions on the ones whose production and consumption patterns hardly contributed, and are more likely to be at the receiving end of any negative consequences. Any consensus in the area of climate policy has in the end not only to provide a common understanding, based on scientific evidence, that something has to be done (such as reducing world-wide CO2 emissions), but also an agreement on how the Rio 1992 principle of “common but differentiated responsibilities”⁴ specifically between industrialized and developing countries can be put into practice. It is against this background that in the preparation of Rio+20 several expert panels were dealing with the difficulty of forging a consensus on the basis of the obvious conflicts of interest as described above. The following quote from a summary of background papers illustrates their concern:

³ Rio+20 Declaration (2012) § 2, §§ 3 and 4 read: “3. We therefore acknowledge the need to further mainstream sustainable development at all levels, integrating economic, social and environmental aspects and recognizing their inter-linkages, so as to achieve sustainable development in all its dimensions. 4. We recognize that poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development. We also reaffirm the need to achieve sustainable development by promoting sustained, inclusive and equitable economic growth, creating greater opportunities for all, reducing inequalities, raising basic standards of living, fostering equitable social development and inclusion, and promoting integrated and sustainable management of natural resources and ecosystems that supports, inter alia, economic, social and human development while facilitating ecosystem conservation, regeneration and restoration and resilience in the face of new and emerging challenges.”

⁴ Rio de Janeiro, 3-14 June 1992



“But it (the concept of the green economy) also entails risks and challenges, particularly for developing countries, for whom economic development becomes more demanding and the fear arises that the new concept could be used to reinforce protectionist trends, enhance the conditionality associated with international financial cooperation, and unleash new forces that would reinforce international inequalities⁵”

The results of the Rio+20 Conference deeply disappointed especially the ones who hoped for some progress on an international agreement on CO2 emissions. This led to comments such as “The time for such kind of international summits is over” or “The chance for greening the MDGs has been lost.” However, taking into account the emerging shift of the balance of power towards the developing world, it is not very likely that any agenda aiming at “greening the MDGs” to accommodate the climate – emission targets will easily take root as policy consensus in international agreements.

Against this background of growing difficulties for the international community to define a consensus for action towards a more sustainable future, balancing the dimensions of ESD and taking account of the common but differentiated responsibilities, the role of the education system does not seem to be a central one. Thus, the authors of the final Rio+20 Declaration do not say much about education. Education seems to be seen as detached from the real world, a world summit has to deal with.⁶ However, education plays a part and this part becomes more important the better ESD responds to the challenges of integrating the dimensions of ESD into a coherent approach, and takes into account the global perspective of common and differentiated responsibilities.

2. Integrating the dimensions of sustainable development into ESD: a coherent approach

Competencies, according to the OECD report “Definition and Selection of Competencies” (2005), should aid people in meeting the societal demands of global change and following their personal goals. The societal objectives like economic productivity, democratic processes, social cohesion, equality and human rights and ecological sustainability, named by the DESECO Commission in this context⁷, are fundamentally similar to the three dimensions of sustainable development.

Knowledge about sustainable development is characterised by a high level of complexity. The competency to deal with and understand complex interconnected systems needs to be founded on knowledge from a variety of fields. The concept of understanding the world through the lens of the multi-dimensional guiding principle (dimensions) of sustainable development on an analytical and ethical level is related to the knowledge systems created in the areas of economy, social sciences and natural sciences. These again are represented by academic resp. school subjects, such as economics, sociology, and biology at the academic level or, for example, civics education, commerce and environmental science at the school level. All three of them do provide specific angles on sustainability; they follow their own paradigms and tend not to relate to each other.

⁵ José Antonio Ocampo: The Transition to a Green Economy: Benefits, Challenges and Risks from a Sustainable Development Perspective, Summary of Background Papers - Report Committee Meeting for United Nations Conference on Sustainable Development, Columbia University, 2012

⁶ Report of the United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil, 20–22 June 2012, The future we want - outcomes of the conference Rio+20, § 229- 235 deal with education, mainly with the issues of EFA, education for all and the MDG 2 and 3

⁷ OECD 2005: Definition and Selection of Competencies - Executive Summary and Rychen et al., OECD 2003. The close connection to the dimensions of ESD can be seen in particular in the DESECO definition of core competencies, as skills that enable people to meet the challenges of globalisation and modernisation “such as balancing economic growth with environmental sustainability, and prosperity with social equity.”



Dealing with ESD and the dimensions of ESD, it is imperative to focus on linkages between the dimensions. These appear quite often as target conflicts. The following diagram⁸ shows areas between the dimensions, which describe target conflicts and could be targeted by ESD. The arrows indicate the areas of tension and conflicting goals between each pair of development dimensions.



