

Day 1 – 16 September 2009

Anurag Behar

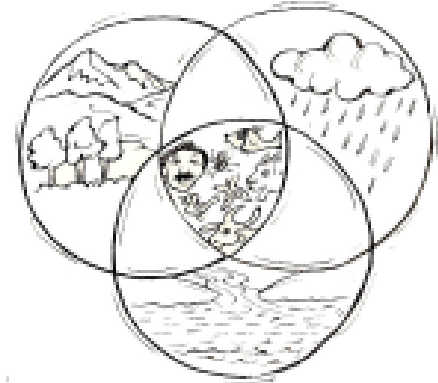
I am Anurag Behar. I work for Wipro and I am responsible for what is called Wipro's Social and Community Initiatives, and Sustainability Initiatives within the corporation. I would like to take you back in time to 2000-01, to give you a background on why we are gathered here today, to set the context for this forum.

I will go back to 1999-2000 where we at Wipro had a significant internal debate around the following issue – being a for-profit corporation; do we have a world view outside of making profits and outside business? At least some of you have been a part of the for-profit world, and you would realize how blinded that world is to a number

of social issues outside the world of business. And so were we. We had a long discussion, at the end of which we decided that we do need to have some degree of engagement with the society beyond business, beyond making profits. That was, in some senses, the easier decision. The more difficult decision was that if we indeed believe in something of that nature, what are we going to do about it? We again discussed and debated among ourselves for a long time and realized that whatever we do, we will do only a few things which seem sensible to us. First of all, we will not do those things which, in the world of business are painted with this word 'CSR' (Corporate Social Responsibility) as CSR tends to become multiple things across many areas, may different causes, and has very little impact beyond that very specific project that the corporation might be engaged in. So we thought we would choose, that we would work on only one area, and that we would not do too many things all at once. It was decided that whatever little we can contribute to society, we might as well focus all our energies and resources into one area because then perhaps we have some hope of making some degree of difference, if at all.

There were not too many areas of that nature, areas which have a multiplier effect. One of them was primary health, the other was governance, and then of course, education. Without really anything going against the other areas, we chose education. It seemed to resonate with us. We are largely a service organization. Today we have over a hundred thousand people across the globe. At that time, we had perhaps about thirty-five thousand people, and were in the process of hiring people from the so-called best colleges in this country, both at the engineering level and at the business school level. But we still struggled with the recruits because even these supposedly outstanding engineers or business school graduates did not have what it took to work in the real world. So we came to this conclusion that something is amiss with the education system which tends to give education of a nature that leaves the children disconnected from life, from society, from what is real work. It was because of that reason that the choice of education as an area to work upon resonated with us. But we had no understanding, knowledge or wisdom at all as to what we should do about it. Over the past 7-9 years we have tried to evolve a game-plan around what we would like to do. And we stuck by our choice to work on the quality of education.

It was at the second and the third forums where there was an intense debate on such questions as 'What is the quality of education?' 'What does the quality of education mean to all of us?' We now have some shared understanding on this with most of the partners that are here, and that is one of the main reasons why we are together. For the past



seven years that we have been working on Wipro Applying Thought in Schools, we have worked only with partners because we believe that it is the only way we can make an impact. Wipro is not an education organization. Whatever little we can do, we can only do it working with partners who are more experienced in the field. Parallely, Mr. Premji, our chairman, from his own wealth, shall I say, has founded the Azim Premji Foundation which is equally focused on working in the area of education. Talking about social change at this kind of a scale could take 25 years, or even 50 years. Our belief is that we have been with that effort for the past seven years, and we will stay with the effort for however long it takes to make a difference.

Nearly three years ago we had another intense debate. It was a nine-month period when we reflected, debated and discussed whether we as an organization have a view on ecology. We came to the conclusion that the issues around ecology perhaps will define the struggles of humanity for the next 50 years. That is not to contend that there are no other struggles, but this particular struggle around the issues of ecology will certainly define humanity, society, the forces that drive business and drive everything else for the next several years. The question is whether there is a guarantee that this will be the contending issue for the next 50 years. Perhaps there is no such guarantee. Perhaps things will improve. But being the organization that we are, we do not think in terms of guarantees; we think in terms of good chances. Now the question is whether there is a good chance that the issues around ecology will be the defining issues for the decades to come. They indeed will be, whether it is climate change, or an issue of water, loss of bio-diversity, or pollution as we generally call it. Being an action oriented organization, the next question for us was – what are we going to do about it? We decided to do two things: one is to divert or invest our businesses which have a very large reach into renewable sources of energy. Secondly, we decided to try and coalesce action around ecology, like we have been trying to do around education. The starting step towards the second effort was to ask – can Wipro become more ecologically responsible? How can we work with such organizations that work on the various facets of this cause? So, from a planet stand-point we are doing two things: one is working in education where we have been working together with several organizations for years, and the second is that we are trying to figure out what we will do with the ecology.

The answer to the question ‘what will we do?’ in the area of education has evolved over the past eight years. And even in addressing the issues around ecology, we have no such notion that we will get wisdom one day and find one perfect solution. Today most of you here have been our partners and have worked with us on education. Similarly we are trying to figure out how we can work on issues around the ecology, on the issues of water, of climate change, bio-diversity, waste, etc. All of these perhaps lead to the issue of sustainable development which we cannot shy away from.

We think that since we have such remarkable partners on the education side, we should begin to forge partnerships on the ecology side as well. What our minds bend back to is that if you look at social change across the past few centuries, education has played a remarkable role. I remember that as a child my attitude towards untouchability was shaped by reading Premchand’s Sad Gati in my Hindi text book. If we read Raja Ram Mohan Roy or any other reformer of his time, they thought of education as a massive vehicle of social change, as the vehicle of social change in some senses. We thought that it could be an interesting idea to bring our education side partners to the next forum to debate and discuss how it could be possible to infuse the concern for ecology into education. How do we make the concern for ecology axiomatic in education? Is it possible at all? What could be the impact? Therefore, we decided to have this forum centered on this issue of ecology and education.

Anwar Jafri, Samavesh

How do the business interests of Wipro mix with education and other interests of the organization, particularly with the ecology in mind?

Anurag

I will give you the same answer I give to the business people. Being the services company that we are, unless we are able to, in some measure, contribute towards significant transformation of the education system in this country, we think we will lose competitive advantage over a period of time. What we find lacking in the people in this country vis-à-vis, let us say, people from Sweden or people from the United States of America is not that they do not understand mechanical engineering, or electrical engineering or IT, but that they have a very limited perspective about how to apply those things. They have incredibly limited skills in dealing with other people. The large masses that we recruit are not innovative.

I will give you an example, and this is just the business framework response. I will narrate an incident to you which is the simplest, the easiest explanation of why our business will be significantly helped by this initiative. We are an IT company and we have a large banking customer in Switzerland for whom we have developed a software. We installed the software, and 15 days later the Chief Information Officer of that company told us that the software was fine but was not working because it did not speak to his basic platform. After some dialogue back and forth, our people said that they knew from the beginning that the software would not work. When the customer, who is the king in the corporate world, sounded angry, the response of our people was that since he wanted it installed in a particular way, we obeyed. We can see that the ability to question in every way, not just a classroom, is something that impacts us immediately and deeply. We need to think about what change we require in our nation in the next 25 years to be able to support the business.

This is the response from a business framework stand point, the honest and the truthful answer. This is not to suggest that the first answer is not honest and truthful, but while being honest and truthful it is only a part of the answer. The honest and truthful answer is that we just feel like doing it. We have been consumed by this question for the past ten years – why do you do it? There is no more mystery to it, there is no more philosophy beyond the fact that we just feel like doing it. And this also applies to our initiatives to open dialogue and take action on issues around ecology and education. Because if we were doing it from the stand-point of the first answer alone, then what we would have learnt over the past nine years is that it is not possible to change the education system. We would have abandoned our struggle, our focus and our perseverance after the five years. But the reason we stay with it is, and this is the honest and complete answer, is that we just feel like doing it.

Anwar

One good thing is that this focus on ecology has, in a sense, forced us to look deeply into something which not all of us were looking into. Broadly, if one looks at various directions in ecology from a very crude point of view, one still strives to look at solutions within what could be called industrialization or technological advancement. There is another polarized answer to this coming from the American ecologists about wilderness and how they want to fight for it, and then there is a third range of issues which are somewhere in between. Very often there might be answers which might not be compatible with the interests of

the business. Looking at it from this point of view, solving the problem could be problematic, in that things should work out within the technical framework as well.

Subramanian, C-step

We are still talking about the technical point of view; where is the social point of view? Also, we cannot keep the technical perspective detached from the social perspective. How we synthesize these two is the fundamental question. Such a polarization takes place because either of the two fields attempts at claiming superiority over the other. Most of these debates are being framed around a certain notion of science and technology over everything else. Especially in India we have taken science and technology as defining us with respect to the west. That in itself is the wrong perspective to start with. Also, this polarization between the social and the technical comes about because the technical people think they have nothing to learn from the social. Right from the beginning we need to ask the question, how do these two intertwine with each other? It is with a joint perspective that you could bring a certain amount of awareness. In fact, the social perspective could be the prime mover, where as the technical is the facilitator.

Looking at the issue from the angles of 'we want to do it for our own sake' from the intuitive angle rather than the business angle, it is because that intuition is coming because of a disturbance from the inside. There is a dialectic that is taking place between the business and your own sense that something is amiss. But the amiss could actually be at the business end as well. So we cannot separate the two. That is all.

Anurag

In partial response to that, the way we think about this issue is indeed within a certain industrialization model, and that there are all sorts of issues around what kind of development should happen, etc., that can be pitched within this model. It is very critical that we are conscious of the issues and have debates around them here.

Now, I will deliberately put it into some extreme terminology, not suggesting that I subscribe to any of these terminologies, but you could actually think of the world in terms of Gandhian idealism of the self-contained, self-sustained villages. It is important that we have such debates over the next few days.

Meera Baindur, NIAS

Rather than referring to Gandhian 'idealism', one would rather call it a Gandhian vision or a Gandhian reality, since it is not utopian.

Anurag

Please use whatever word you want to use. That is the point I would like to make. Please stir all these debates. Please do think whether 'idealism' is the right word or 'ideology' or 'vision' is the right word. Use whatever words you think appropriate, but the point is act. It may matter enormously if we do not act on the issue of ecology over the next couple of decades. The urgency of the action that is required on this issue is right here and right now. On Wipro's behalf, we will continue to provide platforms for debate. But as far as possible, we will also act. We will try and figure out whether we can work with partners, friends, colleagues, customers, vendors, suppliers, whoever we can influence and in however small a manner because, and I mean this without exaggerating, this issue might kill us much sooner than we expect it to. The matter is urgent.

Ecological Sustainability: The Problem Statement

Soumitri Das

Soumitri is a fellow with The Energy and Resources Institute (TERI). He is also part of the initiative called the Center for the Advancement of the Steady State Economy (CASSE), an international organization that advocates a scientific approach to sustainable growth. His areas of study include climate change, bio-diversity and forestry. Soumitri has been a student of Physics at the University of Delhi and has graduate degrees in Natural Resource Management from the Indian Institute of Forestry Management (IIFM) and Virginia Tech. Soumitri spoke extensively about the global environmental problems that have emerged over the past 100 years.



Soumitri

This is a fairly informal session. Questions are always welcome as long as they pertain to the topic. I will take half-an-hour to 40 minutes to talk about 'ecological sustainability' and related concerns. I will try to take you through the background briefly because I understand that most of you have been much involved with environmental concerns in particular.

Defining environmental concerns

Let me begin with asking the question, how do we sustain this planet's environment so that we can continue to live on it for a long time to come? Now, the environment is a very broad topic and everything under the sun could be considered under the environment. If you read through the last publication of 2007 on climatic change in the IPCC (Intergovernmental Panel on Climate Change) report, we are talking about water crises, land degradation, the loss of bio-diversity, population, air pollution. Al Gore's book entitled *Earth in the Balance*, published way back in the 1980's, highlights the issues that are plaguing us and the solutions we have in mind that we can further work on. Such books talk about how we can manage water, or use bio-mass fuel rather than using non-renewable energy, about soil/water conservation, about energy being one of the most important considerations today, energy security, a little bit on the role of the economy and about renewable cities. These are some of the topics that would be covered under the bigger gamut of 'the environment' that all of us should think about in some way or the other. There are a lot of ways of looking at the environment, and from which perspective you look at is also important. It's like in the movie *Dus Kahaniyan*, there is one story going on here, the other story going on there, and towards the end, one starts looking at the linkages between all the stories to make a comprehensive whole.

Forests and deforestation

Since I am from a forestry background, I will look at ecology from a forest point of view before speaking about the environment in general. By just giving an example of the way the forests of the world are today, many questions can be asked. For example, we can say that we have lost a lot of forests, but we can never really know about the quantitative damage that has been done to these forests because we did not have forest maps from a long time ago, except one which was drafted back in 1895, which was also the cover of a book by Brandies, the first Inspector General of forest in the country. The map does not really show the extent of the forests, but is limited to the distribution of the principal kinds of trees. Such mapping was considered important for forestry because it was significant from the point of extraction resources from the forests – where can one find the teaks, where can one find the Deodars or the red sanders or how best can these be used. So it is in such a context that the distribution map was made, and not from the point of view of mapping the spread of the forests at the time. The latter concern is the intention with which forest maps are made today.



In photographs from the Amazon from 1975 and from Rhodonia, from 2001, we can see the fish-bone system where people start moving in and start deforesting the area not just for the trees but for re-settlement as well. In this case, it is crucial to acknowledge the people angle of deforestation. In one of the recent photographs from Uttarakhand, we can see just one small patch of land that has been cleared-up. We can also see that development and environment go hand in hand, in the sense that lots of times development creates environmental problems.

Agriculture and the environment

Let us look at examples from agriculture. Human population has grown much, and so have the demands. A few good examples of this are the growth of mustard fields close to Delhi, the spread of sugarcane fields in Maharashtra, and terrace farming in Uttarakhand. All of these are different kinds of agriculture, in different locations where there are different requirements, and they have different ecological impacts. From literature we gather that the areas in which mustard is grown were at one time forested lands. Sugarcane is an important cash crop that helps in economic development. But what happens to the environment in the bargain of growing a cash crop? There is of course a trade-off. Terrace farming was started because the people in the hills did not have access to level land and they needed to grow agricultural crops so that they could feed themselves. But this, too, has an ecological impact in terms of run offs, among others, depending on how we manage those terraces. 1967 was the year that started the Green Revolution, but now we talk about the Evergreen Revolution because we realize the pitfalls of the Green Revolution. While the Green Revolution was good in a way since it gave us food at the time we really needed it, from the environmental stand-point, it was probably not the greatest thing.

Development and the environment

Development, too, is having a significant impact on the environment. We do need to have infrastructural development and this, of course, includes dams. For example, one of the oldest dams in the country, the Mulshi Dam in Pune, was built at the time of the British. At the time energy wasn't an important consideration. For another example, the Bhakra Nangal dam was a dam built on the Sutlej in the 1960s, as a result of which the town of Bilaspur got submerged. It was built on a hill slope, but over time the place silted up. The idea was for the dam to last a 100 years and give energy for at least that much time, but that's not happening anymore. There are many cases where temples have sunk as a result of siltation. This brings us to one of the ecological considerations that we need to think about – why does siltation happen? How can it be prevented?

Mining, too, has been going on for different reasons at different places, coal mining being a major area. A major mining area is Orissa which has pyrophyllite mines as well as iron ore mining in the iron ore belts of Orissa. While speaking in terms of economic development in the country we need a lot of steel, and we have been exporting a lot of it to China as well. But considerations from the environment point-of-view are far too many not to consider. It's not just about degrading the forest land but also about disrupting the mountain landscapes that form the basis of livelihood of the people there.

Let us turn to the case of the Everglades of Florida where there is an important eco-system which is being threatened not only by the neighbouring cities of Miami and Fort Lauderdale that have grown significantly over time, but also because the area is drying up in places. They made a road which cuts through the Everglades as a result of which the water coming from the north does not reach the south easily.

Impact on the global environment

Human impact on the environment has been immense. Firstly, we are quickly using up our non-renewable resources, and secondly, the use of these resources is causing a whole lot of pollution that's adversely affecting us. The effects of these trends are bio-impoverishment or resource scarcity, toxification, climate changes and chemical imbalances in the eco-system. These lead us to issues such as marine losses, desertification, deforestation, fresh water system decline, etc. But finding truly renewable sources seen in terms of being perpetual is not easy – it's not just about renewable or non-renewable, but what is scarce or non-scarce. For example, water, which we thought was a renewable source of energy, is probably not. We have water scarcity in Bangalore, or in Delhi and several other areas. Ground water levels are going down not only because people are using more water to drink, or because a lot of it is being used in agriculture, but more importantly, a lot is being used for industry. In both industry and agriculture, toxins and chemicals that are leaked (for example, from fertilizers) into water resources are heavily responsible for water pollution. Nitrogen that is used in ammonia based fertilizers is a significant pollutant released from the industries.

Ozone depletion, of course, was one of the first things we came across when we started talking about the environment movement which was talked about in the Montreal Protocol. The attempt was to reduce the use of products that produce CFCs or the Freon's or the Halon to make sure that the Ozone layer doesn't get further damaged. Climate change is one important thing that seems to encompass just about anything and everything these days. I will speak more on this later, but first I would like to stop for a few questions.

Anjali Naronha, Eklavya

How does one differentiate between concepts around the environment coming from an education perspective, because within environment education, there have been debates in that as well. There is some kind of an understanding as to what we mean by 'environment' and there are different perspectives on it. When we shift towards a term or concept called 'ecology', can you give a brief introduction as to when we use the term ecology, how is it different from 'environment', and in what contexts do we use them both?

Soumitri

Let us not get into too many technical details here. I mean the world essentially is the environment. Air, water, land, wildlife, and plants, all of these things are part of the environment. Anything that affects the environment affects us. That's the major context. When we talk about 'ecology' it becomes a little sub-section of the bigger environment term, within which we see how the species interact with each other and how humans interact with the plant species. In that way it is a smaller concept. So 'ecology' stands within the larger gamut of 'environment'.

Subramanian

Under environment you are describing the objects. Ecology is described as the process. I mean, one is not a subset of the other.

Soumitri

Not really. I am not saying that ecology is one aspect of the environment. I am just saying that when we talk about the environment, we speak about the physical things that we see around us. Ecology, on the other hand, is the plant species and how they interact with each other and with us.

Hridaykant Dewan (Hardy), Vidya Bhawan Society

I have a couple of questions about a graph that you showed about the population. It is true that the human population has increased over a very small period of time. Now, one question is that we know that species have died out across a long period of development of this planet. And species have survived. In fact that species try and maximize the number of progenies it has. That is the root for evolution. In the light of this, one worry which I have is the fact that the population has gone up. The second question is counter-pointing, for example, the higher population, the higher the traffic. So the argument is built on the fact that because there is more population, there are, suppose, more cars. There is a problem with such a line of argument. I just thought that because we are talking about more complex issues we need to be clear about what we are talking on both these fronts. Saying that in nature, for example, if human beings didn't happen to arise, what would the discussion be like? The reason we have to think about that is because otherwise people just talk like that because they want to scare you. Nature has the capability to deal with these issues. That is all I want to say.

Soumitri

Of course. We always assume that nature does have the capability to address every situation and make things happen for the better. But some of the things that we have

done actually make it difficult for nature to actually work that way. We are actually stretching the system to its utmost limit, wondering whether it will survive or not. And there is a possibility that we might not survive. But it has nothing to do with scaring people. We are all here with the same concern that we need to find a way out not just because we want to find a way back to nature, but that we want to live comfortably here and make sure that that comfort remains for the future. Defining this phase of sustainability is an important consideration.

Venu N, CFL - Bangalore

Would it be right to say that what you are trying to say is that human impact on the natural environment is significant enough that we be alarmed about it? Whether we take an ecological or an economic or a developmental or a suitability perspective that is something that can probably come later.

Soumitri

Yes, it has to be the fact that humans are the ones who are responsible.

Meera

I'd like to go back to the question about environment and ecology because I think technically I can shed a little light on it. Basically they are historically developed disciplines. At a particular period when human beings were studying nature and beings around it, it was said that there is this huge thermodynamic system in nature. Like the carbon cycle, and that the environment is something that surrounds us. But technically when you talk about environmental sciences you are talking about studying the physical characteristics of a system. The water cycle is a very typical example of this, like the little diagrams in school books. But when you are talking about ecology, ecology comes more from the biology side. With the development of biology we started seeing in what kind of environment life can occur. What does life need to sustain itself? So when you are talking about the ant and biology and where it gets its food from, you are talking about habitats and you move to the area of, and I am talking from a very educational perspective, ecology. For a long time people said that there are these systems like the watersheds or river systems, and that while talking about these systems and the thermodynamics of nature, you are talking about environmental sciences. In environmental sciences you'll study chemistry and you'll measure all the bio-parameters of water, etc. But when you study ecology, you will study how a bird eats a snake or how the bio-mass of the organic system moves through. Recently people have given up both and it has kind of become one. In the binary between the environment and ecology, they have realized that they are both two different systems and they are interacting with each other all the time. So now we use the term more generally. But the crisis is not for the environment. The crisis is for ecological people because life is threatened. If we all die out and all the animals die out the environmental system will continue to function in a different way. But it's threatening for the life.

Soumitri

Yes, when we talk from the people's point of view, all this is happening because of us essentially.

Impact of climate change

Going back to climate change, we can get a lot of information from the IPCC which helps form synergies between researches that have been happening all around the world. I am now going to present some information from the fourth assessment report of the IPCC which has about 2,500 scientific expert reviewers looking at science and the impact of climate change from all over the world. In fact, I have got the idea for this presentation from Dr. Pachauri's presentations, who is the chairman of the IPCC and also the Director General of TERI. The changes in the water cycle or the nitrogen cycle, the atmosphere or ice-retraction are some of the issues that we need to take into consideration when talking about climate change. But in the bigger context we talk about the greenhouse gas effect. We have been getting energy from the Earth or from the sun. But what is happening is that the concentration of greenhouse gases, one being carbon dioxide, has increased in the atmosphere which has increased the temperature of the Earth, of the lower atmosphere.

The first thing we need to talk about is that the global atmospheric concentration of the three major greenhouse gases – CO₂, Methane and Nitrous Oxide – has increased as a result of human activity since the 1968. But 1750 is the point that we are concerned with, after which the Industrial Revolution happened when coal started getting used in machines. The global increase in carbon dioxide concentration is primarily due to fossil fuel use and land use changes, fossil fuel here being coal, natural gas or oils. Forests have become agricultural land and a lot of it is used for habitation, urban development, infrastructure development, and other things. Gases like Methane and Nitrous Oxides are primarily used in agriculture; for example, methane is used in rice, paddy fields; Nitrous Oxide is used in base fertilizers.

Changes in greenhouse gases

This is a graph that aptly shows how bad the situation is. Things have been bad in the past also but what we are doing happens to change the cycle on a different level. The graph refers to carbon dioxide in terms of Parts Per Million that's the PPM of gases and particles. So we see that the global atmospheric concentration of CO₂ has increased in the industrial level to about 280 parts per million to 330 parts per million in 2005. But when we start looking at what has happened in the past 150 years, there is a huge shape.

Al Gore's *The Inconvenient Truth* gravely highlights what possibly lies in the future if we carry on the present path. The warming of the climate system is unequivocal. It is now evident from observations of decrease in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level. These are some of the things we have seen and we know are happening probably because of anthropogenic reasons. The temperature has been going up, the sea level has been rising and the snow cover in the northern hemisphere is going down.

The report says "... Eleven of the last twelve years (1995-2006) rank among the 12 warmest years in the instrumental record of global surface temperature (since 1850). The total temperature increase from 1850-1899 to 2001-2005 is 0.76° C". This does not seem like a lot in terms of quantitative value, but it has a big impact in terms of what is happening to water vapour concentration, which is probably leading to much of the moisture in the air, which is in turn leading to hurricanes, or alterations in the pattern of the monsoons. Lots of people are trying to understand how these systems work and they have been using different models for their understanding using which they can predict what might happen in the future. According to the report "... The global sea level rose by about 1.8 millimeters

per year from 1961 to 2003. The rate was faster over 1993 to 2003: about 3.1 mm per year. The total 20th century rise is estimated to be 0.17 mm.” Such a situation is throwing the Maldives Islands into a panic where the president is worried about their country going down under water. Cities like Mumbai or Chennai may be equally affected by this.