Focusing on target conflicts in ESD such as the above has a number of advantages:

- The quadrangle (triangle) works as a map for identifying learning opportunities for students. It can be applied universally.
- It can identify contextual (practical) examples in areas which directly relate to the experience of the learners.
- At least two dimensions of ESD come immediately into focus and provide the opportunity to implement a coherent approach, integrating the social, economic and environmental dimensions.

⁸ The diagram uses 4 dimensions, following the German development policy scheme. It can easily be adapted to the 3 Rio dimensions: KMK, BMZ, 2007, A Cross-Curricular Framework for Global Development Education in the Context of Education for Sustainable Development



- d) It forces a multi-disciplinary approach.
- e) It provides opportunities to gain knowledge (both indigenous and “modern”), evaluate the knowledge and act, (not necessarily in that sequence)

However, how to evaluate the dilemmas posed by the conflicting targets must not be prescribed by the teacher or the curriculum. In that respect, ESD cannot be a mode to deliver messages, but to enable students to develop competencies which allow them to come to their own conclusions.⁹

Sustainability could be achieved by pursuing the respective objectives of the dimensions of sustainable development in parallel. This “one-dimensional model” would mean that principles of sustainability could be defined and pursued “within” the respective development component, or on the basis of it. Each academic discipline would define its own sustainability targets and the component-specific principles of sustainability—environmental, economic, and social—would then stand side by side equivalently.

Representing this approach are the so-called “guide rail” models, where borders of non-sustainable practices are defined discipline related. The most prominent “guide-rail” today is the CO₂ emission corridor to restrict global warming to 2 degrees by the end of the century. In general, environmental “guide-rail” models do not assume the equivalence of the dimensions of development. Rather, they assume that environmental guide-rails define the limits of sustainable development, and hence a development corridor from which it is not permissible to depart. Only within this corridor, there is space to pursue economic, social, environmental and political objectives. As we have seen, the international community at Rio did not subscribe to the view of the climate target being a guide rail for economic and social policies. Moreover, for the past 2 decades the poverty target, as defined in the Millennium Development Goals, has been viewed by the international community as constituting a de facto guide-rail for human development.¹⁰ In Rio 2012, the poverty target even gained pre-dominance. It would not suit ESD to follow a similar pattern and teach guide rails as messages to be absorbed by the students. ESD instead focuses on critical reflection and on recognising and weighing differing values, as well as developing an identity based on ethical examination.

An “integrated model” is closer to the concept of a coherent approach, balancing the dimensions of sustainable development, and gives priority to the political practicability of a sustainability strategy. As the German Enquete Commission puts it:

“An environmentally dominated policy of sustainability will always lose out in the societal trade-off process whenever other problem complexes prove to be more immediate, more noticeable or more virulent, and thus more urgent and more attractive for political action. Even if it is able to win acceptance, it will be without effect, since only a policy of integration ... of the components will in the end be able to overcome the conceptual weakness of an environmental discussion isolated from economic and social issues. ... In Germany, it is gradually being realised that the model of sustainable future development also addresses important lines of development beyond the environmental dimension. Because of the complex connections between the components or positions of environmental, economic and social policy, they must be addressed in an integrated manner. To put it in terms of imagery, this does not involve unifying three columns standing side by side, but rather developing a three-component

⁹ Thomas Hoffmann and Maik Adomßent, both members of the ESD-Expert Network, discuss in their paper *The concept of competencies in the context of ESD* the importance of competencies that enable societies to become more sustainable.

¹⁰ In addition to the objective of safeguarding the basic natural conditions of life, social (e.g. health, education) and economic objectives (poverty alleviation) are also mentioned there. The elimination of extreme poverty is identified as a precondition for development in all other areas (www.un.org/millenniumgoals).



*perspective, from the reality of experience. The discussion tends towards interpreting sustainability policy as a societal policy, which in principle and in the long term treats all the above-mentioned components as equal and equivalent.*¹¹

In the educational process of ESD, it should be made clear that the guiding principle of sustainable development is a framework agreed upon internationally, in accordance with binding international law, which has a high degree of obligation for political, social and individual actions. “Guiding principle” and “framework”, however, both mean that in the global society there are different cultural, national, local and individual strategies for sustainable development implementation. Usually, a conscious choice must be made between different ways of acting: conflicts of interest and conflicts of values must be clarified and the direct and indirect consequences of possible actions evaluated. In that respect teachers have to adhere to the prohibition on overwhelming pupils and the imperative of treating controversial subjects as controversial, when pupils can make an autonomous decision to aim for sustainable goals and can participate in their implementation.