We can also take the example of receding glaciers. For example, comparing the current photograph of the Kolahoi glacier in the Jammu & Kashmir region with a photograph taken in 1954 of the same glacier shows the melting of ice at the snout of the glacier. The snout of the glacier has receded back by 485 meters from 1965 to 2007, i.e. more than 10 meters per year. The East Rathong glacier of western Sikkim proves a similar example. In 2009, it was found that the glacier was just lakes and dead ice, and that it can no longer be considered a glacier. What must be taken into account is not just that the glaciers are melting, but that the rivers that feed the glaciers are also receding. Arctic temperatures are increasing, and polar bears are not going to have a habitat to live in. The annual extent of the Arctic sea ice has shrunk by 2.7% per decade. At that rate, at the end of 2100 we probably will not have any arctic snow and ice left. Longer heat waves are predicted, examples from India being what happened in Andhra Pradesh in 2003. It is said that the frequency and intensity of tropical cyclones originating in the Pacific will increase over the next few decades. In contrast, the cycles originating from the Bay of Bengal and the Arabian Sea have decreased, but their intensity has increased. As of now, we are not equipped to deal with such situations. In coastal areas, the sea-level may go up by as much as 1 meter. In an extreme case, if the sea level in the Ganga-Brahmaputra region were to rise, nearly one million people could be affected. The same could happen in Bangladesh or even areas around the Nile or the Mekong.

We are currently predicting what might happen, how people are going to handle predicted climatic changes, how much population there might be, or what kind of energy uses we might have. Anything could happen depending on what changes come across, but it is predicted that the temperature is certainly going to increase over time. From way back in 1980s, it will increase by a lot more – the highest prediction shows a 4 degree change. These are the impacts of climate change that people have been predicting – it will affect

the water, it will affect the eco-system in general, will affect our food production systems, our coast lines, and the deltas would be submerged under water. We might have an increase in water availability in the moist tropics in the high latitude but we might have a decrease in water availability and increase in drought in the middle latitudes and the semi-arid latitudes, and that's like countries like India. Health, too, will be highly impacted, where we would have to deal with malnutrition, diarrhea, cardio-respiratory and infectious diseases. We might not have enough water for sanitation, or we might not have enough food to eat. There could also be increased mortality from heat waves, and the distribution of some disease vectors.

In Africa, too, more intense and longer droughts are expected. Increasing frequency and intensity of droughts in many parts of Asia are attributed largely to a rise in temperature, particularly during the summer and normally drier months, and during El Nino events. In this context we could talk about Orissa, the droughts in 2000-2002, crop failures, mass starvation where 11 million people were affected. In India in particular, we could talk about the increase in death and injury due to heat waves, floods, storms, fires and droughts. Overtime we might not have enough water, and we might not have crops that are resistant to high temperatures. Wheat yields could decrease from 5-10% per one degree rise in temperature.



Without appropriate measures, climate change will likely exacerbate the poverty situation and continue to slow down economic growth. Reduction in agricultural productivity could especially dampen the economic growth, especially in a country like India. Climate change adds to the list of stressors that challenge our ability to achieve the ecological, economic and social objectives that define sustainable development. Even if we try to do something about it today it will probably take another 100-150 years before things could stabilize, that is considering we actually stop doing things we are doing today itself. Economic development will have to take a beating as well. In terms of economic development, within industrialization and the way we are trying to ape the west, there is a limit to how much natural resources we can use.

There is a limit to how much pollution can actually go into the environment, which can affect the whole cycle. We all work within the environment, the whole ecological system, and that is where the resource extraction happens, and where the waste products go is as important.

I think we can take a few questions at this juncture.

Usha Raman, Teacher Plus

This is essentially the question that educators would ask – we are constantly bombarded with information like the climate is changing, there are ecological refugees, there is global warming, etc. How do we translate these huge problems that we face into collective or individual responsibility? I think that is what teachers are constantly faced with.

Hardy

In such a case where there is something to worry about, and where there is something we can do as individuals to help, we need to do something. This is not a problem which is to be solved from the ecology and the environment perspective but from the socio-political perspective. You have not addressed that as a question at all. So I have to trouble you in asking the question – how should one deal with the data that you have given? What do I do with it?

Sharat Chandra Behar, Bhopal

I suspect that action on the part of individuals will only be symbolic and ritualistic. What is really important is radical change in thinking, in understanding what we mean by development. When you are saying ‘development may also be impacted’, what do you mean by ‘development’? How do you achieve an alternate understanding on the perspective of development and the strategies for that kind of development? Otherwise we may all be very happy and satisfied by saying that ‘I am not using Polythene, I am using less water, I am not cutting any forests, I am planting a few trees’, but I do not think that that is going to change or make any dent on the kind of problem we are facing. But if this understanding is incorrect, please do correct it. At the same time I do not mean that we should not show our individual commitment altogether.

Sheshagiri, Bangalore

I think keeping education as a concern aside for a moment, as long as you keep treating natural resources as business capital, I think there is a problem. And this question to me is rooted in a far deeper question about what progress means to us and what kind of quality of life we want. In a sense, schools and education can alone provide that answer. But I think the answer to this should come from the corporations and governments and their policies in terms of where they want to go. And yes, in a larger sense education, through information such as the one you have shared here, can make a difference. But I think the more fundamental question is where do we want to go? What kind of a society do we want to become and I think that’s where we need to probably re-visit education in a sense. The nature or the character of education itself probably needs to change.

Rohit Dhankar, Digantar

I was hesitating to ask this question. It seems to me that you gave us lots of information, but one natural reaction that comes to my mind is “So what?” The information you have given sounds alarming only when I supply certain assumptions from my own side which were not spoken here. So either we are assuming that we all have those assumptions and we tag them together with this information, and then we will come to a decision. But actually we may not share those assumptions. What I am supplying from my own side is my understanding of what you have said, that the human specie is in danger, and that humans should be doing this or that, though what exactly the mechanism of all this is not very clear to us at this moment.

It seems to me that if I supply those assumptions from my own side then perhaps there are two sides we have to look. When we tried to debate on this before, we came to a connection with education. One, understanding the technical side of sustainable ecology and sustainability for the human race. The second thing is that even if you understand it, there has to be a cap on it. There are limits to natural resources because all finer

systems have a cap naturally. And therefore it puts a cap on human population as well. But as soon as you say that the human population has to be capped, then who are the people who are going to live and who are the people who are going to provide and who are going to be the people who are not going to be provided for? At such a juncture, we need to get into the question of which segment of the human population should we provide equity and justice to? This entails the socio-political understanding of the entire scenario. We also need to ask the question 'where do we want to go?' That is, what is human life worth? Leaving this apart, the kind of direction we are moving towards in terms of what we call development and the way we are living today, is it worth living in this sense? Even if we assume that the resources of the Earth are unlimited, are we doing justice to our own intelligence and our own reasoning? So perhaps that is also a question which has to be asked. So we need to look at three aspects – the technical/ecological aspect, the socio-political aspect, and the worth-living-human-life aspect. Thank you.

Siddharth, Fireflies, Bangalore

Two scenarios emerge if we take it that climate change is indeed happening. One is that if it is happening, then through collective efforts we cannot only minimize its impact, but perhaps even reverse it to an extent. The other scenario is that the situation is much grimmer and it has become irreversible, or has almost become irreversible. The point I have in mind concerning this is, since we are talking about education, what are the psychological values necessary to deal with both these scenarios?

I have two colleagues of mine who have told their teenage children that they should really think a hundred times before they even consider having children once they get married. I think this is very important. What are the attitudes, values or spiritual energies necessary so that people do not feel grim and despaired about the future and at such a moment of difficulty can still be cheerful, positive and compassionate?

Soumitri

Thanks for all these questions. I hope to combine answers to all of them into one small dialogue. If nothing else, hope is what takes us around, that sustains us. So there is hope that things will happen. Justification for what we are doing does not always have to come from data. I tried to make this thing as less data-intensive as possible without actually shying away from the fact that these are important issues. I hope this was not a very technical presentation. Maybe we do not actually have to know if the increase in temperature is by 0.76 degree Celsius or 0.79. Those things we can probably leave for the scientists to deal with. And that's where education actually comes into the picture – how do you relate what scientists are saying to what people can actually understand? I am neither a scientist nor am from the education background to tell you that this is how you have to go about doing it. But what is important is that we need to take cognizance of the fact that this is something important that needs to be addressed.

The point is that we need to do something about the fact that we want to live on this planet and want to live in comfort. We generally think that development is the answer to it, but then how do you define development? Does development mean having more A/Cs or having more water to waste? That is probably not an answer; we need to bring a change in our thinking in a different direction. And that is where education plays an important role. How many times on TV do we watch the ad that tells us to close the tap while brushing our teeth, but have you noticed actually how many people do it? This is an example of education that does not come from school. A lot of it comes from home. This is probably

because we started using taps water in the first place. There was a time when there were no taps and people used buckets of water and would actually take a little bit in their hands to use. Now technology has brought taps but it has not taught us how best to use them.

Education is considered politically important because what you learn actually stays with you forever. It defines how you look at life in general or look at science or look at how you interact with the environment. Everything probably comes from there.

I have talked extensively about climate change because it is the overarching theme regarding environmental concern right now, but if you go back to the earlier part of my presentation, where we are talking about environment degradation, those are some of the things that without climate change would be as important.

Someone asked the question, what can an individual do about it? An individual's activities are probably miniscule in terms of what the government or the civil society organizations or corporations need to and should do. I beg to differ there in the sense that all of us have a part to play. I do not know how we can define who has the biggest part to play, but everyone's role is as important I would say. We the people who are part of the government should say that this is how we need to interact with our environment, this is how we need to analyze the situation, and that this is how we want to take it forward. That is what is important. We the people are also part of the corporate world. Wipro, for example, is doing a great job here, trying to get all of us together to see how we can take dialogue forward collectively in a manner that is meaningful. And it involves individual effort because you all have agreed to participate on your own account. You are not doing it just because you are a part of the organization that Wipro is collaborating with, but because you all are interested.

At the end of it, it is all about people's individual capacities, whether they are part of the education system or of the government or corporate sector. It is you who makes a difference.

Sridhar Rajgopalan, Educational Initiatives (Discussant)

I just wanted to make one clarification here before the next question is asked or answered. The purpose of this forum is to share some kind of data. At the same time we did not want to get into numbers which would probably be confusing. It is to share some information on the kind of visible changes that have been happening in terms of an effort towards saving the environment. The idea is that we want to look at what some of the visible changes are that we are able to see.

Deepjyoti Sonu Brahma, Pravah

This question is not just for you, but is just a query. For understanding the approaches towards the ecology or towards nature, the one approach is the danger which is going to be revealed by the time of the 22nd century, that the temperature will rise to so-and-so degree and glaciers will melt, and so on; lots of alarms being raised. That could be one approach. Another approach could be to try and understand the relationship between me and the water; the individual and the tree; for example, what some of the tribes in Arunachal Pradesh do is that they cultivate a land for a year and then they leave their place for about 4-5 years. This is not from the perspective that they will not cultivate there again in the coming years. It is just from the perspective that we should leave the field because we are related to the forests. I have seen many presentations on climate change and most of them talk about the larger dangers. And as soon as we see the danger before us we suddenly cut ourselves from the issue in a defence by saying that we are not related to this issue, that we are fulfilling our own responsibility as individuals, that we are turning

off the tap, etc., but is there a relationship between you and the water that you are wasting? It is not just about wasting; when the water is flowing out from your tank into the drain, is there a relationship between the water that you should have been storing and the water that is flowing out? I am just trying to understand – what could be the approach?

Soumitri

I will probably not have an answer for you right now, whether we should take it from nature's point of view or not. We live not only live in cities but also in towns and villages, but the bulk of our energy is used in cities, or the pollution level is highest in a city. But that's just one way of looking at it. Not to say that there is no pollution in the hinterlands, but we do not think about that because we in cities do not relate to it. So that is why when people show you the data, it is just to make you start thinking in broader terms. The second question about the individual relating to nature is probably to do with a thinking process that will make us do something about living on this planet in greater harmony.

Anjali

Echoing the kinds of things that others have said, I think the problem from the education point of view, particularly school education, is also to do with giving information in very global terms. For example, you mentioned that tomorrow there might not be any polar bears – so what? Or that the glaciers are melting. Most of our children in Madhya Pradesh have never seen snow or ice, for that matter. So this idea of how we look at collective resources and how we atomize is crucial. We in Bhopal faced water scarcity for the first time in my life of 50 years in which water supply was given on every alternate day. When I look around at the responsibility, particularly of educated and well-to-do people, to this issue, it is appalling because the general feeling is 'we will draw the water from the pipe using motors and it does not matter if the others do not get any water.' This is the crux of the matter – whether we as individuals are willing to raise and address collective issues. In this time of water crisis, construction work was not banned. Bastis did not have water for as many as five days. Unless we talk about equitable development, ecological sustainability, and look at common resources, how we look at other nations, I think this kind of information sharing does not touch the core of many of the problems.

Soumitri

I just want to add something – you are educating yourself. And what you bring to education is your own background.

Anjali

To my mind, it is a political issue. If as a society we are not willing to take up larger issues which are issues of equitable resource sharing and go at it in terms of media, in terms of mobilization, it is because it is uncomfortable. Who has the time? We switched off the taps, we want five buckets of water, we have reduced it to two buckets, we will tell our children to do this as well, and so 200 more children will do it. And that is fine.

Rohit

I will just say that do not dismiss the individual yet, we will discuss what an individual can do and how at a later stage in the forum.

Soumitri

The important issue is that we all relate to an issue only when it affects us. You rightly said glaciers do not affect people in Madhya Pradesh. What is important is that the Narmada dam is affecting people in Madhya Pradesh. But are there any studies being carried out in a way that get published and people start sharing them? That is also part of education. It is only through sharing that you start thinking about things to be done.

At the end, education is all about thinking. It is not about passing information to people; it is about how people start thinking. You have to generate your own information through your own experiences. There will never be consensus among people about what is right and what is not, but when the general public does agree, and that includes individual people and their opinions, that is probably when you start realizing that there is merit to it. This presentation was not about climate change as such, but was about how we need to deal with the environment and ecology as such.

Sridhar

I am going to wrap up by thanking Soumitri. If I can put the gist of it, I think much of what was discussed shows that there is enough evidence to make us look at this issue seriously, and I am sure we do not disagree with that.

The second part I would look at is whether we have a clear solution to this crisis. Are we able to say that such-and-such thing is what individuals should do, and that if corporations did such-and-such things and if the government took certain responsibilities, then the problem will be solved, that there would be a solution to development? We do not have an answer to this. We merely have some ideas that need to be collectively explored and discussed.

The third dimension that came out was with regards to the technical, socio-political and the individual. These are dimensions that will inter-play with each other and people talked about design thinking and systems thinking. I am sure this will get further discussed.

I want to thank Soumitri and the group for starting the discussions on this issue. Thank you very much.

Summary

The speaker put together evidence regarding critical environmental issues such as deforestation, land use change and climate change as a result of human activity, issues that are increasingly becoming an immediate cause for concern. He presented data from both the Indian and the world wide context to highlight the gravity of what could unfold in the years to come. The argument was primarily woven around the incontrovertible link between development and its impact on the environment, and conversely, what impact a changed environment could have on development. Questions and comments put forth by the participants tried to problematize contentions such as differentiating between ecology and environment to gain greater theoretical perspective, how to cope with contextualized and global concerns particularly within the gamut of education, and the manner in which such problems could be dealt with both individually and collectively.

Understanding Sustainable Development

Sharad Lele



Sharachchandra (Sharad) Lele is a researcher in the Centre for Environment & Development at the Ashoka Trust for Research in Ecology and the Environment (ATREE). He works on both conceptual and empirical issues related to environmentally sustainable development and particularly in the area of forests and water governance. His presentation dealt with the various aspects of understanding environmental issues, particularly recognizing the social justice

dimension to these issues which has often been the driving force behind environmental activism in India.*

Sharad

My environmental journey probably began in my school days when I was introduced to trekking in the Sahyadris. At the time I was in Pune in a school, where I had a very enthusiastic teacher who took us hiking and trekking in the Sahyadris, to familiarize us with the historical sites, like the forts of Shivaji and so on. For those of you who may later hear me being somewhat critical of the conservation community, I must first pay my respects to that community because it was through the World Wildlife Fund that I first got introduced to bird watching, and I saw the same world around my urban Pune with a different set of glasses after the bird watching camp. But this interest stayed at the hobby level. I then joined B.Tech. in IIT Bombay, and at some point of time I felt that the post-B.Tech. route which most of us took, including all the people in my class, was to join the corporate sector in India and do some fairly routine kind of things in most cases, or go abroad. It was not my cup of tea and I was looking for something more interesting or rather socially more relevant. I think one of the reasons I got interested in environment related issues is because in 1982, while I was still in my B.Tech., the first Citizens' Report on the state of India's Environment, edited by Anil Agarwal, Ravi Chopra and Kalpana Sharma, was published. It was, for me, a life changing experience to read the report.

A bunch of us were interested in wildlife and mountaineering, and we got hold of a copy of the report which brought home to me for the first time that the environment was not just about wildlife and birds, not just a hobby that you pursue in your spare time while otherwise you are just living your normal, economic life. That the environment was really about everything around us, relating to all aspects of our lives whether it was water, forests, energy, culture, habitat, occupational disease, and so on. I think in many ways it was a path breaking set of ideas that the 1982 report put out in the world of environmentalism itself.

* Please refer to the end of this presentation for a rough reproduction of the diagram drawn by Dr. Lele on the blackboard.

This influenced me greatly and led me to doing a Masters at the Indian Institute of Science on the question of hydro power and its environmental impact, and then a PhD at Berkeley and so on. In this manner I moved from an engineering background into engineering economics, then got into forest ecology, now recently forest hydrology, and simultaneously picked up on social science, mainly economics, and more recently political science.

Who are environmentalists and what is environmentalism?

One thing that has kept my attention for all this while is trying to understand the idea of environmentalism. What do we really mean when we say we are environmentalists? Every so often I will be reminded of the question. I remember about ten years ago, there was an article in the Deccan Herald about the Narmada movement which said that all these environmentalists are fed by foreign money that these environmentalists are coming in the way of development and the upliftment of the poor. That got me thinking that it was interesting that the Narmada Bachao Andolan, which is trying to fight for the lives of peoples in the Narmada valley, and whose lives will be submerged by a dam, are being branded as environmentalists. At the end the Andolan was not about the forests in the Narmada Valley or about some endangered, pristine tiger in the Narmada valley. It was talking about people's lives, agriculture, and so on. It was interesting that these activists were being branded as environmentalists, and it was being used as a pejorative term, a stick to beat them with, in some sense. And so it keeps happening that people use this idea of environmentalism and environment in many different ways. That is going to be my focus in this session.

Soumitri actually had the tough task of conveying to you the multi-dimensional and complex ways in which the environment is in crisis. But I will take that as a given, although this matter could also be problematic. Ground water is depleting; soils are being salinized in the Punjab-Haryana area; elsewhere soils are being eroded and therefore, agricultural productivity is declining; there has been an increase of certain kinds of pests in agriculture; there's water scarcity in urban areas; maybe floods are increasing; droughts are increasing, etc. So one can lay out probably some of the broad parameters of what one could call the environmental crisis. But I think it is important now to place this in a larger context from both sides, because even in this description of what is happening, there is both a normative component and an analytical component. By 'normative' I mean what we think ought to be, that people ought not to be poor or people ought not to be deprived of water, or people ought not to be dying of hunger or because of breathing polluted air, and so on. So we have a whole bunch of 'oughts' against which we measure the crisis upon us.

Keeping this in mind, the two links that I am going to focus on are, on one hand, the characterization of a problem – why is it a problem? Why should I care? Let's say the temperature is increasing by 2^o Celsius, or ground water has gone down to 1,000 feet, does it matter? And in the way that it matters, there is a whole normative component to environmentalism, or to any social problem that we look at (I treat environmental problems as a subset of social problems). In tackling any social problem you have to highlight why it matters. Otherwise the problem is just a phenomenon, like the climate is warming or cooling, floods are increasing or decreasing; all these are descriptive terms with no pejorative or negative connotation. And so we need to unpack not only 'why does it happen?', but also 'why does it matter?' The former is in the realm of science. So there is the scientific 'why' in some sense – like, why does DDT kill the bald eagle? But there is another socio-political 'why' – why does DDT get used in the first place? Why does it get used even after its evil effects are known? Why does it get replaced with something else

which is even more harmful? And so on and so forth. In this way there is actually a very interesting link between the scientific and the social 'why'. And there is also an intimate correlation, often unconscious, between how one characterizes the problem in the first place and then finding a solution to it.

Understanding an environmental concern, attaching social value to the issue: an example

Let me begin by taking an example of a problem closer to home. Somebody said that climate change is a little too far away, in the year 2100, happening in the Arctic, Polar bears are disappearing, etc., and I have never seen a Polar Bear in my life, so why does it concern me? Let us take the example of the Niyamgiri controversy. Niyamgiri is a hill in Orissa, and very close to that hill the Kondh tribal community dwells. The Kondhs have a very strong cultural and religious attachment to the hill which is densely forested, with a fair amount of biodiversity on it, including some rare species which are not found in other parts of the country. But this hill is being demanded for bauxite mining by a multinational company. This issue is being characterized as an environmental crisis/problem, or an environmental movement, in some sense, to stop bauxite mining from happening in the hills. The question that occurs to me is that why is this a problem? If a company wants to mine the bauxite in the Niyamgiri hills, why is it a problem? I am sure you could volunteer to tell me why it might be a problem.

Response (audience)

It will displace a lot of things for the tribals.

Response (audience)

Possible destruction of the habitat.

Sharad

Whose habitat?

Response (audience)

Of the people.

Sharad

Anything else?

Response (audience)

Disappearance of rare species, including vegetation.

Response (audience)

The religious beliefs of the tribe are affected.

Sharad

Can I call that as cultural loss? As against the displacement of tribals in the sense of a material loss? What about the fact that bauxite mining will actually increase the

availability of aluminium to our country, therefore, increase the possibility of us having all the things that are made out of aluminium?

Comment (audience)

To whom does the bauxite belong, the tribal people or to you? That is the question we need to ask.

Sharad

So who benefits? Owns? Any other concerns? Why is it a problem?

Devika Nadig, Shikshangan

I think one of the things that they are fighting about is that the mining company is using long conveyor belts over there because of which the tribal people have to move around quite a bit just to negotiate and get to their own villages. This is apart from the fact that they treat their hills as god and worship them.

Sharad

Shall we say it's a cultural problem or material problem? Is it an ownership issue? What is interesting is that this is a very different environmental problem from the firewood crisis, the crisis of declining natural resources, or in the 1970s when there was the first oil shortage. So now we are talking about how in the next 50 to 100 years we will actually run out of most of the cheap oil reserves that really hit a threshold in terms of cost going up. The '70s had a lot of environmental literature which was based around 'limits to growth', which had to do with resource scarcity. What is interesting here is that we are not really talking about resource scarcity. In this situation, the mining of Bauxite will actually enhance the availability of aluminium to the world in some sense. And it is the anti-mining environmental groups which are going to increase the resource scarcity in some sense by denying the world a supply of aluminium. So this is a very different form of calling something an environmental problem. In the Niyamgiri case, for a change, you have the social activists talking about tribal communities, looking at livelihood and cultural issues, and you also have the conservationists talking about rare species.

Rohit

Could I ask you why you classify this as an environmental problem? This is something like dispossessing someone of his own home and changing his or her lifestyle forcibly. So why do you characterize this as an environmental problem rather than injustice to the tribal community?

Sharad

Absolutely. So you can very well say that it is really not an environmental problem at all, except to say that to the extent that livelihoods depend on material resources, it is an environmental problem. A fight about material resources is a fight about the environment. So one of the contributions of the Indian environmental movement has been to broaden the idea of environment, from simply talking about rare species lost, to say that if you deny people resources that are necessary for their livelihoods, that is also an environmental problem because it actually destroys their livelihoods.