3. The dimensions of sustainable development in India

The advent of India as a global economic power has special implications for developing an implementable strategy for Sustainable Development. The current paradigm of development has already produced a growing divide between the ‘haves and have not’s’. There is a growing super rich economic group, which has led to problems similar to the developed world and a very large poor economic sector with the problems of poverty, poor access to resources, healthcare and education. This makes Education for Sustainable Development of great importance. However, practicing sustainability and using sustainable lifestyles as part of living are hallmarked by a lack of knowledge, skills and most importantly attitudes. The need of rapid economic growth at rising environmental costs is obviously in conflict with the practice of sustainability.

India has to face a mix of various economic, environmental and societal problems strengthening SD and ESD. India is the home of a large variety of highly specific cultural differences and societal backgrounds. The country is constituted by 28 States with their own needs of development within a confined rapidly ‘Emerging Nation’. Furthermore, India has 10 major biogeographically distinctive land and aquatic regions. Cultural diversity within these regions adds up to several hundred diverse groups. These are based on landscape ecological difference, biogeographic regions, cultural variations, casts, language, occupations and the migration of populations from once remote rural India into the massive growing urban sector. India once considered as a rural country with a concept that the vast majority of India’s people live in her villages cannot be seen through virtual green-pigmented glasses anymore. This is a highly myopic perspective in today’s context. Increasingly India also lives in her expanding cities. There are about 68 cities that have a population of more than 1 million and 13 rapidly expanding cities with a population of more than 4 million of which several will attain megacity proportions. India’s urban population has grown to an estimated 377 million in 2011 and could soar to a further 590¹² million by 2030.¹³ Hence this speed of urbanization poses an unprecedented managerial and policy challenge which the Nation has to handle. This shift will lead to urban decay and a gridlock which will deny the basic ‘quality of life’ to its citizens. There are hundreds of urban fringes that are dotted with unsustainable industrial complexes. Village connecting roads have already become State Highways.

¹¹ Enquête Commission of the 13th German Bundestag on the Protection of Humanity and the Environment, *The Concept of Sustainability: From Vision to Reality* (final report), 1998, p.31ff.

¹² <http://www.censusindia.gov.in/2011census/censusinfodashboard/index.html>

¹³ McKinsey Global Institute: India’s urban awakening. Building inclusive cities, sustaining economic growth, Mumbai April 2010, http://www.mckinsey.com/insights/urbanization/urban_awakening_in_india



Low traffic density State Highways seem to suddenly expand into crowded jam-packed crawling traffic, which is frequently answered by the development of so called 'Express Ways' that rapidly attain high densities of unruly fast dangerous weaving traffic. These are death traps that lead directly to the beyond.

This means that India has to contend with the development needs and ill effects of a less developed state with extreme poverty, inadequate access to health and education and the inappropriate use of natural resources – water, air, land and nutrition. On the other hand, India has to deal with the problems of a better developed state. The ill effects of rapid industrial growth, with its high levels of pollution, increasing waste due to expanding consumerism of the neo-rich middle class, with a greater ability to buy, use and throw away disposable things of everyday life is now a serious concern. The divide between rich and poor becomes even wider. As equity is an essential feature of SD this is a great and widening bridge for ESD to cross.

The widening societal gap also implicates that the consumerist lifestyle is built on the shoulders of a downtrodden poverty inflicted sector of society, which is consciously kept out of the consciousness of the upper economic strata that makes Governance decisions for itself. This is a part of governance at local and national level that is not addressed by education.

4. From Environmental Education to Education for Sustainable Development

Quality education is an essential tool for achieving a more sustainable world. This was emphasized at the UN World Summit in Johannesburg in 2002 where the reorientation of current education systems was outlined as the key to sustainable development. Education for sustainable development promotes the development of knowledge, skills, understanding, values and actions required creating a sustainable world, which ensures environmental protection and conservation, promotes social equity and encourages economic sustainability.

The existing concept of ESD has developed largely from environmental education and has sought to create knowledge, skills, values, attitudes and behaviour in people to care for their environment. The aim of ESD is to enable people to make appropriate decisions and carry out actions to improve quality of life without compromising the planets health. It also aims to integrate the values inherent in sustainable development into all aspects and levels of learning. There are a large number of institutional steps required in India to shift from theory to practice. Each milestone has a gap to be bridged to alter educational processes.