Rohit

No, no. What I was hinting at was supposing that I fight to possess your land which is going to produce equal amounts of wheat even in my possession, still that might be a problem and at that time it might not be an environmental problem. This is a justice problem, a social justice problem.

Sharad

Absolutely. Typically you taking my wheat land and growing wheat will not be seen as an environmental problem because there is no transformation involved. But, for example, when it is a forest, if the forest department decides to cut trees and plant teak, and the people protest and burn down the teak plantations, it is seen as an environmental problem to the extent that there is a bio-physical process involved in mediating between the forest department and you. That is really why it becomes a problem to define an environmental issue.

Shubhra Chatterji, Vikramshila

So if farm land is being taken away for industry, would you define it as an environmental problem?

Sharad

In many ways these are terms for us to use and re-use. For example, there was an argument that the NBA allowed the environmental label to be attached to it because it garnered support from certain international environmental organizations. So you can argue that taking away farm land for building industry is an environmental problem to the extent that you are changing the gamut of natural resources available to society. You are moving farm land or fertile land into something else. It could also be said that you are also simultaneously changing the natural endowment in some fashion.

Shubhra

In other words, the boundaries are becoming blurred.

Sharad

Yes.

Shubhra

What do you mean to say? How have we learned to look at this whole environment issue? How intimately it is related to our own lives?

Sharad

What I am trying to show is that it is linked to our lives in different ways and with different stakeholders also.

Shashidhar J, CFL

If, for example, there were some locals mining it, a multi-national company came and wanted to mine it so that the productivity will increase, that would be a totally different order.

Sharad

That is right. The question is not simply about who benefits; the question is also about 'we will also mine'; the question is me mining versus you mining, and then it becomes a standard social conflict. If the question is also what should be done on that hillock and while I am mining I am devastating some natural heritage, which otherwise we share in common, etc., then that comes in the realm of the social-environmental problem. It is an issue of ownership, and also an issue of what you do with that environmental system. What this highlights is that there are different stakeholders here who are talking about different things. So conservation is really about the rare species, and focusing on tribal life and culture. What is also interesting is the word 'sustainability'. You can ask the question – 'Is this a sustainability problem?' It is very difficult to see what the sustainability problem here is. You cannot continue to mine bauxite for the next 20 years; it naturally depends on the size of the reserves. There is a fixed amount which you extract and that is the end of the story.

Devisree Raha, Wipro Fellowship.

Sorry to interrupt, but whose sustainability are you talking about?

Sharad

So now we come to this issue. Is it really a sustainability issue or is it really an issue of whose resources to begin with? And what are the rules to modify the resources to suit anyone's livelihood needs? And who are the other stakeholders? Can you say legitimately that somebody like me who lives in Bangalore has a right to hoist a flag in Niyamgiri saying that a rare species of plants and some rare animals that live in Niyamgiri should be preserved and that their habitat should not be converted into mines? Am I a legitimate stakeholder in Niyamgiri or not? Niyamgiri has forests. So maybe a U.S. power company will say that the forests in Niyamgiri are sequestering carbon, which is why the forest should not be cut down because this is mitigating global climate change. This could mean that the whole global community is a stakeholder in Niyamgiri.

The concept of sustainability

The idea is that there are multiple stakeholders and they have different relationships with nature. The point is that if you only think of environmental sustainability, then it becomes very confusing. Yes, sustainability is a convenient word and at one level sustainability simple means something good. It is fine as a catch phrase but useless in an analytical category. What is sustainable? Anything that is good is sustainable. Anything that is sustainable is good. It becomes a rhetorical device rather than anything else. If you think about the origin of the word sustainability, to sustain is to simply continue over time. So if you say mining is a sustainable activity, it means that you can do it for quite some time. But it is much harder to ask the question 'to convert Niyamgiri into a mine, is that a sustainable thing to do?' That is not only a difficult but also a useless question to ask in some sense because the word 'sustain' is only telling you what is it that you want to continue over time. So, in the '70s debate, or even in today's debate over oil, you could ask the question that if we were to continue to be a heavily oil-dependent economy or a society, would we sustain? And you can say 'well, we might continue for another 50 years and then crash, unless we quickly move over to using renewable sources of energy.' So we can probably have an answer to the question – can we sustain ourselves beyond 50 years if we continue to be oil-dependant? We could talk about sustainable forestry, that

is, if you continue to log forests at this rate, can you continue to log forests in the future? The possible answer to this could be that log them today at a rate which will enable you to log them in the future.

Anwar

Isn't there a lot of money generated through these mining operations that could convert the tribal people's lives into a more urbanized life than they are used to? Could that not be sustainability?

Sharad

It could be 'development' for them, but whether it would imply sustainability is the more problematic question. That is the whole problem. For example, when we were talking about agriculture, growing wheat, you can ask the question that to pump fertilizers at a certain rate into this soil to grow wheat, will it become infertile so that in the future wheat would not be able to grow? That is a reasonable question to ask. If you say that it is a wheat field today and becoming a city tomorrow – is this transformation sustainable? There is no real answer to that. It is a transformation from one kind of a land use to another, one objective to another, one stakeholder to another; the farmer is out of the picture and now there is some industry which is using this piece of land, so what do we mean by sustainable here?

Rohit

That makes sense. If you are defining sustainability at the level of the tribal community itself, or if you are defining it at the level of people living in the 10 kilometre area, there is bound to be a difference in understanding. Most of the people, when they talk of sustainability in the environmental and global scenario, they talk of a sustainable society for human flourishing. In that sense, each little thing, including giving farm land to the industry itself could be made into a sustainability question – if this becomes a policy, what impact will it have on the human race, if this starts happening in the large scale, etc. So there could be a sustainability angle to anything when the sustainability of the human race and human culture is involved.

Sharad

I agree with you. The challenge now is to look at whether there are other ways also of defining the question, as an environment question which highlights other dimensions without denying this sustainability dimension.

Sudeshna, Swanirvar

I will take the wheat example where a tribal group is growing wheat and giving it to a company which is also growing wheat. The way it is done, how it is growing, it is different. The tribal people are doing it for their own sustenance, for their livelihood. Where there is a company, the whole scenario is very different.

Sharad

Yes. So, my question here would be that are we attaching social value to this issue and then giving it an environmental value? It could be the same kind of farming but it goes to two different people. I am saying theoretically it is possible that the company will follow

the same practices as followed by the tribal people, because it is certainly possible the other way round as we are seeing that many tribes are increasingly following practices that are company practices. The cute assumption of subsistence farmers following traditional cultural practices which are environmentally friendly is turning out to be a completely fuzzy category, mixed up with farmers doing commercial agriculture, mining the ground water, pumping in the fertilizer or using pesticides indiscriminately.

Let us take a different example based in the state of Karnataka. The first year of the environmental report in 1982 highlighted this problem. Harihar Polyfibres, a company situated on the banks of the Tungabhadra, is a paper and pulp making factory. As many of you know, the paper and pulp industry is a fairly polluting industry, and they have been dumping pollutants into the Tungabhadra River for a long time. My question to you would be that is this an environmental problem? Why? I have given you the fact that Harihar Polyfibres is dumping pollutants, maybe I should not use the word pollutant because that too is signalling something. Perhaps I should say dumping X number of chemicals into the river. So is it a problem? Why?

Response (audience)

It affects life in the river, drinking water, underground water to a certain extent, crops which are dependent on this water.

Sharad

In that case, what is wrong if Harihar Polyfibres dumps pollutants and somebody downstream is losing their crop? What is the problem? How would you characterize the moral stance on this problem?

Comment (audience)

Who is affected finally?

Sharad

Somebody. Maybe a rich farmer.

Comment (audience)

And why not the poor farmer?

Sharad

That could be. I am saying we do not know if a farmer, whether rich or poor, is affected. My question is, what is the moral stance here? Typically, what do we bring to this problem? Would you say 'this is unsustainable'? Or that this is terrible because it is jeopardizing the life or the future well-being of the human race?

Comment (audience)

Also, the industry is being irresponsible. Someone else is paying the price.

Sharad

So, what is the ethical issue here? Are the future generations in jeopardy?

Venu

We have a primary ethical problem with someone using a resource undeservedly, who has not paid for it. The traditional economic argument is that there is an external cost that somebody is bearing. That is the first argument. The second is that Harihar pumping something into the river is an exercise of arbitrary power. It is a power issue.

Sharad

OK. As I understand, you are saying that they are able to get away with it because they have the political power to do it.

Venu

Or the political system is not responsive enough to deal with the use of power in this particular fashion just like in the case of the Niyamgiri hills. The main moral problem seems to be in an exercise of power in a way which offends our moral sense.

Sharad

I want to keep the prefix 'un-' and make some argument that this is 'unsustainable' for the human race on some level. Would you attach the 'un-' to sustainable in this Harihar Polyfibres case?

Venu

It is initially unsustainable for the farmer who is downstream. See, you could ask the question, if Harihar has to pay the tax for dumping chemicals into the river, does it become fair? Harihar could say 'Look, we have paid the tax for dumping X amount, it is somebody else's job to clean it up. Maybe the government.' It is still fair. But it still seems to affront our moral sense that Harihar should be able to do that. Because ...

Sharad

Because it is unfair, because if the farmer got clean water, then you would not have a problem. That is fine. But I am saying that that is the only reason that you are concerned that dirty water gets into somebody else's stomach or farm, that it is unfair, whether the unfairness is attached to Harihar Polyfibres or to the Karnataka pollution control board.

Shubhra

It is also unsustainable because the river is going to die.

Shashidhar

But in a more material sense, messing with such a complex system can sometimes give a sense of unsustainability. Just like a forest and its complex system can impact many, many things. That seems to give you a sense of unsustainability.

Sharad

We were messing with the river all the time. The farmer by the very act of putting a pump-set into the river and pumping out water is messing dramatically with the river.

The farmer builds his own dam and diverts the water up-stream and you do not even know about it. Farming itself is messing around with the system. All the terrace agriculture that you see in Uttaranchal was there 800 years ago!

Harihar Polyfibres is upstream and if, for example, there were no river for them to dump their pollutants in, the pollutants would sit around their own factory and create a cesspool, it is less likely that they would continue to do that. What they are doing is getting the pollutants out of their own system. So it is unfair that they can emit things that somebody else has to suffer from.

Venu

Traditional economics answers that question without addressing the issue of fairness at all – if the costs have been paid for, there is no issue of fairness.

Subramanian

Effectively you are playing the cost-benefit game, and what is unfair is that the cost is being paid by somebody else. That is what you are calling unfair. So your cost-benefit game is based on the way you draw the boundary. I can keep changing the boundary and show you that it is affecting some people in a different way or benefiting others, and make an argument to tell you that you are all better off.

Sharad

No, no. You might play the game by saying that the net value of Harihar carrying out paper production is higher than the pollution cost to the community. That is the economist's cost-benefit game. You can ask the person on the street and he may say that this is unfair. We need a poll on these environmental issues, and ask people if pollution is a problem of fairness or if it is a problem of inefficiency.

Subramanian

I am not talking about inefficiency. When you say the cost is being calculated, who is paying the cost is the issue. That's where the unfairness comes.

Sharad

Exactly. That is my point as well. Pick a layperson and ask him what the ethical problem is with Harihar pumping pollutants into the river. Typically you are going to get a response saying that it is not fair because it is a big company up-stream and somebody downstream is a poor farmer. But it is interesting that even if you were to reverse the situation and talk about farmers upstream pumping pesticides into their ecological system and somebody else downstream having to drink pesticide polluted water, we would still say that it is not fair. I am not saying pesticides are bad, but they should not be dumped unfairly into my area. The point I am trying to illustrate here is that the idea of unsustainability does not take us very far because we have been doing this for centuries. We have been converting forests into farm land for centuries and we have been doing mining for centuries, so to worry about the nebulous future consequences when somebody has died downstream today because of drinking polluted water and to cast that in a sustainability terminology has a certain problem, in a sense that it does not really resonate with what is really bothering you directly. What is really bothering you, at least me, is that it is unfair for

somebody in the Narmada valley to pay the displacement cost for supplying water to somebody in the Rann of Kutch, supposedly. So the Narmada issue in some sense was about fairness-unfairness. It was about equity in a very social sense. But there is an environmental linkage because there is a material change we are making through which environmental displacement occurs. So you can do mining in Niyamgiri and we will ruin the life of someone in the neighbourhood of Niyamgiri, so there is a real sort of material linkage through which that is happening. It is not a direct dispossession of the land.

N. Ramkumar, Wipro Fellowship

I want to relate this with an immediate example, like the drainage water in Bangalore, for example, is going towards Kengeri and nobody knows where exactly it is ending up. But as an individual I think that I am paying taxes to the corporation so that they can look into the matter for me personally, say from my home it is cleared and my problem is over. That is how the individual thought process works, and nobody thinks that it is creating a big problem otherwise.

Sharad

That is another reason why one needs to be careful in defining the problem because we know from environmental science that there is a certain amount of pollutant load that the river can actually handle. Not all use of the environment is degrading, because by that standard we should not be breathing at all. A certain amount of biological oxygen demand and chemical oxygen demand in the river is actually sustainable.

You have to be careful, of course, when people toss around these ideas of sustainability. For example, when somebody says that three tons or equivalent per capita emissions globally is a sustainable level of emissions, you need to unpack that a little bit. What does it mean? What it really means is that if you assume that less than 2⁰ Celsius is not going to lead to consequences, then you can say that in the sense of avoiding catastrophic consequences, 3 tons per capita emission is a sustainable level of emission. Defining sustainability is particularly a social manner and saying if we accept that, only then it is a sustainable level is a problematic proposition. But there are, obviously, levels up to which you can use the environment. If there weren't, then even the minimalist tribal sense of subsistence livelihood would not be a possibility, would not be sustainable. Shifting cultivation also, on some level, implies tampering with the environment. So in that sense it becomes very problematic if we take everything as a degrading action.

Indian perspective on environmentalism

What I am trying to highlight here is that there are multiple ethical concerns on which environmentalism draws. There is not just one single concern. Of course, that means different shades of environmentalists prioritize different shades of those concerns. So when we said, for example, conservationists are worried about rare species, what is the concern here? It is not about fairness, at least not from a social justice perspective. They have redefined the idea of fairness and expanded it to include all organisms. It is unfair to destroy non-human organisms because they have a right to life, so you could cast it as unfairness in that sense, too. Or you could say that it is really not unfairness in the same sense that you would say unfair to other human beings; it is about the aesthetic value of species, and that is probably what we mean when we speak of cultural values of the tribes. You can use different terms – cultural, spiritual, aesthetic, religious – they all fall in that same broad notion that something has value beyond the material. There is no

single ethical position that environmentalism draws upon, and sometimes some concerns coincide. In the Niyamgiri case, the aesthetic concern for the leopard in Niyamgiri might coincide with the justice concern about the mining company's takeover.

In a nutshell, among the major contributions of the Indian environmentalist movement, at least one was to highlight that there are as many issues of justice and equity involved in environmental problems as there might be questions of the aesthetic values of the tiger or the need for me to have pure air in Bangalore, even though I drive around in cars. These issues are not obviously issues concerning the quality of life, as in the west the focus of environmental struggles have been on the quality of life, in the form of reducing Los Angeles' air pollution, or cleaning up the smog in London or concerns around the Ozone hole that might lead to increased skin cancer rates. The reason why the ozone hole is a problem is because people, especially those in the upper latitudes, like the 40 degree kind of latitudes and at higher elevations, will be more susceptible to skin cancer, as well as people with lightly pigmented skin. It is not such a big issue for us because we already have dark pigmentation that can handle a lot of the cosmic rays that escape through the ozone hole. So environmentalism, as it evolved in the west, was around the quality of life as defined by wilderness, and quality of life as defined by pollution affecting immediate health, causing asthma, cancer, etc. The contribution of the Indian environment movement has been to point out that there are also serious issues of justice and equity involved in the environment; any transformation of the environment, particularly in a densely populated country like India or many parts of the tropics, is not a transformation in isolation.

Also, in the context of western societies like the United States, they first cleaned out their environment of all 'silly' native Americans, and then they had a free hand to set up the Tennessee dam or set up the Hoover dam in order to transform that environment without affecting livelihood, because there they had been successful in removing people from that space. But in the Indian context if you are going to set up a dam, you are certainly going to destroy property and lives of the people living in that valley. So the environmental movement's contribution really was to seek justice, and fight for equity issues in the material transformation of the environment. Who gets the benefit from that dam? And some of it may only be an issue of pure justice. In fact, if the Narmada valley people owned the Narmada dam, they would have agreed to set up the dam in the first place. That situation cannot be denied. So on one level it might be simply a question of democracy. Who owns the resources and who has the right to take a decision on resource, rather than a question of whether Narmada valley people are more pro-environment than Kutch people.

There is also a question of sustainability of, course, because there have been cases where situations have been unfair, like when farmers were given irrigation in the guise of the Bhakra Nangal dam. Over time you realize that the technology that you were either given or that you have yourself adopted fairly blindly is leading to a situation of salinization of lands and, therefore, a loss of productivity and livelihoods. In that case, sustainability issue is very much there in some of these situations, like whether you adopt technologies without knowing the consequences, or perhaps knowing the consequences. For example, in the evolution of pumps, the bore-well technology for the last 20-30 years has lead to serious mining of ground water. On one level, farmers are not so stupid that they do not know that they are mining water that because of the bore-well at some point the water is going to run out. But at the same time, they continue to draw water in the same manner. So, why do farmers then pump and waste water that can cause their own demise? One definitely has questions about sustainability. These questions need not be as esoteric as climate change happening 100 years down the line, though it is true that our pumping

out carbon dioxide from our cars today will contribute to climate changes by 2100, if not 2050. But it is also true that perhaps the bigger environmental problem caused by my car is the kind of local air pollution that I contribute to in terms of SOX, NOX and what not, which is going to affect somebody else's asthma along the neighbourhood that I drive through.

The idea is that sustainability is a deep issue or even a crisis. Many of the things that we are doing cannot continue for long. But many of the things that we are doing are built upon the destruction of somebody else's livelihood. We cannot just invoke future generations and my children and grandchildren as a way of generating support for environmentalism, because one of the downsides of doing this would be that then everything will need to be defined in terms of sustainability-unsustainability. But we still do invoke the future generations because it tugs people's heart strings by saying that their grandchildren's future is at stake. In that sense, it is a very effective "mother and apple pie" kind of approach. But there is also a downside to this. It is implying that all problems are about jeopardizing your future. But a lot of the problems are about jeopardizing somebody's present, and they get brushed under the carpet every now and then. The entire focus is on the world collapsing in 100 years from now and not about people's lives being destroyed today.

At yet another level, what has not yet come to the fore in the Indian environmental movement is the third angle, which is the quality of life issue, because it is always associated with the rich, the well-fed, what Ramchandra Guha calls the "full-stomach environmentalism" of the west – that once you have had your fill of unsustainable wheat or rice products, you can shout about the wetlands and birds that are endangered. But you will not do that if your food was at stake in some sense. The issue is whether one can these kinds of clean separations. This highlights that there is a relational issue here, how we relate to nature around us is also very deep and fundamental. You cannot just pin it down to a cost-benefit analysis in material terms and say that the tiger is more beneficial than the car.

So there is a dimension to environmentalism which is about the quality of life – it can be about basic life which is a link with the concepts around development really. And if you look at it now, what is the ethical basis for arguing for development of any kind, or which developmental movements draw upon. Some of them draw upon equity as a central issue – whether it is the human rights movement, or the tribal rights movement, or whether it is the farmers' movement. Historically, sustainability was not in question. Equity has been the focus – for example, if you were a Dalit rights' activist talking about social rights and equity, your concern would be only slightly different from the way I characterized the Harihar Polyfibres issue. For a social justice person it would be unfair that it is Harihar upstream who pollutes and the farmer downstream who has to use the polluted water to irrigate his farms. But if you reverse the situation it would be a little more complicated. So the farmer is upstream polluting the water with pesticides and a company is downstream lifting that water to produce, say, Coca-Cola and getting hammered by Sunita Narain for producing pesticide contaminated Coca-Cola. Would that be unfair to the company, that they are getting pesticide polluted from upstream farmers who are doing say, sugarcane cultivation or cotton?

Rohit

The farmer has some sort of natural entitlement to that water resource because of staying there for generations. Companies, particularly Coca-Cola, because it is a multinational, would not have similar entitlement.

Sharad

Well, what I am trying to say is that does the entitlement to use the water extend to the entitlement to pollute the water with pesticides? Pesticides came only 30 years ago.

Rohit

It would be unfair because of some other reason, not because of the company lifting the polluted water. As soon as you bring the company in, the situation is going to change, but I might be wrong.

Sharad

But the ethical issue is still the same, right? Upstream person is dumping polluted water downstream.

Rohit

No. If you leave the company out and simply say that polluting the water in the river in itself is a problem, there is an ethical issues involved. But a company lifting polluted or unpolluted water, this depends on several other things. This is because a company might have bought a license and paid very little for lifting the water because it was already contaminated and they built in their own system to clean it up, etc. This way the company might be paying a very small price for this. Therefore, with the company the issues are more complicated.

Comment (audience)

You are right in making that statement. Within this legal framework there is one kind of an attitude for the farmer and another kind for the Coca-Cola company. That is all. Ultimately it is an ethical issue.

Rohit

No, you are actually misinterpreting my ethics! Let me point out two issues. Firstly, is there any kind of traditional entitlement involved? And secondly, has the buyer of certain kinds of goods already taken into account what he is buying and of what kind of quality? So unless and until these two issues are cleared about the company, bringing in the company is a problem.

Sharad

What I have recently started thinking is that can we turn the tables and say that upstream is a poor farmer using pesticide and downstream is a rich consumer – could be a company or someone else. This is where the social justice position starts differing from the environmental justice position. From a purely environmental angle, you are sitting above and I am sitting below, you dump pollutants, it is unfair to me, whether you are poor and I am rich or I am poor and you are rich. You are making unfair use of the relationship between us which is an upstream-downstream relationship. It can happen in the case of chimneys, or in the case of people burning dry leaves outside your house. In Delhi, for example, in the winter, the poor burn things on the street to save themselves from the cold, but the rich might say that it causes pollution. The question is how you address it

socially, whether you impose the same stringent norms on the farmer that you would impose on the company or whether you would ban the farmer's activities in the way you would ban Harihar Polyfibres' activities. A similar argument could be made in the case of climate change. If an affluent person is using a fridge or a car emitting carbon dioxide, the same amount of carbon dioxide is being emitted by a poor person burning unsustainably harvested firewood in the choolhas. Would you assign the same amount of blame? From an environmental science perspective, carbon dioxide is carbon dioxide. But from a social justice perspective, you would have to see who the person is, and what his social position is, before you come to a conclusive answer about the liability encouraged and responsibility to change and so on and so forth.

But the point is that in the environmental problem, in the whole bunch of ethical issues that are intertwined, do we have the right to jeopardize the lives of future generations? There is also a question of unfairness – do we have the right to jeopardize or affect immediately people's lives today because of our resource consumption or pollution activities, and questions about quality of life? Also, what do we mean by quality of life? What is it that we want to sustain? In a lot of the sustainability literature, there is confusion between wanting to sustain the tiger because we have an ethical or an aesthetic or a religious or a spiritual value associated with the tiger, and saying that the tiger ought to be saved because otherwise life will become unsustainable. Some, of course, argue that you ought to save the tiger because by saving the tiger you will save the forest, by saving the forest, you will save the rivers from drying up, and by saving the rivers you will save water which is essential for your survival. Such positions are really bending over backwards to make an argument to save the tiger. Well, you really want to save the tiger because it is a beautiful, furry animal, and I am not saying that in a pejorative way. I think it is perfectly legible for somebody who says the tiger is an animal which has a right to survive on the face of this Earth. The question here is – where do I move from here? I start with the 'Save the Tiger' position, and then I will say that we will kick out the tribal people from Nagarhole National Park because they are jeopardizing the tiger's existence. That is when it becomes a social justice issue and it becomes more complicated.

Comment (audience)

I just want to say that in working as an environmental communicator, the issues are complex but the message has to be fairly simple. This is the challenge many of us may have faced.

Sharad

Fair enough.

Comment (audience)

Let us suppose the immediate effects of polluting the river. When you say polluting, obviously you are dumping stuff which is more than the river can handle. Isn't there a basic issue just in that, without having to look immediately as to who is affected?

Sharad

In a sense, no, because to me the environment is a social concept, and even degradation is a social concept. There is nothing to say that we need to save the tiger. It is not that if you destroy the tiger the world will come to an end. I mean, the tiger might be destroyed

because of meteorites that hit the earth 1,000 years from now and wipe out all large mammals like the dinosaurs were wiped out. So extinction is a part of life in geological terms. There is nothing sacrosanct about life on earth. So at that level, you cannot make that argument, unless you are taking an ethical position on any particular dimension of it. Either unfairness, unsustainability, or my aesthetic value, or cultural value is just a position or an argument. You have to attach a value and that is a normative position. It is a very subjective, ethical, position. We do not have a scientific reason why.

Summing up multiple perspectives

There are a lot of other questions – how will individual change really contribute, or will it be sufficient to solve the problem? As you can already see, that links with how you characterize what the problem is here, say pollution, and, therefore, what the solution is. So the idea of explanations being more than monolithic is also important. For example, somebody might say it is a problem of unfairness, in the sense that Harihar Polyfibres' dumping of pollutants into a river is unfair, where the response is likely to be, 'slam down on Harihar – make them shut down their operations or clean up their activities till they generate only clean water'. Some may say that it is not exactly a problem of fairness or unfairness, that this is a net cost-benefit analysis which is right now negative, and that one should only do that much pollution control that will bring the net cost-benefit analysis to positive. So the way you characterize the problem influences what solution you seek. Some may say that putting a tax on Harihar could be an efficient way of dealing with the problem. But it may not still be an efficient solution; it will not get rid of the problem until you can actually do something else with the pollutant. Somebody else could then say that it is really an issue of unfair access to resources – like at Niyamgir, it is a problem of tribal empowerment. Whereas somebody else could say that the problem has risen because of the demand on aluminium which is driven by unsustainable lifestyles in the west, or for example, a demand in urban Bangalore. So I need to become a Gandhian in order to save the tribals of Niyamgiri, which is a legitimate argument at one level, that I need to change my consumption lifestyle if I am not to impose those demands on the environment.

Keeping this in mind, we can see the same argument, to some extent, reflected in the developmental sphere. The question that would arise there is, why is there poverty? If you ask this question, you could also ask, what is wrong with poverty? The answer to this last question has different connotations for different people. For some it is an absolute notion that nobody should live below the poverty line, that there can be inequality in society, but that it is not a problem as long as everybody is above the poverty line. And that is perfectly acceptable; it is a very liberal sort of position. But some could argue from, let us say, a red position, that there has to be equality not just in absolute terms of loss of poverty but actual equity in society. That would be a much stronger position to take. And the solutions one would then come up with in terms of a developmental answer to poverty would also correspondingly vary. Land reform is a much stronger response to the question of poverty than, for example, the minimum wage act. It is a different response. Many would agree that it is not really that communists support land reform, but that the pink or light pink socialists only support minimum wages. So obviously positions are not always so sharp and clear-cut. There may be situations where even after a strong position on equality you might only find the minimum wage act as the practical solution in a certain socio-political context – it could be the only practical step that one could take. But there are obviously correlations, that if you have a strong position on poverty, on why poverty is bad, you would push for a stronger solution in the form of land reform.

Similarly, we find that in environmental discourse, or any environmental developmental discourse in some sense, we face the question – how do we have an environmentally

sound and socially just developmental path? Or why do we not have such a path before us today? Why are we emitting so much carbon dioxide? Why is it that Harihar Polyfibres is able to get away with the kind of pollution that it is imposing on downstream farmers? Many would have questions from a Marxist analysis as well – the questions of political power of the Harihar Polyfibres. From the economists' perspective, maybe from a neo-classical economist's perspective, it might simply be that the problem is essentially that the net cost-benefit is right now negative and if we internalize those costs, then pollution control will increase to the level that is socially efficient in some sense. There could also be the argument for markets. A lot of the literature today on management issues is now talking about market-based instruments for pollution control. Such an argument, by extension, also related to the relationships between the individual and the state, the individual and society, societal structures, and how a structure can and should influence individual action. Over-population and ignorance of the poor are perhaps two of the first hurdles we have to cross before we dwell upon a more sophisticated discussion on why these problems occur. All this is inter-related with how we characterize the problem in the first place.

I think I will stop at that and take questions.

Venu

You said that you wanted to complicate the problem space. But the solution space is also very complex because we do not have the wherewithal to even think about solutions, in the sense that we do not, for example, have the institutions required before we even get into education. We do not even know how education can contribute. But from a socio-political, environmental perspective, what have been the barriers to thinking coherently about solutions for this very complex issue?

Sharad

It's no doubt a complicated answer. One of the things we can simply agree about is that there is just a paucity of environmentalists of any kind – whether it is the eco-Marxists or the eco-feminists, or the eco-Dalits or the eco-institutionalists. There is a paucity of any kind; so why are we fighting over these details? The fact of the matter is that even if you sum up all the people who care only about the tiger or only about pollution or only about something else and add them up, they are still a miniscule number. So even if they really are at loggerheads amongst themselves or are not seeing eye-to-eye, they are still in a minority on the whole. That itself is a challenge. That is way you could argue that there is a problem of values. There are just not enough people who even care about the future, about the neighbour, or about their own quality of life in the way that we understand the green quality of life. If they have defined their quality of life in terms of living in boxes with TVs feeding them all entertainment, then you do not need to have nature around as long as Animal Planet has archived all the material. This is what I also ask the conservationists on some level, because some of the conservationists are driven by the notion of genetic diversity. I say that if you just store all the germ-plasm in a cryonic bank, then you can destroy the real genetic diversity out there. There is no easy way of getting around that position.

On another level, within academia we have too much of this fragmentation because of which we are unable to think cohesively. We are still locked into our own neat answers to these problems. We are not willing to think plurally. We are not willing to join hands on that end and accept each others' positions. One of the issues is that the conservation movement, particularly in India, has been often at loggerheads with, let us say, the

developmental movement – rural development and tribal rights related movements. Why? Because we are unable to see that environmental justice is intertwined with social justice. And we cannot take a position on one issue in isolation. The deep ecological position that has been taken by the wilderness lobby in the United States cannot be taken in isolation without having an implicit position about people. You cannot have a position about the rights of the tiger or the spider without first having a position on the rights of other human beings. If you to skip that step and just talk about the rights of the tiger or the Amazonian butterfly, and therefore put a fence around the Amazon and armed guards with orders to shoot anybody who dares to tread in to tap rubber, then you have a problem. As I mentioned earlier, a lot of it is refusal to see that as environmentalists when we intervene, we are also taking social positions, and that we have to have a wider sense of ethics, and not just ethics about specifics.

Sunita Rao, ATREE

About the solution regarding the Harihar Polyfibres problem, SPS Dharwad took them on headlong and the whole campaign is now history. This was much before public hearings became a law. They did strive for and got some kind of. So, given how complex things are, this could be cited as some attempt at arriving at a solution.

Sharad

Absolutely. What I was getting at was that there are not enough SPSs out there. I am not saying that what SPS is doing is entirely right or wrong, just or unjust. Definitely we need a hundred more SPSs to take on the hundred more Harihar cases that are around us. What we are asking is that why do we not have the environmental movement at that scale? It is because we perhaps still have not accepted that there is a problem, because many problems do not affect me directly, or because we have an isolationist sort of position on what is the nature of the problem, and do not seeing the links between our personal lives' trials and the problems out there. As long as certain species are safe in certain pockets for me to see as a tourist, I am not willing to look at the larger issues associated with that kind of management that can deal with the problems. Not only that there is not enough of us, but also there is not enough unity on these fronts and certainly not enough dialogue itself on the analysis of the problem. And that is why, for example, as mentioned earlier, you see that even the environmental economists are at loggerheads with many other environmental activists, because normatively they do not see it as an unfairness issue; and analytically they see that the power of markets has been so wonderful that all problems can be solved through that route.

Subramanian

You said that there are not enough of us. How do you make enough of us?

Anwar

There could be so many of us that it could also be a problem.

Subramanian

I am asking about the broader public awareness for you to find. It cannot be ten-ten people all over the place – it has to be a lot bigger. After all, the capitalist structure is

based on a network. Given the network structure in these institutions, only networks can resist. The old structure of individual institutional resistance will not work here. It has to be a network resisting another network. In that sense, enough of us have to come about by building larger networks across these pieces. How do we get there? That is part of the educational process as well.

Anwar

Just networks are not enough, because when you look at networks like the socialists' forum or alternative groups which came up, they somehow do not have the wherewithal to use arguments and resources the same way against the other networks which have much more resources, resources which cannot be generated by these networks.

Rohit

It seems to me that as long as you take the environmental problems only as fairness problems within the society, they are basically socio-political problems against which concerned people who think that this is unfair will get together and fight. This does not become 'the human problem' as such, unless and until you bring in the sustainability of the human race through environmental issues. So far it seems that the sustainability of the human race and the sustainability of the kind of human life we are looking at, that has not been brought into focus; that is not actually very crisply defined. That seems to be the problem to me.

Broad comments on the role of education in environment sensitization

Anjali

A number of issues and the way you summed up the problem also seem to point to a much more fundamental transformation of education in terms of a more holistic, and in that sense, networked perspective. Because what tends to happen in our educational perspective is that one concern gains attention and is given primacy to. This is why you have the Supreme Court judgment that you must teach environment studies. Most other subjects have not been touched, limited within their own perspective and in the specialization mode too. For example, mathematicians will look only at mathematics and will not look at other things. Keeping this in mind, a much more fundamental re-looking at the framework of curricula, the place of disciplines in such a re-looking and how they relate to each other, etc., has to be given deep thought to. This is one part. Secondly, we need to analyse the way children are socialized into looking at 'the other' – who is the other? The farmer downstream today is 'the other'. Why is my grandchild or great-grandchild more important than the farmer downstream? What I am trying to say is that how we grow up looking at ourselves and seeing who is part of 'us' and who is part of 'the other' and how we get concerned about which issue, these two are some of the very fundamental issues which may not immediately seem concerned with ecological sustainability. But with education, to incorporate world views of sustainability and ecology – that is what we should look at.

Sharad

Thank you. You were able to link this very well.

Meera

I have two comments. Basically, between the why and the why-it-matters, I think fundamentally it is also a question of most people having a view at all, and then a world view. I can share something very fundamental to education. One of the things is that I have been an activist in environmental movements and we were there in the anti-Narmada campaign, we are there in Hasiru-Usiru, etc. But I run into the same set of people. I can count fifteen people in my head – I can actually name them. There are fifteen activists in Bangalore who are standing in Lal Bagh, who are standing for Chickpet, who are standing for lakes, who are doing research. There is this whole motley – we call ourselves the motley group.

On the whole, education teaches you to be disciplined, but for standing up for the environment, for standing up for the rights of people, for fighting for Dalits, we are absolutely not taught resistance. In fact, any bit of resistance in the classroom is shut up. I can tell you where I learnt resistance. I thought it was unfair that my teacher gave me fifteen pages of writing as homework. So instead of my father writing a letter to the Principal, he suggested I talked to the Principal myself. So in front of a whole crowd of people, shivering, I voiced my opinion that it is unfair that you are giving us fifteen pages. I did get punished, but then the homework came down to five pages. That was in a CBSE school.

As I was standing, fighting for the trees in Malleswaram circle, a very elderly gentleman came up to me and said, 'You are a very bad girl. You are doing this strike and leading our children astray. These are bad things. Go away. Don't waste your time. Do some useful work and earn money'. He actually gave this lecture to me on the road. So I think one of the things that we teach our children is to go on being sheep. As somebody here said, if nobody strikes, it is all bad. And so, if I send out the a message to the Wipro crowd here saying that there is a resistance we need to stand, I may get two people from a company of how-many-ever.

It is about a world view. Because environmental movements, unfortunately, are about justice, you may find that in your own working, out of ten people you may get one. I think education itself has to re-think about how we are making compliant citizens rather than citizens who are aware and willing to speak-out their minds.

Sharad

A friend who moved from a Marxist-activist kind of position into an eco-Marxist position in his work summed it up very nicely. In standard Marxist theory, we say people exploit people. Standard conservationists say people exploit nature. But really, these two are inseparable. People, by exploiting nature, end up exploiting people – for example, in the Niyamgiri case. And people, by exploiting people, end up exploiting nature also in certain ways. But it does not help to reduce everything to one single problem, but to say that there are multiple ethical reasons why we should save both the environment and worry about social justice, and the content of what we define as 'the good life'.

One of the things that neither the sustainability approach alone, nor the social justice approach alone really tells us is – what is the content that you want to save? What is the content of that life that you either want to sustain across generations, or spread to everybody else in the world today? Is it a nano-car based life content, an Animal Planet-based life content, or is it something else? That part is not really answered by either the sustainability perspective or the social justice perspective. So we need all three perspectives. And that, I think, is the expansion that one needs to have in terms of how we understand the problem before we talk about 'spreading the word'. What really is the word that we want to spread?

I just wanted to end by saying that if you see the environmental education curriculum that is being drafted today, I think the idea of the Supreme Court to patch-on environmental education as an additional subject is fundamentally a problem. The Court itself, for example, understands environmental education as environmental science education, and this de-politicizes the environment, because how would an environmental scientist put across the message that your life and future is in jeopardy. Very rarely will you come across an environmental scientist who will say that you are very unfair to others if you pollute their lives by driving around in a diesel vehicle which emits a particulate matter while you are sitting in an AC vehicle inside. Nobody in the scientists' sphere is going to cast it in this wider ethical kind of framework. And that is one of the major issues that we need to watch out for when we start thinking of the educational dimension.

Hardy

Am going to add a couple of things, Sharad has written about but did not talk about now. One, of course, is the fact of what is sustenance? What needs to be sustained? That is a question that we need to think about. You say that a preservationist looks at the diversity of everything we sustain. But there are many things in the world, in our society, which we do not want to sustain. So when we talk about sustenance, there has to be some understanding and analysis of what is worth sustaining over time. There are deeper ethical and social issues that will determine what should be preserved and what should not be preserved. Everything does not need to be preserved.

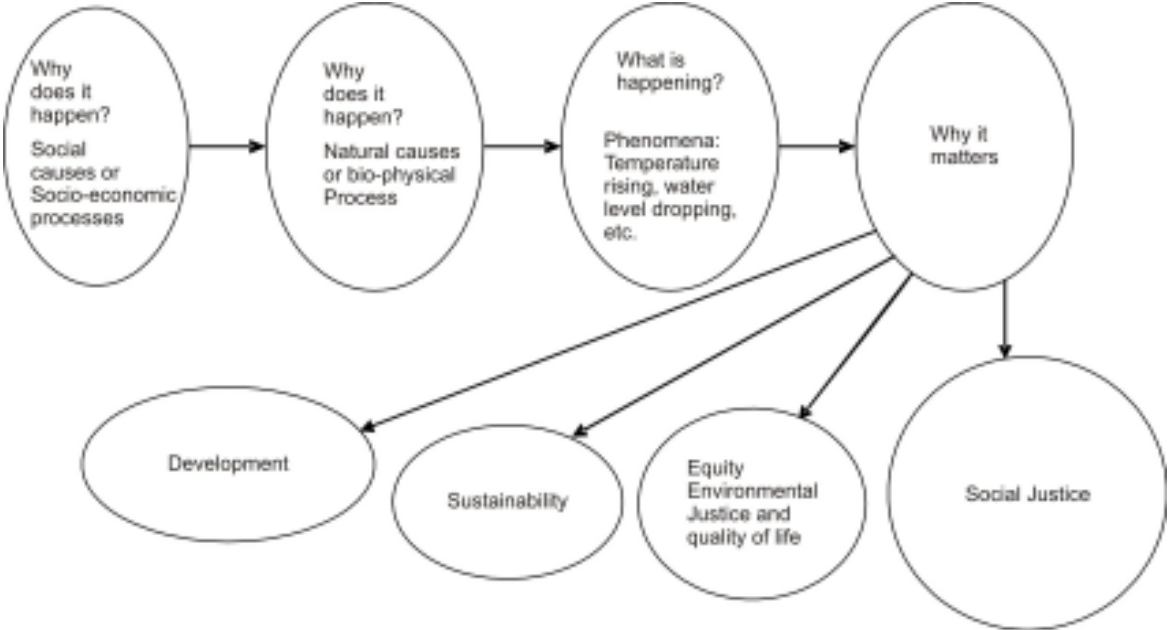
The second thing is that you have also talked about, in some sense, the largeness of the system. For you the problem is with us feeling helpless. So what do you do? This is also because the system that we all are living in is very big, and we do not know where to start intervening to make a difference. You are saying that a system damages itself. Catastrophes and disturbances in a larger system are more difficult to predict, and they can cause larger damages. One way is for the frank and smaller system to go democratic. It would have a greater possibility for being equitable and give everyone a voice. That also becomes important.

And the last thing which I think is very important is that if we have education, we are able to talk about what a good life is, what the concerns are for others, and that a good life means being concerned about others. If that message is a care-love combination, then that is a much better way of talking about the issues of environment than talking about global warming.

Summary

We know that there is an environmental crisis. But if we are to act meaningfully on it, including in the educational sphere, we must first understand the 'environmentalism' better. Our understanding must go beyond the full-stomach environmentalism of the West, which focuses on wildlife conservation and quality of life, and must embrace a wider notion of environmentalism which draws upon concerns for equity and justice in sharing resources and environmental impacts, and of sustaining resources for ourselves and future generations. Examples from various environmental movements and controversies in India help us understand this broader notion. One can then have a more systematic framework for thinking about environmental issues that separates social and technical causes from the multi-dimensional impacts of the environmental crisis.

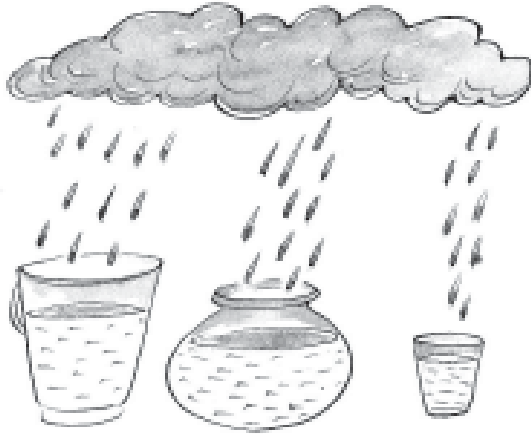
Rough reproduction of the diagram drawn on the board by Sharad Lele* .



* The diagram is not an exact reproduction of the one drawn on the board

Framework for Social Responses

Avinash



Avinash works with BIOME Solutions. His presentation was about the specific responses of certain rural and urban communities to deal with water crises.

Avinash

I work at BIOME Solutions and Rainwater Club. We have been working on water issues as a group for nearly over 15 years. The idea here is to look at specific responses which deal with some of the issues that Sharad talked about, both the social justice and the environmental justice angles. We want to analyse the problem further to see who are

the different stakeholders, their responses, and see broadly what we have learnt from these specific responses.

Water washed us once upon a time. We are now in a situation where we have to wash the water. I think the fact that a lot of the fresh water is ground water is particularly relevant in the Indian context. Some broad contours of the Indian context are that the issues around water have been looked at from three perspectives – from the irrigation sector, which is the highest consumer of water, and the domestic sectors both in the rural and the urban contexts.

Historically, the irrigation sector broadly started with community-managed irrigation, with soil moisture being a very critical aspect of irrigation management. Over time it moved to a centralized panel kind of a system in which the state played a key role in irrigation. Eventually, the inefficiency of such an irrigation system, especially the fact that it could not respond to irrigation needs when they were necessary to be met with for the farmer, led to several rallies. Post 1990, the rise in ground water as a source of irrigation has been extremely high and it has come down to an individually farmer-managed irrigation system now, where each farmer is just digging a bore-well and mining water for irrigation. Many places actually have ground water irrigation markets today.

On the domestic side, the key issues have been around access – access to equity, access to a certain quality of the water, and regarding gender issues and education with respect to water. In the urban context, I think this is becoming an increasingly important issue in terms of the explosion in demand which has led to a lot of scarcity and pollution. Many of these issues have played themselves out either in the context of conflict or inevitably leading to a conflict situation, conflicts which have various dimensions to it, whether it should be looked at from a rights-based perspective or entitlement-based perspective.

Coming to the responses itself, I am going to present some thoughts about the way things have changed with respect to water. In the last few years, in our travels to the Antargange region (near Kolar) we found a frequent use of the Persian wheel. It is an agricultural system based largely on the irrigation provided by a kind of a lift-irrigation device. Water comes from open wells, the shallower of which are also quite high. But over just 5-6 years, we ourselves have been watching these Persian wheels being dismantled and

discarded. Earlier it seemed to be a farming system that adapted to water availability, where farming was defined around what kind of irrigation could be done. But the reverse seems to be happening now, which has also led us to wonder what happened to the well. Somehow India has a civilization around an open well. But we seem to be forgetting what the open well is and what the open well means. And perhaps it is this decimation of the open well from our consciousness that we see all the other change in irrigation. It is, to my mind, a real symbolic change, just a thing to start with.

Responses to tackle water related problems; three examples

Now, let us look at the actual responses. I shall present three cases here. Two of them are in a rural context and one is in an urban context.

Government scheme with schools (rural context):

To begin with, let us look at this rural context for schools. Here is a scheme rolled out by the Government of Karnataka, the rural Panchayati Raj Department. The objective was to bring drinking water to schools which did not have drinking water. The idea was to implement simple rooftop rainwater harvesting systems in these schools which would then double up as drinking water. But the way the whole system was designed, the school management and children were never a part of the whole scheme. So in most cases the school children and the teachers came one day to the school and realized a tank was constructed. Pipes were going from the rooftop and coming into the tank to create a rooftop rainwater harvesting tank. The contractor who constructed the tank took a photograph of his work and got his money from the government kitty. But if you travel to school after school, the tanks are in a state of disrepair now. Taps are missing, the pipes are broken.

I would like to highlight two points in this context. Firstly, this scheme to provide water to these schools was the largest such scheme in the world – 23,000 schools across Karnataka were given money to do this. The schools were asked if they wanted drinking water, whether or not they had a drinking water problem. Of course, most of the schools said yes, they did. And so this scheme rolled out across all the schools. Whereas after the scheme was rolled out, some post-monitoring service showed that in actually 57 per cent of the schools in which this was done, did not even have a drinking water problem.

Secondly, on speaking to any student or teacher of these schools, it was found out that they were not consulted before the construction of these tanks. That they were not even informed that this was happening and overnight a contractor came and put the pipes and tanks, and left. For example, in a school in Mallasandra in Chikkaballapur district, Bhagyapalli, the students continue to drink fluoride-affected water. The school is completely ground-water dependent, but the ground water there has fluoride, which has serious health repercussions. That is a region where one observes a lot of dental and skeletal fluorosis. This is one response.

Programme with villages of four districts (rural context):

Ironically, the very same state department in the very same area has rolled out another scheme called the Sachetana drinking water scheme, the central idea of which is also the same, except that it is now working with households, and is working with an organization called the BIRD-K Institute of Rural Development. In this case, the scale of the scheme was smaller. It was piloted in around 60 villages across four districts. The organization has done an enormous job talking to the people, as well as partnering with,

mobilizing and educating the people. An enormous amount of importance was given to a participatory approach to engage with the people. The idea of the scheme is to have rooftop rainwater harvesting schemes for households, and to get the people to keep the water that is harvested from the rooftops stored in underground or over-ground tanks in such a way that it forms their lifeline drinking and cooking water throughout the year, so that the fluoride-infested water is not consumed and is reserved only for non-portable and non-cooking purposes. Under this particular scheme the villagers (the households) themselves decided where the tank will be placed. Some of them have the tanks under their bedroom; some of them have it in a little yard in front of the house, some are in the kitchen. They decided how and where water would be extracted. A lot of innovation was presented by the people. There were little hand-pumps that some women decided to install. For example, though the tank would be placed in the front yard, there would be a little pipe to take the hand-pump right to the kitchen. Water was extracted only in the kitchen, so only the women have access to the hand-pump and which is reserved for drinking and cooking only.