One of the major challenges of sustainable development in countries like India is the capacity to think through alternative tools which must include intellectual and cultural aspects for initiating ESD that can alter current practices in daily life. It is important to bring about changes through strengthening competencies which help people to take informed decision and to identify the knowledge and action gaps for people to act in a sustainable manner. ESD has to build competencies to enhance capacities of individuals and communities using the existing traditional knowledge that includes sustainable patterns of life and applying these principles to one's own actual daily life. This can be achieved only if people are able to realize the need and importance of sustainability in the current situation created by unsustainable Government decisions based on only the needs of rapid economic growth. So far, there is no connection in the minds of people between development outcomes and the long-term ill effects of the contemporary economic development strategy. This requires enormous capacity building that will help to distinguish and adapt measures that lead to sustainable lifestyles by applying them to one's own life.



India has a complex highly hierarchical system of education that was handed to the country during the British period. Many of the bureaucratic institutions have remained stuck in these old colonial ways of the past. Education is a classic example where change is extremely slow.

Apart from these generic concerns, ESD has very specific problems for its implementation. Indian educational change has always taken decades. The lag phase of environmental education took several long decades. The unfortunate aspect of this was that the strategy evolved was to introduce EE by infusing it into all subjects at the school level. This unfocused approach has not been able to achieve the same importance which is given to other core subjects like math, language, science and social science. It is not considered as an important subject in the minds of the teacher community and no teacher feels responsible to focus attention on EE. It was seen not even as an unimportant issue, but as a non-formal addition to the curriculum, not relevant to getting grades. Teachers are not able to focus attention on the fact that ESD has additional components of economic and societal aspects which are not embedded in the earlier EE program. In 2004, BVIEER at the behest of the Ministry of Environment and Forest conducted an extensive study to assess the environmental content and lack of these in school textbooks. This led the National Council for Educational Research and Training (NCERT) into using infusion of environment topics into different school textbooks and to initiating the theoretical concepts in school textbooks with a new focus on activities. However, it is very difficult to implement ESD, respectively altering EE to ESD, unless a separate subject is created with its own curricula, textbook, activities, exam systems and a cadre of trained teachers. This is the framework on which all other subjects are taught in the country and thus ESD has to use this mode if it has to be taken seriously.

Furthermore, teachers have little or no concept on 'development' itself and understand it as being related to economic growth and GDP that they read about in the newspapers and see on television. This is frequently shown as great strides that India has made to reach Western and now the Chinese paradigms of economic growths. The fall out and long-term problems are not perceived and pollution and natural resource depletion are not seen as being caused by unsustainable development. The widening societal gap is also not seen as having been caused by the rapid industrialization and consumerism. Thus, the societal issues of ESD remain cryptic. The transition from an inadequately delivered EE towards ESD for furthering sustainable economic growth, equity in society, and a review of the ill effects caused by associated environmental concerns is not a subject dealt with while discussing the modernization of education.

An important issue is that educational modernization in India to a great extent exists only in theory. There is a need for more inclusion, more action orientation, more thought provocation and more problem solving. Teaching is still in a "top down teacher to shisya manner", through chalk and board, textbook reading and learning by rote. The ability to think, to do and to discover by oneself is not developed in the classroom, and this is likely to remain so unless a new approach is used for teacher education.¹⁴

In retrospect, the use of infusion for EE within curricula, however, has led to hardly any changes in attitudes or action oriented approaches to further practices towards sustainability. Therefore, there is a need to develop a strong ESD component for school education that leads to sustainable actions by students across the country. A special feature of this new ESD outline must be to provide it with enough flexibility to reach the special needs of the diverse and divergent locally relevant needs of

¹⁴ Thomas Hoffmann and Erach Bharucha provide a more detailed discussion ESD and modern teaching and learning strategies in a further paper of the ESD Expert Network titled: "ESD as modern education – A glimpse on India", March 2013.



India's complex and interconnected society. A major focus of this would be to use concepts that bring home the need for a strong unified India. State level, politically motivated, religious or cast based politics that affects educational policy is a strong deterrent to the implementation of ESD as one of the primary concerns is the improvement of the quality of life of all people without damaging the environment. Therefore, although all three pillars of ESD have convergent goals they differ in their primary settings. The urban/rural/wilderness needs of ESD must be addressed while stressing the needs of a strong unified country. The economic strategy for the country must further be based on a sustainable development so that the growing divide between the rich and the poor is reduced substantially.

ESD must also answer questions on the needs of posterity, while addressing the needs of local, state, national, regional and global issues of the present. Global challenges specific to Indian conditions deal with education itself, which are linked to health care needs supported by health education and poverty alleviation to reduce the unequal distribution of usable wealth. The need for slowing population growth is still a continual effort. Only if public opinion exceeds a tipping point that supports each of the three dimensions of sustainability (economic, social and environmental issues) and appreciates their integrated linkages which must be strengthened through the formal school, college, and postgraduate education, one can expect the Government to act. The change process essential to implement what can be learned through ESD is thus a complex concern for educationists in India.

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