A lot of effort went into talking to the people about water quality and ensuring that nobody opens and closes the tank to let in organic matter. There has been an attempt to get them to chlorinate the water with chlorine tablets once it comes into a little pot in the house, an attempt that has not succeeded too well.

In many cases it was an interaction where the ladies of the house were asked about the system, how it is being used and how useful they find it. With some exceptions, the scheme seems to have worked well; there was unequivocal evidence that there was retreating fluorosis in the area, but still it was found that many houses would say things to the effect that they do not use that water for cooking, even though in cooking anyway, after boiling, the fluorosis goes away. But the fluorosis problem cannot be solved by any such kinds of local treatment methods and therefore rainwater harvesting has been introduced. So despite all the education and the engagement, the scheme has its lapses. This is the second response.

Rainwater harvesting in the urban context:

The third response is in the urban context in a middle-class layout. The community with which work was done was on the outskirts of Bangalore and it did not have any utility-driven water supply that came to the households. They were completely dependent on ground water. They had five or six bore-wells which had started drying up. As a result, the Resident Welfare Association took the task of managing the water very seriously. We partnered with them to do several things that would take an integrated approach. One was to try and grow an individual household rainwater harvesting scheme so that there would be a supplementary source of water in some places. The members of the locality and the RWA invested in an enormous amount of money themselves to put recharge wells which could capture rainwater and put it back into the ground. The layout also had flooding problems; in many of the heavy rains, the layer point of the layout would be flooded. After they put the first set of recharge wells, some of that flooding was at least perceived to be lower or non-existent. That gave it momentum and a lot more recharge wells were installed. They have now invested around 55 wells on 34 acres, and we are still working with them, as once a month a new person invest in a well.

The other aspect is that the members of the community actually sat down and understood what their entire production cost of water is. Of course, they did not really take into account the ecological cost of water, but they took the first steps towards that understanding. They decided that internally they would have a tariff policy which would

be a volumetric log tariff, a tariff that would give incentive for the conservative use of water and give dis-incentive for wasteful use. They also integrated into the tariff policy an encouragement for practices like rainwater harvesting by giving appropriate incentives. Right now, they are very seriously looking at investing in better waste water treatment to see how that can then close the loop and how the water can go back into the ground where it could be treated to levels enough for recharge, so that they have a kind of an ecological complete cycle – a closed cycle.

So here is a situation where they are dealing with an environmental problem within a strictly domestic boundary. This is also a venture the state is not involved. So some of the questions that we are asking ourselves are – what does this kind of model mean? How does one embed this kind of decentralized community-driven water management into governance? How does one bring capacity into it?

From these three kinds of specific responses one has to generalize and understand what kind of framework guides us when we work with people. There are many dimensions to sustainability and you find that social sustainability is the most critical. But one cannot look at any element of sustainability independently, be it social, institutional, legal, economical, ecological and technical. However, it must be conceded to that more often than not, it is the technical sustainability that we tend to focus on and give most importance to.

I think I will leave it open for discussion and questions.

Sharad

I have a question about the last example you gave us in the urban layout which has run out of bore-well water and is trying to recharge. The question that occurred to me was – why did they run out of bore-well water? I was thinking whether similarly, in the fluorosis case in the rural context, is irrigation or farming a contributing factor to the depletion of ground water, and in turn to fluorosis?

Avinash

There are two aspects to it, actually. If you look at the fluorosis problem, it is quite monstrous and complex. There are villages where ground water exploitation has led to a layer which is now fluoride-infested, where historically it was not like that. But there are also areas where the fluorosis is completely geogenic. Whereas, in the urban context, yes, it connects itself to the larger problem of urban ground water tables falling. More often than not, in the urban context we find that the bore-wells typically start getting dry, for example, when there is a new apartment complex being built around the area and the construction is just sucking up all the water.

Anwar

What would you say about the priorities for various issues that should be taken up? We should discuss that because that lays out a sort of a vision for the game-plan.

Avinash

If we look at the case of the schools, for example, it is a clear case where technically the solution has been thought about. But there is no social or institutional sustainability in the way it has been rolled out and interacted with since the school managements simply did not take onus of the systems and the school people were not much involved in the scheme, which is why the project fell flat.

The second response, on the other hand, seems to address most of the concerns. There are, however, some concerns about the economic sustainability of the project because it is largely a grant-driven programme where the government gave a grant for the households to do this. The programme had a significant user contribution to it as well. But still, one of the hurdles being seen in trying to drive that programme to a larger base is primarily financial, because households are often unable to afford that little bit of initial money if they have to actually build this whole system in their house.

In the third response, when we speak of other layouts, for example, we could take the example of Rainbow Drive, where one of the first questions that was raised was whether it was legal for the RWA to take the measures that it took. What if tomorrow we are unable to supply water to a household, can that household actually sue the RWA for not supplying water to it? These are the kind of questions that we get from people. And this was also a clear case where legal sustainability needs to be looked into.

Devika

We live in quite a remote area on the outskirts of Pune. When we were building a home there, we knew that we would have to make our own water arrangements. It is a very secluded area and there is no community life there. So the first thing that we did was a survey; we dug the bore and water was struck, which caused a lot of excitement. When we started living there, the water did not last for more than a couple of months. In June, July and August, we really did not know what was happening because it rains incessantly there, but there was barely any water. By the time we were into September, we were almost completely out of water. We then had to depend on whatever tankers were available. There was no banked water at all.

The next year, we thought we would do another survey to see what is happening, and again we went through the entire process to see if we had dug the bore-well in the right place. The sensors were working; everything seemed right. We spent another couple of thousand for rainwater harvesting. 3-4000 square feet of space was trapped on the terrace. Since it rains at least five or six times more than what it rains in the city of Pune, all this water was redirected towards our bore-well and it was recharged. Again there was a lot of excitement as there was plenty of water coming in. So we decided that now we could plant some saplings because there is enough water. But once we started our small plantation, we began running out of water again. By the time we were in October of last year, there was no water again. We were wondering what was going to happen and what we could do. Then a small community of us thought that the only solution, the final solution, is probably to build huge tanks which would just catch the rain water because recharging did not seem to work.

So I just want to ask you – what kind of success do you guarantee for this? How are you sure that if I recharge this bore-well, I will get water for x number of months, if I were to calculate how much water I need for my household over a period of one year? And for that, we might need to build a tank which will hold some 3-4 lakh litres of water. Can you tell me something about how I can be sure that I need to spend x amount of money again to make sure that we get water?

Avinash

One is – before I actually answer your specific queries – a reaction to what was just said. When we used to work on integrated water management, I think it is very important to also see the demand side of things. I think a key thing to look at is, when you are in a

place which has certain characteristics that you are talking about, like you say you have good rainfall, what are the right crops to grow, so that you match your water availability to the crops.

Devika

There are no crops. There are just flowers.

Avinash

Alright. In general, yes, it is possible to store water in tanks. Rainwater harvesting as a technique is not always a complete solution – it works in a combination. In cases like yours, it has to be a combination of ground water and rooftop harvesting which you can store in tanks and use. It can be designed for a specific demand and a specific context.

As far as recharge goes, there is no guarantee you can give. When one dug a bore-well and drilled a hole into the ground and pulled the water out, one never asked whose water it was. So the water that you recharge, you put back into the ground, may flow, go downstream or go into somebody else's bore-well. There is never a guarantee of where water is going to travel. Our property boundaries stop on the surface. They do not go down under our feet. But what can be done, the guarantee that can be given is to design something specifically keeping in mind the kind of water availability.

The other half of the equation is to manage your demand to match that availability.

Venu

There are aspects of self-interest both for the people in a village and people in this community. Do you know of any situation – and this is not a question just for you, but for anyone here – or a case where people in a slightly larger context have been able to negotiate or bargain with each other to arrive at a cooperative solution to, let us say, a resource management problem like water management? It seems to me that if there is such a case, because there the personal benefit may not be that clear, then education may have something to learn from it.

Avinash

I would say that there is an element of self-interest that enters into most equations.

Venu

It might be a generalized self-interest, not clearly linked to my drinking water.

Avinash

There are very clear examples like Popat Rao Pawar who works in Hivre Bazar in Maharashtra, which also was inspired by Anna Hazare's work in Ralegan Siddhi. These are examples where there has been a combination of watershed, rainwater harvesting and demand management, where farmers have come forward and to say that they would not grow sugarcane or any other commercial crop because it affects the entire village. Cases of such type can certainly be found.

Anwar

Normatively, a lot is talked about water governance. I think that one of the problems is the context in which it is talked about – the value system – which is not very clear, because you talk about it as if water is commonly owned by everyone. Then we cannot talk about issues such as who gets how much, what quality of water, at what time, etc.

But when we look at it, we are not really moving in that direction where water governance can actually be talked about in the near future. Between the government, between civil society and between private ownership, you can still have people who are not really thinking about water as a real resource, because to them it is like air. We were drilling it, and it was all over the place. But if you look at it, we are drilling for oil. And oil is something which is very clearly taken care of, privately owned in many countries. I think very soon water will be as expensive or half as expensive as oil, and then the issue will have to be looked at very differently.

Eventually one comes to the question that if we try to address the whole issue of water governance, we should also have to think of what sort of a value system we are talking about with the central question being ‘who owns the water?’ I remember talking to a secretary in the government who said, ‘water is not really a problem by itself; actually the problem is land – whoever owns the land, he gets the water.’ But if you look at it, we have not been able to address the issue of land ceilings either. And therefore, until we do, and I think it is roughly a common problem, whether you look at land ceiling or whether you look at something like water ceiling, or whether you look at education, it is ultimately a matter of whether we think in terms of ownership or we let it be like a privately-owned thing, we are far from a practical solution. In fact, many Chief Ministers in the government are almost pushing forward private ownership of water as well. That is one of the issues to think about here.

Avinash

Perhaps the state is the most important player today in water governance, and it historically tends to look at the function as a supply function rather than a management or governance function. I think that is the key problem. This is reflective of a key paradigm change that is necessary.

Subramanian

I want to say thank you for starting from failures. If you want to learn from a design point of view, you have laid out six or seven dimensions. In each of the cases, if you can figure out in which dimension the failure has occurred, then the next time we design something we can take into account these failures as warnings. The whole notion of design thinking is to obviate failures. We are very good at sharing successes, but poor at sharing failures because we feel we punish failures much more harshly, especially in this country. To share failures is a very important component of any form of solutions for any of these problems. For example, when you just now talked about the state moving into privatization of water, it has been a disaster in England and in Latin America. So we must share such information with those who favour water privatization in our country.

SC Behar

You gave three examples at a very macro level, and I was trying to think about the kinds of lessons that we have learnt to provide for solutions to the kind of problems that Sharad

presented earlier. There are very major political issues with the problems that have been presented in this framework. I thought Sharad had made the problem quite simple in saying that there are multiple issues that are involved and that there are multiple perspectives which have to be taken into account and then tackled. But these issues and perspectives were not highlighted in your presentation. For example, there are political issues even at the lower level; when you are dealing with them in a residents' colony, there may be people who are against a particular scheme or programme. There may also be factions and groups, mention of which did not come. Surely these three examples have some lessons, but they are not very clear. Can you help us in trying to generalize from them and help us understand the failures, and ultimately the kind of possibilities that open up?

Avinash

It is easy to refer to a community as a community. But then, every community has its own divisions; even every household has its own divisions. In that specific context, there was leadership, and there was, in some sense, the driving force of a couple of individuals who made sure that things happened. No doubt their role has been very critical in that whole process.

But from a larger perspective, when we link it to water, and to ground water especially, because it is a completely ground-water-driven situation, the question it raises is, should ground water regulation or ground water governance be a policed, monitored in a regulatory framework, or should it be a framework which enables forms of self-regulation driven with self-interest? That is one larger reading of what we can do. Also, how do you take that learning and translate it and embed it in larger governance in the context of privatization, in the context of neo-liberal affairs? I think that is a question that I dare not even try to answer right now.

Meera

When we talk about water, I can think of two categories here. One is water as a resource which we use for agriculture, and which we use for industry. The other is water as necessity for daily life, which is its use as household water. Most of the time what happens is that water management and water governance talk about water for per-capita consumption, water for the urban city, privatization, about water in the pipes, or water as being extracted from some source which is permanently there; the problem is only about extraction and delivery. But at the level of the household, in most houses the person who fetches and sustains the water in the family is, and it is a gender question here, a woman. When I started to look a little more into this issue of water and gender, what I really realized was that most of the time when water is meant for the household, the governance and interaction based issues are dealt with women. But the moment it becomes a scheme, like in schools, it is the men who take over the management of the water. For example, there is also this story of the women repairing bore-wells in Rajasthan. So somewhere, this gender issue has been taken up by a lot of researchers and a lot of work has gone into it.

Secondly, I would like to point out something called water availability, which you can scientifically tackle – recharge, ground well, water management, watershed management, integrated water management – there are a hundred such things. In the NIAS (National Institute of Advanced Studies), we house this global water partnership which is working on tool-kits for water and river water sharing. And there is something simply called 'access

to water'. In Rajasthan, if there is a baodi and it is an upper-caste baodi, you can have it full and overflowing. But the Dalit woman will not get the water from there.

As another example, in Koramangala, there is an Asian Games village. Opposite to that, on a tank bed, is a big slum. There are some people in the rich Koramangala colony where these slum women work as maid servants. What they do is that they have a dialogue with whoever they are working for, and a deal is struck where they are allowed to take ten pots of water. They bring it to the slum and sell it at four rupees per pot. This is the kind of alternate water access that has been set up. And none of the governance people will even think that such a thing exists on the ground level. In fact, there are three or four government tanks which have been built where water comes in. But the key is in the hands of the local political lady owner. So only if you are nice to her and you invest in a chit fund, will you get the key to start the pump. So at twelve o'clock in the afternoon, everybody is out on the road washing because they have all put fifty paisa in the lady's fund.

So at two levels, when we are talking about science and water harvesting, we are also talking about water availability, and the issues around access to water which have strong political overtones. I think that is why Sharad's point is important, that the people-nature-people cycle needs to be looked into. At a particular point of time, just scientific answers will not do without social answers, and social answers are not possible without involving the politics of the age.

Sharad

Adding a little bit to that, the interface is also very interesting. One of my friends in Pune had a very interesting insight which he got from working with a project regarding access to irrigation water: how the scientific analysis or engineering prescriptions that are followed are conditioned by certain social ideas. So we build irrigation dams to store water and then typically, the engineer designs the canal through which the water is distributed, and the canal system is typically a gravity flow. So basically they start with the contour level of the exit point of the dam and the canal follows that contour so that everything which is downstream or down-slope of that canal will get irrigated and the up-slope will not get the water.

This is a purely engineering perspective. It makes assumptions that you can cut through villages with your canal system and cut through farms, and that is fine because it is the down-slope people who will get the water and that is the most efficient way of doing it. It is also interesting that in some villages where there was a movement, like in the Sangli region, the farmers asked why the village as a unit cannot be assigned water. Some of the villages are up-slope of the canal and some of the villages are down-slope of the canal, but why can you not have the assignment given to the village as a whole? And, if necessary, can engineering deviations be made in order to accommodate or to facilitate that assignment? They even suggested that if required to, they would even put a lift pump so that they can irrigate some of the up-slope land as much as they irrigate some of the down-slope land. But this has not entered the engineering mind so far because it comes from a certain perspective, that there is water which needs to be distributed, and the most 'efficient' way to do that is the gravity flow distribution. So the goal of 'efficiency' being defined in a certain way, equity or sustainability goals are not in the picture. I would, therefore, say that if we use the sustainability sutras in the larger water governance context, we will have to use the equity and cost-effectiveness sutras as well, because it is only if water comes to some reasonable cost that a poorer person can actually economically access it. Rather than calling it social sustainability per se, maybe we could think of

these as the various elements that go hand-in-hand into trying to build a strategy for achieving all the three goals – efficiency, equity and sustainability.

Let us look at the demand side of the equation. What is also interesting in the examples that were given just now of drinking and domestic water. Is that the equity issue does not crop up very sharply, because at the end of the day, the demand that you are putting on the resource is self-limiting. I mean, how much water can you drink in a day? Or how much water can you use for cooking, or even washing clothes? The big jump comes when you step into the realm of irrigated agriculture, where the tension really starts. Or it may come, for example, in a social sense – that you have migrated into an upstream area which was uninhabited earlier, relatively speaking, and now your demand for flowers can be actually very high. Flowers are very water-intensive crops, even if they are not an agricultural crop in that sense.

Devika

It depends on which flowers I might plant. I may not plant flowers which need a lot of water. I might be using the local variety which is already available – karonda for example, which is growing there wildly – but I am not able to even sustain those wild flowers.

Avinash

So the point then becomes also of social distribution again. Say a farmer came downstream first or somebody else came upstream first – how does one define even equity in that context? These are very complex questions. But they start emerging the moment the demand rises beyond the level of drinking water or washing clothes. In villages there is also a very serious conflict between irrigation water used by farmers and domestic needs of even women of the same or neighbouring household. It need not even go to inter-village conflict or inter-community conflict. Even within communities, there are these kinds of conflicts. It is a very complex issue in that sense.



But just to add a little bit, somebody asked – what is the lesson? One lesson we realized was the idea of collective action. For example, at the Rainwater Harvesting Association in Bangalore, when there is a commonality of self-interest, theory tells us that there is some incentive for collective action which is fruitful. In such a situation, you can have a governance-free environment which is more enabling rather than imposing. In other situations, where you also have to allocate water across groups, then you have to have a much more imposing flavour which says that ‘well, you may collectively decide to gobble all the water, but there are others who also need some water.’ You cannot collectively decide to ignore their needs, because collectiveness defines itself in peculiar ways. These self evolving collective action-stands are often linked with distribution issues which become as important. The key is to find the answer to the question – how do we move ahead?

Anjali

I wanted to ask for some information regarding such concerns, information which, I think, must reach people. For example, what are the kinds of consumption patterns? How

should one prioritize the use of different kinds of water? What kinds of crops take a whole lot of water? What are some examples in terms of different areas? Because, for example, in a few places like the Rishi Valley area in Andhra Pradesh, they do a lot of conservation and forestry and other things in which the ground water table grows. And then they interact with the farmers in the area if they are growing very water-intensive crops in a drought-prone area.

Also, as far as crops are concerned, in Madhya Pradesh, there has been a more global movement, a larger macro movement to move-on, particularly from the Green Revolution of the 1990s. The poor belt in Madhya Pradesh has actually been overtaken by Soya bean which is much more water-intensive. There were times when more research could have gone into increasing yields of proteins which we needed. Everyone knows what the price of toor dal is today, for example. Even though people do not have toor to consume, they are consuming more water for their crops. We need to work in a manner so that some alternatives are also pointed at for collective lobbying. This is one kind of information that needs to reach people.

The other is to develop a sort of integrated water management system with roof water harvesting and storing, and the re-use of used water. What are the kinds of ways you, a householder, could employ? One could have booklets on these. Perhaps for layouts there could be space where one could install tanks. But for individual households, what is the kind of space one would need to maintain a rainwater harvesting tank, and how much money will be required to install it? If you have any booklets or literature we could refer to, it would be great for them to be passed around.

Avinash

I think the first part of the question is a little more complex. In that context, one of the solutions, as you rightly pointed out, does not fall in the water sector. We need to look at agriculture policy, food, fertilizer, energy and electricity, and our vision has to be fixed around these kinds of issues to really fix the water issue. And what has been driving land use patterns from water-unintensive to water-intensive kind of agriculture has been economics – farm economics and the economics of the individual farmer. That has been the broader historical background that one talked about earlier. So I think it is a little difficult to respond to that with specific information because in a broad national context, each area has its own flavour and dynamics. But then, to look at what are un-intensive crops, to look at the kinds of farming systems which would be water-unintensive, this has been the work of many people now. And all this essentially connects itself with food titans. It connects itself with several other issues which go into the questions of whether the methods will then make it viable or not – and that is a much more tangled economic issue that one needs to address.

But in response to your second question, yes, there is a lot of information available on rainwater harvesting or ecological waste-water treatment. I am not an expert in that field, but the Internet should give you enough literature or even specific information around these issues. www.rainwaterclub.org has a lot of information on this. As far as specific booklets and specific information goes, you could also contact us through our email-id which is available on that website. There are a lot of other organizations giving this kind of information now, too.

Summary

The presentation was an attempt to problematize the issues around evolving a framework for water management, the limit to which it should be strictly regulated and monitored, and the extent to which it should be community driven. The speaker did this by referring to three specific examples of responses to cope with water crises, all three of which involved attempts to harvest rainwater. Discussion at the end of the presentation linked the need to develop such a framework within the wider gamut of sustainable development and equitable distribution, urging to look at the water problem in terms of the availability of water as a resource, understanding the issues around the access to and ownership of water, and the emerging trend to privatize water.

The Poorna Experience

Indira

Indira and a few other like minded people founded the alternate school, Poorna, in 1995. Recently, after completing her research about the work of science teachers, at the National Institute of Advanced Studies, Bangalore, she joined Azim Premji Foundation to use her knowledge and experience for improving the education of underprivileged children. She continues to be on the board of trustees of Poorna and maintains close association with the school. Indira has always been deeply concerned about bringing about a sustainable way of life through environment education. She spoke of her experiences of teaching children about environment and nature at Poorna and about how children develop environmental consciousness by relating with the world around them.



Indira

In the talks that we have heard till now, there were three sets of issues that came up – firstly the issues of equity rather than equality; secondly, issues related to environment, ecology, and nature; and finally issues concerning environmental education. I am deliberately using these three terms – environment, ecology and nature - loosely and somewhat interchangeably. I am not, at this point, interested in conceptually sorting the terms out. There are people far better than me who can do that. For me, the issues mentioned above are not separate. You cannot have an education that is separate from the environment of the child. What is this education for? What is it supposed to mean?

I will also table before you three notions that came to me as I was reflecting about what I would like to share today. In my understanding there are three interrelated notions in the context environment education: the idea of child and environment/nature (child and nature); second the child's ideas about environment/nature (nature in child's mind) and third the idea of the child as natural (child as nature).

Child and nature

I will begin by trying to articulate the first notion, namely that of the child and nature through a personal account of my own childhood. I grew up in Jharkhand, close to a coal mining area. My father worked in a chemical plant, and so was known as Acid Jayaram. It was a most beautiful place to grow up in. In school, we had cross-country races across the hills; there were streams where we used to go out to, and there was a huge sunken place where we had our sports activities, with the Chotanagpur plateau in the background all around. In the morning, I could just step out onto our lawn and see the sun rise over beautiful hills. But on those hills, there were also three smoke-stacks of the BTPS – the Bokaro Thermal Power Station – which is where I used to go to school, sixteen miles from my place. We used to see the Santhal people go home from working in the mines, all blackened, but arms linked together – boys and girls, men and women singing on the road as they went. Then, as we read in the textbooks, those days the Green Revolution was the big thing. So we used to say 'these farmers are not going to learn how to use chemicals. They could produce so much more with urea'. That was how we talked, back then.

In the factory where my father was employed, the nitrous oxide plant used to produce orange fumes in the sky which we could see, and the trees around it were dead. He used to work in the nitrating plant that produced MNT (mono nitro toluene). We used to go down to the river for picnics – the Konar river – where was built one of the first dams in the Bokaro valley, a dam which is still functional. It has not silted up yet. It was set up just to manage the rain-fed areas and was not a power generating dam. On smelling the chemical in the water, we reminded our father that it was his factory that caused the smell, but he would not comment about that and preferred to remain loyal to his employers. That was one part of our childhood experience.

On the other side, my mother had read Rachel Carson way back in the 1960s inspired by whom she said, ‘no DDT in our garden’. We used to grow our own vegetables in the garden – potatoes, bhindi, ber, etc. So I knew about the harmful effects of DDT from my mother having fought with my father, banning it from being used in our vegetable patch. But we did use urea. I myself have put urea around the cabbage plants. Now I am organic, so it has been a long journey towards a more sustainable life style.

There have been other things that have affected me. For example, when I was a very young and new mother, the Bhopal gas tragedy happened. It was deeply disturbing, and to this day, no one in my family buys Eveready batteries because they are made by Union Carbide. What I am trying to say is that consciousness about the environment was part of where we grew up. Many years later, my worry as a parent was, ‘what is the environment going to be like when my children grow up?’ I did see, in the twenty years that we were at Gomia, the hills being denuded, and the disappearance of thick sal forests. There was one amazing hillock which they re-forested with what is called acacia auriculoformis – a common forestry species. But what was strange was that they first took down all the existing trees and then did row-planting of this plant species in the name of afforestation!

At that time, we lived close to Hazaribagh, the land of thousand tigers; zero tigers are there now. But in the magazine area of the factory where father worked, where the explosives were stored, a Royal Bengal tiger was caught and killed and taken from house to house. There are barely any of these tigers left now – there are probably just a few left in Betla National Park. But they were there when we were children; we have even had pug marks on our garden. So that was the environment of then, which has drastically changed now.

Coming back to the first notion about the child and its environment, the concern for us teachers is – what does that environment do to the child, and how does the child relate to the environment? This notion also finds reflection in NCF 2005. A child living in a slum also learns from its environment. Whether we acknowledge that learning, whether we draw it into the class, whether we allow it to make sense, whether we allow the child to resist, or be part of it, deliberately through our teaching in the classroom – these are the questions that we need to ask in terms of education.

What is the notion of the child and its environment vis-à-vis learning? At Poorna, we questioned the popular notion of a classroom which seemed to cut-off the links between the child and its immediate environment. A child might be physically present in the classroom, reading from a textbook, but not relating to anything which is immediately outside or next to him. That is how it used to be for me in school as well, in Gomia. All the fun we had was as soon as the bell rang. It was our father who took us to the chemical plant where we saw what we were reading about in our textbooks – the catalyst plant. But such practical experience did not seem to be required in the typical classroom.

The question is – what does it mean to relate your classroom experience to what is outside? I remember teaching a class which the children eventually called the ‘Flies,

fleas and flues', where we just took one walk outside the school, down Kodigehalli main road, where people were spitting, some were walking barefoot, and others were defecating, and they learnt what public health is all about. They saw all this among multiple-storey, high-rise buildings. This gave them food for thought, to think about the social and biological aspects which form part of the environment. The question we have to ask ourselves is: how much of the child's immediate environment – and I mean social, cultural or natural environment – can he or she be made to reflect upon while learning different subjects such as history and science in the classroom?

Also, I feel that the notion of science and scientific is not a-social. I think 'scientific' must be understood within the purview of 'social'. When you teach science you cannot separate teaching about the atomic structure from teaching about Nagasaki. You cannot separate teaching about atomic energy from teaching about mining in Jadugoda, or the agitation about mining in the North-East. You cannot separate talking about extraction of aluminum from bauxite from strip-mining. In fact, regarding the Niyamgiri hills that yesterday's presenter talked about, I have a sister who lives there, works with the tribal people, and she certainly sees it as a life issue. We at Poorna had her come and talk to the children about what happens there. She helped draw the connection between what happens there and the aluminum cans of Coca-Cola that are so popular now in cities. These are complex links. I think someone here asked the question, 'is it our job to simplify these matters?' On the contrary, our job is not to simplify but to talk about these complexities. It is for us to realize that children can think about nature and the environment around them in complex ways and to help them understand the environment better.

Someone here also mentioned bird-watching. I think luckily children can still see birds in our cities. In Poorna, children are free to move around during school hours. Once, a little boy happened to walk into my senior class, which had been interrupted because there was a Bushchat just outside the classroom. This boy was very curious and he went home and told his mother, "Indira showed me a Bushchatter today", and his mother was surprised to find out that such a bird even existed. At age five, this child could identify a bird by its flight pattern. Again I ask – as educators how much of the environment do we expose a child to, should we bring back to the child?

I would here, like to mention the inspiring story called 'The Parrot's Education' by Tagore, where he questions the notion of whether we need to build structures for education. In the story, the maharaja wants to educate the parrot which he says is stupid and wild and 'doesn't have manners'. He calls the educational structure a golden cage. And so, talking of building structures, we need to think about it deeply about the kinds of structures we want to create in education. What do we mean when we build a structure for education? And what should these structures be? These are embedded questions which we certainly need to deliberate upon.

I am also worried that when we roll out the UEE mission, we will also be rolling out structures. We are trying to prescribe what kind of structures ought to be. Can we do that? Is there one structure that fits all situations? What different kind of structures do we think about as suitable to help children in different contexts learn about their environment? All these can be traced back to the point regarding the child and nature.

Another issue one could bring up is that for a child, what is natural about her environment? As a mother and as a teacher, is our role natural or not? Is it an individual child growing and learning in isolation? No, of course not. A human child is part of a human society; is part of human culture. There is also a dichotomy between nature versus culture. Ideas

about the allowing the child to grow in a natural environment could indeed be romanticized. We can completely forget that, for example, it is natural for a child to be around adults, to learn from adults, or to learn by so many other methods. A simplistic understanding of Piaget would be in saying that a child exploring his environment stands for a lone scientist's view. Whereas someone like Vygotsky brings in deliberate learning, the fact that culture mediates, that everything that a child learns or makes sense of in the world is mediated by his relationships, and also by his material relationships. We cannot forget that Vygotsky was a Marxian from Russia, and so the mediation of the material. But this further problematizes the issue of what natural development for a child really is. Is there such a natural development at all? Some psychologists would like to tell us there is something as a 'natural development', but cultural anthropologists and sociologists will not agree. Even the notion of how childhood can be understood can be questioned.

In Poorna, such questions became common, that need to be handled everyday in a practical situation. What does a teacher do? When does a teacher interfere? What does it mean to set up an environment? A part of the reflection is that we have actually had a group of people who were working together to move away on this very notion of what it means for a child to develop naturally. What is our role as teachers? How do we create an environment which facilitates or promotes a certain kind of thinking? Do you have timetables? Do you allow them to govern a classroom? We conducted several experiments with timetable – while someone said yes to timetables to be drafted and followed for certain time, others said that if children do not come in, the teacher could simply ask them why they have not come in to a class. A group of children said that there should be no timetable and felt that they should come in when they want, and will not come in when they do not want. There was another set of kids who, at the end of two months, had not come in at all. So then what? Then we faced questioning parents. The children themselves do not know why they have not learnt or read certain things which the others who came to class have read. We have tried a Totto-chan system as well which worked for some children. The whole class read Totto-chan and the children asked whether they could have such a system in school, and we tried it. The idea was that the teacher puts everybody's work on the board and they decide when they come and do it. And then the rest of the time, once they finish their work, they go out to play. It was agreed upon, but this is what happened in practice: the ones who were more tuned-in towards academics came in first, did their work, and went out to play. The others would play till three o'clock. At three-thirty, they would come in and expect that they would go through all the six subjects, and they wouldn't be able to do it all. They would lag further and further and further behind. Eventually they would get stuck and then you as a teacher are stuck. That is one thing that happened with experiment.

Another thing we tried to do was to give the children deals, that when they want to play a game like cricket or any group game, they would have to play it as one cohesive group. So the children would say decide to finish a match together and work together. So it effectively became a class in any case. They came together, played together and they did the work together.

The third thing that happened was that teachers found that when a child worked individually, he/she did not get the kind of understanding that is possible when he/she worked in a group – talking together, bouncing-off ideas and so on. So we all, the teachers as well as the children, sat down and reviewed the situation and decided that we should go back to the system where we could work in groups and not follow the system that was described in the Toto-chan book.

The idea of nature in the child

That brings me to the next idea – the understanding of nature in the child’s mind. The notion of “what is nature” is within the child’s mind. This was brought home to me by one incident which I recall. Students from our school had gone to a tribal school in Kerala, in Wayanad, called Kanavu. They stayed there for three months along with the tribal community. They also went out to the forest with them. Those tribal students were older than the group of students from Poorna. They went to the forest and suddenly they saw a civet cat, a marapatti, on the tree. One of the boys from the tribe quickly took a bicycle spoke and made a little arrow out of it, killing the cat, which they eventually ate secretly in the forest because they knew that Baby Maman, who runs Kanavu, is going to be wild if he knows this. The children from our school were aghast, because they knew that the civet cat is an endangered species, but they marvelled at the boy’s skill at being able to do this. So now there was this conflicting notion of nature – the tribal boy probably had a different idea of nature, where the cat is taken for granted and it was part of the cycle of life and death to kill it. But the urban Poorna children came from an environment where the civet cat is rare and is to be protected, and not seen as something you eat. It is something you need to protect in a sanctuary. Here one could see the competing notions of nature.

We also have to enable our children to understand certain terms around us that are related to the environment. For example, dealing with the incident I narrated above – what is a sanctuary? Do you displace a person from a sanctuary? One of the students from Poorna who then did her Masters in Wildlife Biology actually looked at this issue of the notion of the forest. Protected forests, as the satellite map shows, are shrinking because of the people on the periphery. Who are these people around the periphery? A lot of them have been settled there after some dam project has started. Or they have been moved out of the sanctuary because the sanctuary is a core, protected area where people are not supposed to live. This girl met an old man who belonged to a displaced tribe who said, ‘It is okay if they have pushed me out of the forest, I will grow my own forest.’ So he had actually collected all the seeds which he, as a person of the Soliga community, had grown up with, and grew them in his half-an-acre of government land. He said that he would not

grow ragi or whatever, because he did not know how to. But he made use of his seed collection. I think that it is amazing that he did that, and that he is someone who is quite environmentally conscious. You can take him out of the forest but you cannot take the forest out of him.



Child as nature

The final idea that I would like to explore today, is the notion of child as natural. This idea is there, particularly in alternate education literature which one needs to look at and examine both from theoretical as well as very practical aspects. What do we expect out of education? First of all, I would like to say that it is okay to expect something out of education because education is deliberate. It is not a random process. Every society has processes for educating its people in what they think is important, processes which are deliberate and thought-out. What is happening now is that as this particular form of education spreads, certain other local education frameworks are being ignored just because they do not have

the same ways of talking about it. If you stay with your grandparents in a village, you will learn something quite different than what you do when you go to school. So if you shorten the time which you spend with the grandparents in whatever natural setting, then what happens to that kind of knowledge? Where does it go? For example, the other day I met an old lady on the bus and she was carrying a bunch of weeds and I asked her what the weeds were for. She said that they were good for her stomach. She told me, "When you have a stomach ache next, you too should eat this same plant instead of going to the doctor." Would her daughter use the plant in the same way? And considering the pace at which roads are getting widened, and everything is getting concretized, will those herbs even be around in the years to come? Will anyone even know what the loss has been? These are the sort of questions that come to me as we think more and more about certain forms of education, and the ways of living we are adopting. Embedded in every form of education is particular idea of nature and we need to become aware of this if we want to deliberately bring about the kind of understanding of nature and the environment which will allow us to live sustainably on this earth.

Paradise Lost: an account from a teacher at Poorna

Lastly, I will just read out a blog from our school site which the teachers have titled as 'Paradise Lost'. It will give you a sense of what goes on in urban children's minds with regards to nature and the environment. This was written on December 5th, 2008, by a teacher:

The new building of Poorna was constructed in the countryside and far from the main city with the main purpose of giving us an opportunity to relate to our surroundings in a natural way. For the last one and half years, all that you could see on all sides of the school were several trees and thick shrubbery!

Over this period, there have been several ways in which both the children and adults in Poorna have learnt to connect to the land and the life around us. There have been many walks that have doubled up as expeditions in which the children have discovered new places and coined names for them. Some of these places have lyrical names like the Sapphire Garden and the End of the World, others matter of fact ones like The Forest, and some are just plain funny like the Underwear Factory!

The End of the World is actually just the end of the compound, and there is a sheer drop beyond which is Reva Engineering College. So that is The End of the World, a place where you can escape and hide from your classrooms.

Many trees and scenes from around school have been the central themes of sketches. Children from many age groups have learnt to identify some of the most common trees around them and even recognize many of the birds that make their nests on them. Quite a few kids love searching for and looking at all the insects that live in this wilderness – the spiders and millipedes, the factoots and the tiny frogs that hop around in the rainy season, ladybirds, crickets and beetles in all colours, shapes and sizes.

Some children have built their own tree houses with logs, leaves and bricks from around the school. Others have arranged bricks under a circle of trees and used these to have a chat session or a party. Quite a few of them have tried climbing every tree that looks even the least bit inviting and if you ever want to know which trees are the easiest to climb, which trees give you the best view of the school or its playground or which trees are the most comfortable ones to sit on, all you have to do is to ask any one of the kids, and in a few minutes there will be a huge group of them giving you their opinions and helping you compare the trees in the new school campus with the ones in the old school campus!

I must mention here that in the old school campus, every new kid was helped to climb a tree. So they had graded tree-climbing exercise. All were on their own and there was no interference from the teacher.

However, the construction of the New Airport has changed a lot of things around Poorna. For one thing, the traffic on the road to Poorna has increased. In addition, more and more people are either buying up vacant land near the school or starting off constructions on land that they had purchased a long time ago.

In the last few days, the land just opposite the entrance of the school has been cleared up. All the trees have been cut down, most of the shrubbery has been pulled out, and all the dry grass has been set on fire. The pace at which all this has been done is shocking! On Monday, you could look out of the window and see lovely tall trees. But by Thursday, all that is left of these trees are their stumps, a huge pile of wood and a black charred plot of land!

On the first day of work on clearing up this piece of land, many of the kids were very disturbed and anxious to know why all the plants were being uprooted. They were particularly worried about the trees being cut off. On the second day, the first thing that many of them did on coming to school was to survey the land opposite to see how much damage had been done. By that time, the first couple of trees had been lopped off. This made quite a few of them angry and for the entire day, they kept coming up with many questions like “Why do they need to cut trees? Why can’t they just clean up all the grass and leave the trees alone?” They also wondered why none of us seemed to be doing anything about it. One of the kids even suggested that her entire class and all those who cared about trees could go and hug the trees to prevent them from being chopped off! On the third day, in their own ways, they had started accepting the change. In some discussions on that day, it was interesting to see that quite a few of the kids were familiar with terms like the “land mafia” and talked about how unoccupied land in good locations could be unlawfully taken up and used for construction.

On Thursday, in a session of community work, children from the Moonstone group were asked for their opinions on what was happening to the plot of land opposite the school.

Here are some of their responses:

Deepa

I felt very bad when the plants and trees were cut down. But if they use the wood and land to do something good like building a house, then I will be a little happy. I’ll still miss the trees a lot because we used to play hide-and-seek and sometimes even study there. We liked those trees a lot.

Peter

It’s fine. It’s their land. But they should grow more trees, because trees give you oxygen and shade. They are homes to birds and animals. If you have trees, you can build a tree-house.

Akhil

It’s perfectly fine. It’s not my land. If it were my land, I don’t think I would have done that.

Ganesh

Those people are cutting trees to make paper or plywood, or for money. If you cut trees like this, you are increasing pollution, destroying our earth and destroying ourselves. So please stop cutting trees. Grow more plants and try and recycle things as much as possible. Even we are trying to stop polluting and cutting trees. Please save trees.

Arnab

The people who are cutting trees are doing a bad thing. They should not cut trees because they are spoiling the environment and reducing the greenery.

Dhruv Pujari

I am really sad about what they are doing. My friends and I called that place Paradise because of the amazing variety of birds and butterflies. I'll miss that place. And so on.

Manoj

I feel that they should grow more trees than they cut down. But I hope that the government also makes a law that people should grow more trees than they cut down. It's sad to see the land being cleared up, but it's also nature's way.

Dhruv R

The people who have cut down trees have done a bad thing because they are killing a lot of life and now they are burning it, which causes pollution. So I think they should plant more trees.

Gagan

Some people are cutting down trees in front of our school and using this land for their own work. I don't like what they are doing. They are spoiling our good air-conditioners. I just don't want them to cut trees.

Sameer

Cutting down trees to clear land is bad enough but burning the logs is just causing too much pollution. If you cut trees, then at least use them for useful things like building. Why burn wood?

So in a way, children are seeing and being sensitive to ownership issues, the possibilities of alternate use of land, and are being exposed to legal issues around these concerns. They have said that the government should have a law. They respect the fact that property can belong to someone, although one can question that. But you can see that they are thinking about things themselves when you provide space. They have the ability to think through many of these issues from a young age.

I just want to stop with that for now. Thank you.

Sandhya Gatti, The Teacher Foundation

I just want to thank Indira for what she said, because my children studied in her school and one of the responses she read was my son's. They have grown up to be very sensitive people. I just want to thank her for what she has done for my children.

Hardy

I think some of the issues that you raised were very important. I do have some questions though. This is a personal experience and there is nothing that you can take away from that, but the key idea I got from your account was about the kind of teacher who would be able to do this, and that the perception of the teacher as well. If the perception of the teachers about development and about equity are different from what you hold, would you still feel that an open-ended discussion of this kind would be possible? Also, suppose the fact that the teacher has the right attitude. How does she get the kind of information that you have about the kind of social issues that you know about, the movements you know about and the fact that you have the same perspectives on that? That, to me, is the central issue about open-ended environmental discussions in the kind of context that Sharad spoke of yesterday.

The second part of the question is about the child as nature. There are two ways you can look at the child as nature. One is in terms of child as nature – as to how you educate the child, which is what you seem to have looked at. But there is another question that arises from that. If the child is nature, then so are adults. And if nature has to be natural, then how does change happen? So then, inorganic urea is also natural – it is a creation of the human mind. So if thought is natural, then why is inorganic urea not natural? It is a perplexing question. In this argument we come back to talking about child as nature. You are actually talking about the question that we were raising yesterday – how do you decide? How does the system decide? How does an individual teacher decide the ethical questions, whether human beings are actually native on this earth, whether human beings are actually equal? Do we have to be treated equally? And then place the discussion of what you do in different situations.

My concern is that the responses that you read out are responses of your students. I am not sure whether the responses of children in a wide variety of schools would even have some of the elements of exploration that these responses seem to have. There has naturally been a lot of influence of your interaction on them. So at one level, as a teacher, as an individual intervener, it is a very good thing to have an exploration with your children. But as a systemic intervention of a group of education policy, what do you do?

Indira

I will tackle the slightly easier question first. That interaction is not with me. In fact, I was as surprised and happy to read it on the blog. I have not been regularly teaching in Poorna for several years now. So this is not me, this is one of the other teachers who has written. I have never taught these children myself, which is why I was particularly interested in sharing this.

Hardy

I am not talking about 'you' as an individual, but 'you' as a system.

Indira

I think you have raised an interesting question. Perhaps someone who is not directly involved or working with the school should come and look at this question. But the surprise is that a change in mindset comes about fairly quickly. I mean, you have mainstream teachers who move in, and within a month or so they adjust. There is no very formal induction.

Children here perhaps would have a similar conversation on issues that are directly related to them, because of a sense of relation, but I do not know if similar explorations can work with other children. Why do or why don't these explorations take place, I think, is the question you are asking. No doubt these are questions that we need to ask. Also, if we want to bring about a kind of sensitivity in thinking about things, then what is it that our schools need to be? When you talk of an atomic power plant, you also need to take into account where the uranium is mined from. I can give you lots of examples where children do ask these questions. For example, a tenth-standard child who I taught was extremely concerned about illegal iron mining in her place in Goa.

Siddharth

That was a fascinating presentation. The question that I have in mind has to do with schools like Poorna and CFL. These are schools which frighten mainstream parents, and mainstream schools are so completely different from these experiments. Here we are talking about what is climate change and what are all the terrible things that are likely to happen in the next 20 or 30 years. I keep thinking that perhaps the time is coming for schools like these and experiments like these because at such schools a certain kind of consciousness is created which allows children a natural, spontaneous and holistic ways to view their surrounding. A part of the mess we are in is also related to the consciousness that we have acquired as a result of growing up, as a result of education, as a result of the goals of society, and as a result of the goals of life. In your school it seems that the process of education is developing a kind of consciousness which allows us to, if I may use the phrase, tread lightly on the planet.

One thought which came to my mind as you were speaking is whether any effort has been made for schools like these to come into dialogue with mainstream schools, whether WIPRO or such organization can consider that maybe the time has come when what is happening here needs to be communicated to parents as well as schools which do not have a clue about things that you are doing. Because many schools see education as an empty vessel which has to be filled up.

As long as this effort remains marked as something small and marginal, it will not be able to substantially dent the system. Is there any possibility of thinking of multiplying this? I know it cannot happen overnight. But with a larger number of people being conscious of the environmental issues we have been talking about, maybe the openness might be emerging for a dialogue.

Vishnu Agnihotri, Educational Initiatives

Thank you for the very interesting presentation. It came from a very personal viewpoint. These are obviously very complex issues; like you were talking about the conflict about the civet cat – whether to protect it or to eat it or, what is natural, and so on. I have two-three immediate comments in mind. Firstly, it is not just the children who need to be educated, because we ourselves are grappling with these issues as adults. We either lack the sensitivity or the understanding or the clarity about these issues and there are only philosophical answers to such questions. I do not see how unless adults are part of this debate and get educated on these issues as well, one can even hope to do anything.

Secondly, these issues are intrinsically very complex. My personal view is that money would never solve the problem. One would need to have the consciousness and sensitivity to these things. In that respect, I think one of the most important things which needs to happen in schools and our learning environments in general is to break authority, because

the reason this dialogue does not happen is because someone is supposed to know the answers.

Anjali

Instances from schools like Poorna are always very inspiring. One question is that most of the schools relate to the environment work in a very organic manner in terms of curriculum, what is to be taught, how to bring it up, etc. You decide amongst yourselves and do not follow a textbook particularly. On the other hand, there are textbooks. Some of us get involved in developing textbooks for the NCERT or the state or whatever, which are centralized. We also take the activist, critical kind of mode.

The kind of examples that you have cited, if they are included in centralized textbooks, how can they be linked with the experiences of children? How should they be used positively, and how can they gel with local examples? Many a times those examples may not relate to most of the children, while we get very excited about putting them into these textbooks. But do such examples hold meaning? Between these, between de-centralizing curriculum through the school level at a mass scale and a centralized textbook, what is the kind of relationship?

SC Behar

Thank you for your fascinating presentation. A point really seems to have been made is that it is possible, in certain circumstances, to make children imbibe the values that were being talked about yesterday.

But I congratulate that. To me, it is very optimistic. It shows that it is not difficult to be able to do it. If we here are discussing ecology or environment and nature, then we must be optimistic – let us see how we can do it, how we can take lessons from this and other such examples and incorporate them into our own institutions.

The question that is in my mind is, what are the kinds of, I use the term deliberately, dilutions or modifications or changes that are possible to make an example more practical and usable in the mainstream schools and yet retain the spirit of making children critically conscious of what they are seeing around them? After all, I do not believe that it is necessary that all institutions must be of the Poorna kind to be able to do that. It can be done even in other schools, but how that can be done is something that does require a lot of reflection.

Usha Raman

My response is, in a sense, to all the points that were raised. What we try to do in Teacher Plus is exactly this – take the learning of alternative or experiences of freer spaces and show the mainstream teacher that it is possible.

Also, where does information come from? I think that in most of the large cities, and definitely in many of the larger towns, there are groups that are trying to raise various issues. Like in Hyderabad, we have the Save the Rocks Society that wants to intervene with schools. I think teachers should try and find these groups, connect with them and bring them into the classrooms, because many schools do not have nature around them. My question is to do with how we can help teachers make these connections. I think it is possible to take lessons from these freer spaces and show teachers in other places how they can do it. That is certainly a very important thing to do.

Indira

I am just wondering, what is mainstream? It is almost like the nature question. Are we really right in assuming that there is one monolithic mainstream – a small, to my mind, frightened and cornered set of people who want to impact? I am sorry, but one question is, do we need to look at different ways of doing things as mainstream or non-mainstream? That is one part of my response.

This is the way I see it – different people, different teachers, work with their own understanding and their own constraints in terms of spaces. Poorna too has constraints. Also, the way people think about and talk, everyone has a different opinion – you say urea should be used; I say urea should not be used. Let us just talk about it and see why we are saying what we are saying. To carry different opinions forward is to keep the dialogue open. But we must respect each other when we stay with our respective arguments.

That is also part of the process of drafting the textbook and the curriculum, that it should respect the space that a teacher has to have to be creative in her classroom for so she can inspire dialogue. Please take note, I am talking of dialogue, not ‘teacher training’ or feeding activities that can be done, to build an understanding about environmental issues. I am not saying it is easy. And I am not even saying that I have tried it to any serious extent.

In reference to textbooks, we do use textbooks. I like good textbooks which give me ideas, which get me thinking, that get children thinking. I think a good textbook is an amazing tool and if it builds understanding, and the teacher has understanding, you can relate it to the environment. For example, there was a textbook which was not written in India, but they had a classroom situation in a chapter on metallurgy where the suggested activity had a scene that was sketched out, and it seemed like any scene which could be happening nearby – about a river and a mine and people who had to be displaced. And they had to argue about mining from various points of views. It really worked in the classroom. In fact, the child with the Goa mining experience who I mentioned earlier had just interacted with the class. There was a very lively group discussion in which children took different points of view. There was a point of view saying that if mining were to start, there will be a lot more jobs; those people will be able to live in apartments, like us – and why not? Why should they always be living in the forest and fishing in the river? There was one group which was strongly against mining, and said that they would talk on behalf of the fishes and the birds who will get affected. So there was that voice that asked the question ‘who is going to talk about the animals?’ This is where I see a role of textbooks as supporting the teachers. Information, if it is available in a neatly usable classroom form, I think is of immense value.

But how do we work with our teachers? It is a big question which I personally am extremely interested in at this point of time, because I have seen the training I went through. I have seen what it took. I have seen what kind of dialogues Poorna can create, or even fail to create. Dialogue around curriculum, in my B.Ed. course, was not there. As a teacher, I never had the notion that curriculum was something I could control. Curriculum was handed down through the NCERT, through the state boards, and through the textbook. So we as teachers need to know what we are capable of and to start reflecting and working on all those things.

Respect and relatedness – these are the two key words I leave you with now. Respect the other person for what she is, where she is, where she is coming from. Relate classroom teaching to experiences of the world outside. Relate to your corporator, relate to your dustbin. I was in CEE and my major project was garbage. My kids started saying, ‘Amma, all you can talk about is garbage.’ But our cities are drowning in garbage because we do

not want to think about it. But we must think about it. We must relate it with our immediate environment and consider it our immediate concern.

Venu

Thanks, Indira. The dialogue and the ideas do not end here. They begin here. It is impossible, given the time constraints, for everyone to express their points of view. But that does not mean that some opportunity has been lost. We are creating opportunities for further thinking and discussion.

Summary

The speaker dealt with three ideas in the context of environmental education:

- The child and nature
- Ideas of nature in the child
- Child as nature

She presented a reflective personal account of her childhood and about her interactions with children to articulate how sensitivity towards the environment and nature can develop through life experiences. In relating these, the speaker talked about how a child's learning can draw from immediate experience of the surrounding environment to build a deep understanding and sense of relatedness to the environment. She also drew from teachers' experiences in a school that follows an alternate framework of education. In this school children are free to connect with and reflect upon their experiences with their surroundings and in the process develop environmental consciousness and a sense of responsibility towards nature. The speaker also drew attention to the differing ideas of nature and environment that are embedded within different forms of education and the importance of becoming aware of these in order bring about the kind of understanding of nature that will allow us to live sustainably on this earth. Questions put forth raised such issues as the need for dialogue between such schools as Poorna and 'mainstream' schools, dialogue between schools and organizations linked to environmental concerns, and the role both contextualized or non-contextualized textbooks can play in facilitating dialogue in the classroom around such issues.

Alternative Livelihood Context

Sunita Rao

Sunita works with ATREE. Her presentation was about her experience of developing an environment conservation education programme for the Andaman and Nicobar Islands and the academic challenges she faced therein.

Sunita

My thanks to Wipro and especially Prakash and Sreekanth. I want to say at the outset that I do not come from a background of education. I did my Masters in Ecology and got into education later on. So I do not have a pedagogical background. But of the fifteen of us in the Master's program, five got into education, two at the post-graduate level in ATREE, and three of us have been closely involved with school education and working with teachers.

I have been a member of Kalpavriksh from which I have derived a lot of energy and ideas. Kalpvriksh is an environmental group that began in 1989. A lot of my own philosophy and outlook have come from that group. I started working in the direction of conservation education work thanks to Kalpavriksh. Eventually, I moved on to living in Sirsi – twenty kilometers from the town of Sirsi – where I am regenerating a piece degraded land. I also work with the women farmers' seed collective, home garden and seed collective. I am an Adjunct Fellow at ATREE in Bangalore as well.



So that much said, my own work with so-called environmental education, conservation education, began in 1990-91 in Delhi, when we did a series of small workshops that were sponsored by the National Museum of Natural History. There was a sense that I did not know how to use all of the science I had studied. Suddenly I found that here was a way in which you could actually make all this information available to a different audience, to make it enjoyable, and to make it meaningful. I think that was the start. After that, thanks to Rom Whittaker of the Madras Crocodile Bank, I got thrown into developing and designing a conservation education program for the Andaman and Nicobar Islands. At the time I did not know what I was doing or where I was going, but I think getting thrown in at the deep end is a very useful thing, even though sometimes you feel like you are drowning.

Importance of developing context-sensitive material

Nearly 18 years ago, I began to respond to the crisis of the paucity of appropriate textbooks. Things today are quite different. But at that time we had books in places like the Andaman and Nicobar Islands which would come from Delhi. You can understand how inappropriate those books would have been. There was no element of the local environment. One of the first things I picked up along the way was the very real, tangible importance of material that is localized, set within a particular vernacular context. And by vernacular context, I do not only refer to a linguistic context, but vernacular in all its multi-dimensional forms.

Such material enables a child's or an adult's understanding of concepts that may be universal. We realized that localized material also pays-off dividends in terms of what you invest in the education system, and if the child is going to continue in that environment as a responsible citizen in the future.

I mostly worked with government schools in rural areas. We have a peculiar set of issues working with government schools and teachers. There are many compulsions which have to be taken into account. I also began recognizing the fact that we had all been educated with fear. Fear is a very potent tool that people seem to use in the education system. One is afraid to ask questions. Even today, I am afraid of expressing an opinion in public. Also, curiosity is killed at an early age; your sense of imagination is nipped in the bud, and there is no way in which your ability to question, to assess, to problem-solve, or your special imagination is developed in our overall current education system.

The question is how do we address all this, with the main motive being to bring environmental education or concern for the environment into the system? There is, of course, the Supreme Court directive that Environmental Sciences (EVS) be a compulsory subject in all classes in all schools as a result of which the textbook bandwagon has become a big, money-spinning business, a very sustainable livelihood. But I am talking of a time slightly before this happened.

At this juncture I would be very happy to share with all of you here my experience of running a conservation education program right from its genesis. But first we must ask – why do we want environmental education at all? Let us ask the target group or who has asked us to prepare the material. Why do we need a conservation education program? Various groups have given different answers, including such responses as 'all our basic resources on which we are dependent are finishing', 'traditional knowledge is being lost', 'alienation is happening'. So there have been responses of various kinds at various levels. But the general consensus has been that conservation education or environmental education is necessary. These responses were from government school teachers.

On the other hand, we also have a set of problems such as teachers being pressurized for time, having to go for census duty, election duty, mid-day meal scheme, frequent transfers, not to mention a lack of interest in teaching – there is a matrix of issues. The question is – how does one balance the two? How do resource/intervention organizations work within the system and provide some kind of minimal input that will make sense? This was the reality in the face of which one went ahead.

In my notes there are twelve different issues or points which would be very useful to keep in mind when running a whole conservation education program. I am not only speaking in the context of work being done in a single school, but work at a taluka or a district or a Union Territory, like the Andaman and Nicobar Islands, from genesis to networking with people, methodologies, making assessments, content development, fund-raising, project writing, reporting, evaluation, monitoring, and thinking of an exit strategy. If anyone is interested, do write in and I would be happy to share a little note which I have written, which would come in handy.

I will not go into details at the moment, but I would just like to say that over the years, in response to the paucity of localized information in the vernacular, the various programs I was involved with came up with localised teachers' manuals. Teachers do not want to go looking for information because it is really hard for them, especially in remote locations. They feel very secure with a textbook, which is why, willy-nilly, we had to adopt the textbook method. So for the Andaman and Nicobar Islands, we produced a particular manual called Treasured Islands, looking at the various important issues and ecosystems in that place, with activities. This book also exists in Hindi. In fact, Sushil Joshi of Eklavya did

the translation. There is no copyright on any of the material we have produced. I also hear that they are going to bring it out in Bengali and possibly Nicobarese. I do not like to use the word 'translation' because that is not right. One can only say it has to be rendered in another language.

In research, what happens very often is that researchers, be they sociologists, anthropologists, ecologists, etc., go into areas, especially a rural area, to collect data, publish it as a report, or a thesis, and the content of the report never gets pooled back into the community, and that to me is a crime. Especially when you consider how vital it is to make high fashioned scientific information available in a form that can be understood and used by the community of the place where it comes from originally, or by people trying to work with that community. This is something that we have tried to consciously do, whether it has been in the Andaman and Nicobar Islands, in Lakshadweep, Delhi, or a wildlife sanctuary in Karnataka.

We had started a programme in the Andaman and Nicobar Islands and Lakshadweep because these are two Union Territories on either side of the Indian peninsula. These places are very fragile because they are island ecosystems. The Andaman and Nicobar islands largely have a population from mainland India. It was a penal colony earlier for mainlanders, where indigenous tribal communities had lived for millennia. As a result, there was a whole set of issues and problems. Lakshadweep, on the other hand, which is a set of coral atoll islands, has an indigenous population. When we began prioritizing the environmental issues in Lakshadweep, which was an important exercise for us, one of the first things we asked the locals was 'what is it that bothers you about your surroundings?' and many said global warming. We were amazed at this because on the mainland, global warming was not really spoken about at that time (1995).

Last year, we put together a compilation of resources for conservation educators, because it is quite hard to go and source films, books, papers and activity ideas and such things. The material compiled was put together as a CD. Suggestions and additions would, of course, be welcome. I would be happy to give a copy of the CD to anyone who would like to have a look at it. This could also be a nice project for a Wipro Fellow as this initial compilation was done in a hurry by just a handful of us.

Giving impetus to alternative livelihoods through education

But what do we do beyond devising such programmes or creating teaching material? This was the question that caused me discomfort and restlessness. In the meanwhile, in my own life I moved to Sirsi in Karnataka's Western Ghats, and have been living on a patch of land, being a forest gardener and trying to learn some practical lessons in sustainable living, rather than being a talking head! There I was also involved with a programme that looked at formal and non-formal education, assessing the potential for conservation education in both. A lot of real learning happens at a non-formal level. And one of the aspects of the programme was to look at women's roles in maintaining very diverse home gardens that had great potential in providing classroom material. There was great truth to a poster we later came up with that said 'Grow a garden, nurture children and evolve a curriculum'. Because you cannot take children out to a wildlife sanctuary, sometimes a thing as simple or as complex as a home garden can be a rich medium for learning.

This is how my whole involvement with helping with the creation of the Malnad home gardeners and seed keepers collective began. As part of that we have been looking at food security, nutrition and access, and the conservation of traditional seeds. At one point, the women said "All this conservation does not make sense to us. We are not

environmentalists who get projects, get funded. For us if there is no money in this, all the conservation and education does not make sense.” With this in mind, we wondered what to do next. This whole other dimension of trade and economics began to play a role in conservation and education work, but it had to also make sense ecologically and culturally. I wondered how one could go beyond producing appropriate material for a particular learning situation and begin a parallel journey of looking at environmentally benign or ecologically sensitive livelihoods or enterprises. Somewhere the two have to come together, to have a synergy, if conservation education and sustainability have to make sense.

There is such a diverse gathering of people here involved with education at various levels, so the question is how can we all collectively come together and think about small and big ways in which we can contribute to this whole, rather big and complicated issue of making available appropriate, sustainable livelihoods within the education system? Because such livelihoods are rarely made available in the mainstream today. I face problems of livelihood constantly in the village. Children come home for inputs mainly in English, Maths and little bit of Science. But then they also ask ‘What do we do next after high school or PUC or after getting a degree? Where do we go? We do not want to get back into agriculture or fisheries. We want to go to the city or we want to do something different. What are the various options available for us?’

There are some training programmes available in town that mainly look at how best to feed the rural population to the growing needs of urban centres. Very popular are computer courses and courses in English conversation. Doing these the youth get absorbed into BPOs and call centres. Here is what happened to one of my neighbours, who joined a BPO and was not happy. He called me up, and I got him in touch with this wonderful organization called APD – Association for People with Disabilities. My neighbour is now a trainer of trainers in their Horticulture wing in Bangalore. Their 5-acre farm in Kelasanahalli is just around the corner from here. I get SMS messages or e-mails saying ‘Urgently looking for B.Sc. Agriculture graduates to run organic farms’ because now organic farming has really picked up and it is trying to enter into the mainstream. This always makes me wonder why a B.Sc. in Agriculture would be required to run an organic farm. You can have a class 8 pass or fail to do the same. A 4-6 month training course could prepare anyone for organic farming; they could also be taught the rudiments of marketing, be able to do book-keeping, all without shying away from physical work. Our education system teaches us that to touch the soil is demeaning and demoralizing.

All of what I have outlined above really comes down to this – can we, even at a small scale, provide these alternative courses, or work towards a strategy and action-plan for sustainable livelihoods through education and learning? I have written down some of the ideas which I would like to share with you here, and we can just keep adding to the list of ideas. I think this need for ideas has also come about because there has not been much innovation from the government. The economy seems to be getting narrower and narrower. I was talking to someone from the NIAS the other day and she explained this by saying that your sense of autonomy is also getting taken away. Many livelihood options are not recognized, and that you have to endorse their worth. You cannot have people making baskets for a living. There has to be a context, a larger picture created within which a basket maker can make a decent living and have some amount of self-respect. It may sound impossible and utopian, but this is one of the important ways to bring about some change, to create the beginnings of a green economy and to put into practice some kind of ‘ecological democracy’, a term that is gaining popularity these days.

I have tried to outline some of the possibilities, but these are just my thoughts so they will be very limited. I focused on three different themes of learning and doing. One is, of

course, thinking – the cognitive aspect, using your head. But you also need to provide avenues for people to use their hands and people who can use their hearts. We must give equal importance to all of these three things, the 3 Hs of learning, because very often we just focus on the head.

Keeping in mind my experience in agriculture, food, and organic seed production, one could possibly highlight the following areas that need to be addressed in terms of learning for sustainable livelihoods: food gardens, need for appropriate tools and skills for carpentry or masonry or black smithy, horticulture, irrigation, architecture, and sustainable energy options. For instance, when people trained to be biogas masons are readily available, it becomes far easier for a population to choose having a small-scale plant at home and being self sufficient with their cooking energy. There is a gentleman in Bangalore who provides training to village youth to assemble solar lanterns. That is a wonderful effort. Of course, we also need to look at traditional livelihoods as opposed to mainstream careers. For example, working with people who have been collecting non-timber forest produce for generations, like the Soligas in B.R. Hills who are honey collectors or who collect amla, where agencies like VGKK and ATREE have conservation and livelihoods programme in place.

In forestry, too, there is a huge opportunity to set up nurseries with indigenous species of plants and coupling it with waste-land management and development, which is a relatively untapped area of work. Garbage management in urban areas is another area where I feel rag-pickers could become waste managers.

Crafts are another field. Gopi Krishna from Belgaum is part of Shramik Kala Sangha, with 400 traditional craftsmen who work with various natural fibres like grass and wool. They are provided a few design inputs, and all use traditional skills. They are all engaged in gainful employment along with a sense of themselves and their work. Gopi is also sensitive enough to not just look at it as a trade, but also be very aware of their cultural and ecological landscape, which is crucial to all such inputs and attempts.

There is also ethno-medicine which could be worked with. But some might not want to be involved with such fields as they might want to be city-based or town-based. To them I would like to say that we need people working in environmental law, and development, governance, policy and planning. We need good, trained people who have the necessary skills working in these and other such areas as holistic living, healing and counselling.

In providing one or some or all of these options, what has to be borne in mind is this – education needs to lead the learner to himself or herself wherever they are, and provide a certain internal stability and confidence while teaching them how they will cope with the external world. These are just some of the possibilities on the surface that one could think of if we really want our learning to lead to sustainable living in an overall sense of the term, and if education in sustainability is to have a meaning.

I would like to thank the team here for giving me so much time to speak. It is heartening to note that so much time has been given to conservation education (CE), because often in our field, CE is thought of as nothing more than tree planting and painting competitions!

Venu

Thank you, Sunita. We have 15 minutes for comments and questions.

Rohit

Sunita, you said loads of very important things. Could you please give us a glimpse of

what is the process and content of what you did with the government schools? That is directly relevant with what we are doing. You did mention that you have developed material. But could you give a glimpse of what was the nature of your work with schools and how this was translated into actions and environmental education?

Sunita

Because we knew that we would not be able to sustain an interaction with the children beyond initial interaction, we felt that the investment had to be with the teachers. So, a lot of teacher training was done with teachers, although the chemistry and dynamics of what happened cannot be fully discussed here in this short time span. Sometimes we also interacted with the local community members when possible. So that was one approach.

The other thing we did, when funds permitted, was repeated interactions, workshops, enrichment sessions, outdoor visits and field trips with the teachers and the students to help them, because it also involved a shift to an approach set in a certain social conditioning. For example, they are used to approaching education in a particular way where they just want the SSLC pass and that is it. To try and convince them of the importance of this environment issue, we found that repeated workshops or interactions and building trust helped.

Rohit

No, I was interested in what you try to communicate through these workshops to both the teacher and the child.

Sunita

Within the scope of work, a minimum of six interactions or inputs were necessary because we were often dealing with a very large landscape. This is why I feel that small-scale efforts are more important. That is a very important lesson that we have learnt. The content would vary as well. We would start getting teachers to introduce themselves, tell us what they are about, focus on their compulsions and problems, and then we would very gradually introduce this whole learning for life concept. Children are learning in a school, but what do they do to learn for life and what are the very real skills that they need to learn for life?

But we also had to be very conscious to keep away from the whole romanticism of learning for life because our target audience needed very tangible, very real life answers and solutions and possibilities since they face a lot of challenges, and conditions sometimes are harsh and unrelenting. So we have really not gone into pedagogical issues. We had to deal with the resources at hand, including time.

This has had a drawback in the sense that if you apply it across the board, for example, today if you test all the schools in Andaman and Nicobar islands, I really wonder what their level of environmental sensitivity would be, what kind of environmental ethics they have imbibed, because that is also one aspect of what we try to bring in.

The other part was drawing the teachers and the students where possible, but mainly the teachers, out of the textbook syndrome. We had provided the manuals, yes, but our attempt was in trying to tell them how experiential learning is possible. Often it would be just a walk through the forest with no identification of the species seen, and they would just come back and talk about or draw what they saw, or even sing what one heard. We have

tried-out these exercises. I realized that experiential learning is the long route. It really is a very slow process and takes a lot of effort. This was something which we could not expect the teachers to replicate in their class all the time, especially in government schools. But some of them did begin to do it.

I remember taking a group of teachers into a very shallow tide pool, a lagoon, and we provided make-shift, locally made snorkels. We made them just put their heads into the water. They wandered in with their sarees and kurta pajamas, and just put their heads below the water with the snorkels. They had been living on the Nicobar Islands for 30-40 years, and had never stepped into the water. But a practical experience like this can completely change one's attitude.

The third thing we did was very simple, easy to produce, where it was easy to replicate activities within the classroom and with the textbook, with providing co-curricular links. Chapter 6 in the class 7 geography book, for example, has a topic related to either the forest around you or a particular situation around you providing co-curricular links because that again is a very important approach in conservation education, linking it with their maps or geography.

I do not know if that answers your question appropriately.

Rohit Dhankar

Yes, partially.

Maya menon, The Teacher Foundation

I just wanted to know whether when you are involved with the teachers as well as the students and the government, if children are the easiest to deal with. As for the teachers – how did they take to this experiential mode of training and learning? How was the overall approach? Did they say resist it in any way by saying 'no, we don't want to do it', or did they see the need and the relevance to take back what they got from these workshops into their own classrooms and teaching opportunities?

Sunita

10-15 per cent of your target audience seems to be responsive; it seems to be a very good count. It has been a diverse kind of response. We have had some excellent people; we have also had a lot of people who have just not been interested and who are there because they have been deputed to come for the workshop.

As for the second part of your question, there was a bit of resistance. I feel, and people have mentioned this, that the overall education process is extremely slow. You just have to keep at it, to keep going. You have to deal with it and keep improving it.

Sandhya

I just have one comment to make. I feel that it all boils down to two things – one is the teacher, and the other is the curriculum. The teacher has to be really sensitive and creative because she can make any curriculum relevant. It does not matter where she is. She could be in a structure, she could be in a field, or could be anywhere. But the idea is that the teachers have to have that kind of sensitivity. But how do we bring this sensitivity about? That is a huge question, and, to my mind, the key question.

The other thing is about curriculum relevant and sensitive curriculum. But what would the idea be behind the curriculum? How do we generate curriculum relevant to the child's environment, the life of the child, the place where the child is living?

I think that even if we manage to impact a fraction of these two things, a lot will change in our classrooms, no matter where the classroom is. The curriculum must be lively and relevant. It could be a classroom in an old building, whether I teach it in light or I teach it anywhere. And it depends on what the teacher thinks of it, and how she can impart that curriculum with relevance in class, with or without the textbook. And this could be despite authority, despite the kind of system. It is a struggle, of course. No one is saying that it is simple. But the question is – what is the idea with which one can begin with the teachers, and how can one make a teacher believe that she plays a key role?

Anjali

I just wanted to say that there are two kinds of models for developing good teachers. One is the initial teacher preparation model, which allows for a four-year university education to prepare engineers or doctors or even lawyers. While engineers deal with mostly inanimate objects, teachers are supposed to be developing human beings, but still we give such short shift to teacher preparation. We have a D.Ed curriculum for two years post-school, which is a diploma. And they have a one-year B.Ed for secondary schools, post graduation. But at the same time, we also have all the models of good schools with passionate teachers who do not have any B.Ed. or M.Ed. qualifications. Along the way you learn that all the people who have worked in this direction also did it for the fact that it takes at least 4-5 years working through the nitty-grittys to really start getting a hold of things.

In Eklavya, we started with in-service training, and over the years some of us are coming to this conclusion that we are short shifting the time, energy, talent and effort required to develop this ideal. 'Teachers should be creative', 'teachers can do anything if they want' – where is the inculcation of such notions?

I would like to suggest two things. In the National Curriculum Framework for teachers, a draft is up on the NCTE website which is trying to propose a rigorous pre-service as well as continuous teacher development. There are a lot of cynics and pragmatists who say that a 1-2-year trainings do not happen, how will a 4-year training happen? But I would request people to believe that there is an opportunity to contribute positive suggestions towards a more ideal situation.

Secondly, I would also suggest reading Krishna Kumar's article which addressed the question of why India is a textbook culture. In a curriculum culture like in the west, for example, in Britain, the mainstream teacher is a researcher and a curriculum developer. Why, in India's history, is the mainstream teacher dependent on the textbook? Kumar addresses this question very well.

Summary

In reference to her own experience of developing the curriculum of an environment conservation programme in the Andaman and Nicobar Islands, the speaker expressed the importance of developing vernacular and locally, socio-culturally relevant material for any curriculum. Learning, the speaker emphasized, must be experience-based so

that it is meaningful. Issues such as the need for increased teacher participation, challenges of working with governmental institutions, the need for research pertaining to a community to be applied constructively and practically, the requirement for resource personnel in environmental law, planning, policy and governance, etc., were spoken about during the presentation and in the discussion that followed. The primary question revolved around how alternative livelihoods could be given meaning within a particular environmental context within sustainable development, through education.

The Education Solution

P.S.Narayan

P.S. Narayan works with Wipro and is part of the Sustainability Initiatives team. He presented various viewpoints on the nature of ecological consciousness within a market oriented society.



Venu

This is an attempt to bring to the fore some larger questions about what can and what should not be done in education in reference to issues around the environment. It will be a joint presentation made by Narayan and Alok. They have been very keen to tell me that the time for discussion will be more in their presentation. Narayan will begin the presentation.

Narayan

I have an easy job before me. My first brief is that I am supposed to provoke, and from what has transpired from the last one and a half days, I do not think that that will be a severe task at all. Therefore, what I am going to do is try to frame a set of questions around all the issues that we have been discussing in this forum. I think solutions or the answers to the questions asked until now are multi-dimensional, coming from different perspectives, and are not easy; there are various corollaries, counters, etc.

Let me tell you a little bit about what I do bearing on this context. I am part of the project Eco-eye within the Sustainability Initiatives team, and it has now been close to two years since I have been working on it. It has been a journey in the evolution of my ecological consciousness, and along with it has brought the stark realization upon me, I fear, a bit too late. I would like to draw your attention to one of the points raised, that as much as awareness in schools and in children is important, I think, equally, if not more, important is awareness and consciousness in adults.

So what I am going to do is try to present for you a few constructs. These constructs are not mine. I am just going to present a few voices of people who have thought about this and who have been influential in many ways in not only the ecological disciplines, but even related domains.

First, to recap, we have been discussing the fact that paradigms, the way we think, operative beliefs, operative values that we hold are imbibed in a particular manner, and changing them is going to be the most difficult task. Some of what I am going to say is taken from Daniel Goleman whose work on 'Ecological Intelligence' needs no introduction.

All of us share millennia old blind spots. These have evolved the way the brain has evolved; it is not the way we intended. For example, the snarling face of a tiger or an object hurtling at us like an arrow or a train is something that we recognize as danger. But our planet warming-up is not recognized as a similar sign of danger. So, from an evolutionary perspective, is it going to be easy for us to recognize what we are doing as dangerous changes? That is the first point.

Second is this concept of 'vital lies and simple truths' also taken from Goleman, which means that we can tell vital lies to hide simple truths. At least vital lies help us get along in life without feeling guilty to a certain extent. 'I take shorter showers' is something that I tell myself to feel like I am doing a good thing. But actually it is a vital lie we tell ourselves, consciously or unconsciously, because it hides a simple fact that even if everyone did it, it would hardly make a dent. What I am trying to say is that certain blind spots have evolved and they are not going to be easy to remove. Secondly, unconsciously or sub-consciously we tell vital lies to get along and to hide many of the simple truths.

I am going to present four voices. This one, from John Kenneth Galbraith goes as far back as 1958. He wrote 'How much should a country consume?' which dealt with the fact that it is legitimate, or it is seen as legitimate to see consumption grow. 'The people in America and Europe have for the most part been adequately housed, clothed and fed; they now express a desire for more elegant cars, more exotic food, more erotic clothing, more elaborate entertainment.' That is, they have embarked on the next step of 'what next?' – more elaborate food, clothing, entertainment, etc. These are seen by society as legitimate, as Galbraith puts it, the ideology of the 'GGG', i.e., 'Great God Growth'. 'What is wrong with all this?' is the natural question that would come to any consumer's mind. And this is the question that many of us ask, and this is the paradigm in which many of us are living.

The next voice is from Daniel Goleman again where he presents a very interesting framework about 'rules of attention and rules of ignorance'. He says that there are two rules of selective attention that all of us deploy. The first rule is regarding what we notice. Let us take a product like a T-Shirt. What we notice about a T-Shirt is its price and its features, for example, a cool T-Shirt, available for Rs.100. We call it a great bargain. This is the rule of attention. The rules of selective ignorance are to do with what we do not notice, or what we choose not to notice. In this example, the hidden cost of the product is a lot more because it has taken 10,000 litres of water to make the product. The production process behind this T-shirt probably depleted the water table. Or child labour may have been used. What we might say to ourselves is 'Price matters, little else.' Collectively, ours is primarily a market society, if we think about products, be it a T-Shirt or a house or a car or whatever. These are the rules of selective attention and selective ignorance that are in application. Again, people do not see anything wrong in this, often because they do not notice their choices.

The next quote is from, and this is on education, from David Orr. He is a professor of Environmental Science. He says that 'the myth of higher education ...', and this applies to the environment in particular, '... is that we can adequately restore what we have dismantled.' He further says that '... In the modern curriculum we have fragmented the world into bits and pieces called disciplines and sub-disciplines. As a result, after 12 or 16 or 20 years of education, most students graduate without any broad integrated sense of the unity of things. The consequences are for their personhood and for the planet at

large. For example, we routinely produce economists who lack the most rudimentary knowledge of ecology. ... We add the price of sale of a bushel of wheat to the GDP while forgetting to subtract the three bushels of topsoil in its production. As a result of incomplete education, we've fooled ourselves into thinking that we are much richer than we are.'

And finally, very coherent examples of this may be taken from the famous ophthalmologist turned biologist, E.O. Wilson, in *The Future of Life* (2002) where he gives the examples of three perspectives of world views: the economist's, the ecologist's and the engineer's.

Here is how the economist looks at the whole problem – 'Human genius and ingenuity have transformed the Earth into a garden of prosperity ... no reason why this cannot continue. Environmental concerns are the detritus of human progress ... to be swept away by technology and market mechanisms.' Of course, environmental concerns are there, but we can handle them.

Here is the ecologist's view – 'Indefinite growth can happen only on an indefinite planet; the Earth's capacity has been exceeded way back (1972) ... please slow down. GDP and corporate reports hide more than they reveal; please stack up the hidden costs to people and ecology ... every report will be in the Red.'

The engineer says – 'Innovation in technology can resolve any problem, given sufficient time and resources, for example, the Green Revolution. Just be patient ... we will come up with solutions.' So the above were three different world views on how to look at this whole issue.

If we combine all of this, the question that comes to mind is – can ecological consciousness be taught or learnt? We also need to ask the question about how education can address these difficult issues. The human brain is not wired to think ecologically; it is unable to visualize or interconnect all cause and effect relationships either in space or in geography. It is not that we do not want to; it is just the way we have evolved.

Also, how are we going to address the inherent trade-offs between the economic model of consumption, growth and jobs, versus the ecological model of 'limited consumption'? Under this there is a corollary – who is going to bell the Efficient Market Hypothesis (EMH)? That is if we say that the markets have all the answers. A more philosophical question would be – homo-sapiens may be the most intelligent species, but does that give you the right to decide the fate of the planet? How will you teach that less is more? How will you teach that speed can slow you down? The human civilization may not be the pinnacle of evolution, given its capacity to self-destroy. The difficult question is how can we legitimize a sense of purpose and achievement that is not linked to individualistic achievements, especially in material terms?

The key questions that I want to summarize are that the problems about teaching or learning ecological consciousness arise from the fact that a) the issue is multi-dimensional; b) it is very urgent; c) it is something that has essentially arisen out of a human condition. It is something that we are probably helpless about because that is the way the brain has evolved, and, therefore, you cannot do what has been done over a million years in a period of say 200 years. It is going to take a millennia more to change our consciousness. These are the provocative constructs that I am going to leave you with to discuss and debate.

Summary

The speaker presented arguments of several ecologists who have contributed to the literature on the nature of ecological consciousness in a consumer oriented economy

and a market-driven society. From Daniel Goleman's 'vital lies and simple truths' to John Galbraith's 'How much should a county consume?' the speaker tries to emphasise the authors' views on the narrow-mindedness of the individual today in understanding his environment. The speaker problematizes the theme in asking certain questions – how can one make a transition between high consumption in a market-driven society and limited consumption in an ecologically conscious society? How central is the role of human beings in deciding the fate of the Earth? The speaker ends with highlighting the problems that may be part of understanding and teaching ecological consciousness.

The Education Solution: First Principles

Alok Mathur



Alok Mathur works at Rishi Valley School in Andhra Pradesh, a school that offers alternative education. Since its inception more than 75 years ago, a central concern at this school has been that of regenerating the drought-prone landscape in which it is located and wider environmental concerns have only grown through the decades. The presentation suggests that education must necessarily be a crucial part of the response to the environmental problems that we are being faced with on such a large scale. However, it questions whether education, as it is conceived and constrained today, has the capacity to bring about needed shifts in consciousness.

Alok

Linking with previous presentations

I have a few responses to Narayan, in addition to some thoughts of my own, which I hope will provide an adequate response to the kind of predicament that human society, the human species and the planet as a whole find themselves in right now. In my understanding, we are trying to approach the issue from two ends of the tunnel. On the one end, we have descriptions and reflections of the larger world situation today in terms of the complexity of the problems and the reality of them too. We have established the reality of multiple sets of problems that we seem to be facing, which we are generating, and which now can be more or less evidentially traced back to human activity and human motivation. There is also a particular paradigmatic view, which I think Narayan has presented, which says that this is the way things are, this is the way human beings are, and this is the way they think. But the question is – what next? What can we do about it?

But we are also trying to approach it from the other end. We had two presentations in the morning. One was that of what one small school is trying to do. The teachers and the children are thinking in a direction to re-look at many issues – curriculum, environmental understanding etc. We also heard about efforts of trying to intervene and engage with educational questions at a systemic level, government level, at the level of creating curriculum, and so on. That is the other end of the tunnel.

I wonder if the two ends can ever meet. I am very sceptical about the role education can play, a scepticism that I share with Narayan. But I would like to clarify at the outset itself that my scepticism is probably grounded a little differently.

The speaker's location

I will first speak about my own location, which is many years in a school that is now 75 years old, located in a rural area, and from its inception it has been grounded in a certain ecological consciousness. It was set up in a barren landscape, a drought-prone area, and right from the beginning, before all the hue and cry began about deforestation, global

warming, all of which is fairly recent, people in the school, and I do not know for what motivation, started planting trees, started doing soil conservation, looking at various issues which were related to the land and care of the land. All this gradually found its way into the curriculum, what the children experience and, as the story goes, the place got so forested at one point that it attracted a huge population of birds, and so a bird preserve got created there. We now have a resident ornithologist there, Dr. Shantaram, who is here with us today.

All this has been part of the journey of the school, which had started without officially looking at solving an ecological, environmental problem. At the same time, as in every school, in every educational establishment, I think one is always part of a larger framework which is also impinging on it, the larger framework consisting of a community with many different people, all coming from their orientations, parents with their own expectations, teachers coming from their own backgrounds, their own prior education, coming into this common space. School education today is almost equated with curriculum, syllabus is equated with having to take examinations, and most schools are attached to boards which have their own examination requirements and have their own constraints, where the subjects are divided in a particular way, in a certain disciplinary manner, where there is a huge information content which is demanded of students. So, as Indira mentioned, every school may have its own space, its own constraints within the larger, national context that you are in, and also the constraints that individuals bring to that particular situation. Now, given that every school is like that, whether it is a government school or a private school, you are working under frameworks that have evolved in their own particular ways.

The complexity of the problem and the place of education

When you look back at the other end of the tunnel, the magnitude of the kind of crisis we seem to be speaking about and which, as people are becoming aware, by quantifying and by understanding its many factors, we begin to see this as highly complex and interconnected; it is not just about nature and the environment, but it is also people and their livelihoods. It is closely linked with the social issues around us, spoiling of the ecological basis of social security, food security, etc., and if you extend your mind further, it also includes all other species.

The view that human beings in some way are controlling the destiny of the planet, or are shaping the destiny of the planet is, I would like to say, very false because in some way human motivations and actions are actually merely interacting with given laws, given forms of interactions in nature which are collectively creating the situation. The feedback loops are telling us that we are heading down a 'precipice'. We are really not 'creating' our destiny, but are in a certain way merely hurtling down in a certain direction.

Now, what should be the response to such a situation? We have had multi-perspective responses. Thinking from the angle of education, which is how I would be able to think, it seems to me that it demands from education a great deal. Whether it is possible at all for education to respond to that is also an open question. But I think the one thing that education is linked with, which in some way signals its place in the scheme of things, is the activity of learning. We may think of human societies as not being static parts of the ecosystem, unlike many other species (of course, other species also interact and evolve but human societies, in some way are not pre-determined). The human being is a plastic creature, and how human consciousness is shaped is largely the function of the kinds of experiences that we have built into the growing years of our lives. And all this is really about education.

The nature of learning in response to environmental crises

The next logical question we come to is – what is the quality of learning that is demanded by the kind of crisis that we are faced with? I would probably sketch out six aspects of it; these are all inter-connected, in holistic thinking, but I would like to isolate them.

Firstly, I would say that the quality of learning demands a much wider range of awareness of things around, a greater knowledge and conceptual understanding, and a certain kind of ability to think and connect many factors. I think what Narayan's presentation highlighted was that human beings are generally being trained to think in isolated bits. But it is being demanded that you need to be able to think systemically, and be able to collect a lot of different factors into a certain kind of understanding.

It also demands a certain questioning, a certain critical approach to things, a certain basic questioning of assumptions that people live by, and I would say that any paradigm presented here has certain kinds of assumptions. There are many other world-views, which have their own assumptions, which also co-exist, all of which can be open to question. The current crisis demands that one re-looks at one's own motivations and actions individually and collectively.

I think it also demands a quality of learning which is to do, as various people have alluded to, with the quality of the heart, which has to do with empathy, affection for oneself and for others, for other social groups, and for other species too. I think that the broader vision underlying what Narayan spoke of – ecological consciousness – and that cannot be just a cognitive understanding. It has to be underpinned by something that has an empathetic dimension to it too.

I would also add that the demand of the quality of learning has a certain practical, active intelligence built into it – the ability to act and do things with your hands, with your head, with your skills, work with soil, etc. Many such abilities seem to be demanded so that students are not just knocked into a few well-defined streams of action, which could then push people to behave in specified ways. For example, BPO workers, engineers, ecologists, or economists are all highly specialized people with highly specialized ways of thinking. But there needs to be some kind of practical intelligence which is much more widely grounded.

This learning also seems to demand, in my understanding, a much deeper understanding of oneself and human nature, and of the sources of well-being. I think these questions that we are asking would not be asked at all if we were not concerned with the loss of well being. Where does that well-being lie? Does it lie in the market cycle of production and a certain kind of view of the good life? Or does it lie in other places? Is it differently grounded? I would not hesitate to say that there is a certain spiritual dimension to this kind of an understanding as well.

The Educational Challenge

Having said all this, I would also say that I am very sceptical about whether education can meet all these demands. But yet in some sense, no response is going to be possible unless it has education as part of it. The one arena where human life fundamentally shifts is the educational arena because that is where one generation moves deterministically on the same path or finds a path different from that taken by the previous generation. Of course, generations are not divided so concretely and there does exist a continuum. Also, it is not just the younger people who need to learn. In some way the demand now seems to be that along with the younger, the older people need to learn as well. It is no longer possible to think of education as a process for societies to bring up the

young and induct them into a certain culture. It is a crisis that seems to demand collective learning, and the dialogue has to be brought in from various angles. Dialogue, fresh thinking and a fresh understanding also seem to be on the anvil.

The question I would raise very broadly is that given the factors that constrain education and schools, formal schooling in particular, given the division into subjects, the kind of curriculum that we have, examination patterns – how can education hope to, and how can schools, institutions, administrations, teachers and parents co-construct something which can respond to the largeness of the challenge that we are facing? I have mentioned those five or six kinds of qualities of learning which, I think, and you may differ with me, are all demanded simultaneously.

I will pause here, and would like to throw it open now.

Venu

Before that, I am reminded of something I came across in my college days when the Italian Marxist Antonio Gramsci in a different context said that ‘the situation demands pessimism of the intellect but the optimism of the heart.’ I think in this context the statement is very relevant.

Siddharth

Since this is a session that has raised some provocative and sceptical issues, I want to ask if we are falling into the trap of correctness in education. Even those of us who are talking about alternatives are framing it in such a correct manner that going through an alternative will eventually fit into the mainstream because we will have framed it so concretely. Perhaps we are going down the precipice.

Even in 20 years’ time we are going to have 100 million environmental refugees in India, and this world that we are now talking about, our notions of growth, etc., might collapse. Whether we must start thinking about what is the kind of education or the kind of leadership which will prepare young people for that world is something that we need to address is another question altogether.

Yesterday we were talking about whether we are teaching our young people to resist. Indira was talking about dialogue. I think that dialogue should also be confrontation, but confrontation in a respectful, non-violent way. We also need to consider whether our teachers in education today help children to think critically and to confront situations. If things are going to go under the precipice in the next 10-20 years, are we framing our education or our alternatives in a way that our kids can have learning insights to undertake both dialogue and confrontation?

As Paulo Friere said, perhaps the time has come that now we think of education not as something neutral, but as something that takes sides in a context which indeed requires taking sides, taking sides not in the Maoist fashion or a Stalinist fashion or a Marxist fashion, but perhaps in a way which is more Gandhian.

Indira

First of all, I would wish to briefly disagree with the fact that we are not built for ecological consciousness. Evolutionary psychology is extremely suspect, and perhaps Daniel Goleman must question where he is coming from.

Secondly, I would like to comment on this notion of pessimism. It is not that we are down the slopes and helpless. We just want children to feel that they are active agents in

creating, sustaining and changing their environment. You cannot do that if you are pessimistic.

Meera

There has been an increasing movement to create what is called the 'ecological self'. And when we refer to environmental education, of course, all the literature that we have is about wilderness education, which is largely coming from the west. Also, what the west has done is that it has pulled in moral education in connection with environment education, which was a very suspect category, with different connotations. So now they have one ecological ethics class, or they take children to nature camps and give them training in the wilderness, teach them to connect with the natives (the American Indians), etc. They have nature camps where the children are to connect with nature, and these camps are becoming very popular with parents as well. Parents in the city would love for me to conduct an ecological camp where I would take all the children. I do not say that it is wrong completely, but it is not one of those things which can be done on a large scale for all schools.

I want to come back to the reason we listen to Daniel Goleman or Durkheim or Weber, but we do not listen to our own grandparents. Education is making us reject our own sense of ecological self that has been prevalent in our tradition for a long time, where we do not see nature as separate from ourselves. We have plastered over a kind of world view. For example, how many of you know that there is a ceremony in Dipawali where you put a lamp next to a dustbin? It is called Kuppa Lakshmi or the 'garbage Lakshmi' which is the symbolic ritual implying that there is wealth in garbage. Even now if I go back to my village, all Bisleri bottles and Coca-Cola bottles are re-cycled. One could also say that rag pickers are coming from this traditional wisdom of not wasting things.

I think what is required is transformative education. We think that there is an empty vessel called the child which does not have anything. I spoke to some teachers in a school about environmental class, and they said "One more textbook? One more exam? One more class!" So, what are we doing here? What are we trying to burden the teacher with? What we need to talk about is the transformation of the self as well. I am sure every environmentally aware person you talk to has had this transformation by dialogue with himself, by confronting his own issues. It may be confronting as simple a thing as garbage segregation, or it may be as complex as meeting a tiger in the forest. What we are also talking about is providing a platform for transformation to occur. We can only provide the platform for ecological awareness or ecological consciousness to awaken. It is like teaching spirituality; I can only teach yoga but I cannot give you moksha.

I think we need to look into our own traditions and into our own wisdom which comes from the villages, which comes from our own ancestry, and I do not think it is dead. One needs to tap it at the root. Rejecting the root as ritual, as superstition, as non-scientific, as irrational, means you are rejecting your heart. And where ecological transformation will happen is from the heart.

Rohit

The claims that the human brain is not wired for ecological consciousness is certainly suspect. The only thing is that what you see as the human brain is human instinct. When something is hurtling at you, you duck. That is more like instinct, which got into you through the millennia of evolution. You need intelligence to understand something more, that is slightly more difficult than just acting upon something. There are lots of

arguments in favour of the fact that the human brain is capable of understanding things which are not of direct danger at that moment, but inferred danger in future.

I would like to cite another example of this consciousness. I personally do not go by spirituality, but at the same time, in the Indian tradition there is a sect called the 'Radha Swami' that has a perception that you should live by destroying the minimum number of pranas. This idea of prana is again suspect. I am just giving this example to understand a certain kind of connection with nature and the world around which people have been trying to force, maybe on wrong assumption, and, therefore, their ideas may not be directly very useful but they give us a direction. They say that Vanaspati has one prana and then certain animals have two pranas, and human being have five pranas. You cannot sustain prana by destroying prana, so you should be sustaining your own pranas by destroying minimum number of pranas, which means eating only vanaspati and that too only the minimum quantity is best. That again translates into some kind of conservation, and is reflective of this relationship between humans and nature. I do not believe that the human brain does not have any conservation consciousness.

The second thing that I am very suspicious of is when people give this kind of argument that we humans are the brightest. Maybe we are not the brightest, but are perhaps the most powerful species at this moment and at this moment only. So do we have the right to decide the future of the planet? Actually, we have the responsibility to shape the future, and I do not think that any other species has that capability to influence at all. So this seems to be the only species which might have some sort of influence, or the delusion of such an influence, if I may. Other species cannot even have such a delusion. Also, when one hints at something to the effect of the spiritual, there seems to be a wide void there. It again seems to be a human hankering for something higher than itself rather than anything concrete. So I think these statements perhaps would not help.

I was surprised at two of Alok's comments. He says that we are not creating our destiny and that human societies are not pre-determined. It seems to me that it is difficult to believe both of them simultaneously. If human societies are not pre-determined, then there is a factor somewhere, which is created out of human consciousness. Which means that we can change the direction, which means that we can create our destiny, for what else is destiny, apart from changing the direction in which the society is evolving? I find it difficult to accept both the statements by Alok. I would like to know his choice. My choice is that, of course, humans have been making their own destiny for quite some time and, of course, we can shape our destiny to shape our destruction as well, but we may not be completely successful in that either.

The last little thing is that sometimes what we call 'spirituality' hides many more things than it reveals. This could be that human consciousness seems to want to find something higher than itself to give purpose to life. Suppose we are able to connect things together, connect ideas together, and imagine, we might get surprising results. I mean, we want purpose for our own life and this search for the purpose leads us on a search for something higher than ourselves, and that seems to be the goal of spirituality. Maybe if we start looking within our own minds we can solve this kind of a puzzle, rather than looking for something beyond ourselves. I know that this sounds like a very human-centric statement, but that is how I feel. Thank you.

Hardy

I was going to ask the same questions in a different way because I would actually like to be informed about on what basis this statement has been made, that the human brain is

not wired to think ecologically. Is this just an off-the-cuff statement or is there some evidence which has been put together to build the argument? There are a lot of things that we do that we cannot be wired for, but we are still able to do them. Perhaps then there is some role for education, which is actually trying to change this wiring in some manner.

I am reminded of the fact that a lot of concepts in physics are such that we might not be wired to understand, for example the statement that you made, 'Less is more'. There are lots of statements in physics that contribute to such an understanding. For example, in the concept of force, there are a lot of concepts that are abstract, which are difficult for people to appreciate and understand. A child, after coming to class 10 or 11 finds it difficult to understand what these concepts actually mean. I am sure such is the situation in other subjects as well. But if there are certain concepts that can be tangible, then children will find them easier to grapple with. Perhaps then we can build literature that can articulately show how less can be more, and build materials that can further build theories that can be debated.

We must ask if we can also construct these two statements in a manner which is defensive of ecology, because whatever you might say about the heart, we only get convinced by the head. The heart is a good place to begin with, but eventually in battles of principles the head must act. I think we need to think about whether we can construct theories in our understanding of this the way we construct for physics or for chemistry.

I am also worried about the confidence that we have that we are determining the fate of the earth. Maybe we are not doing so. Maybe there are deeper things inside the earth, maybe there are species about which we know nothing. Maybe we do not even know where the earth is heading, and might also be innocent in looking at what is happening from only our current understanding. The precipice may only be for us, and not for the earth.

Perhaps if we frame questions around whether we are going to destroy the way we are living today, maybe that would be a defensible statement. But to say that we are hurtling down a precipice for the earth, it may not be substantially right because we might not understand enough. We do not have enough understanding about how the ecology, the chemistry and the biology function. You can certainly say that our way of life, the way we live today, is not sustainable and that is what we would like to change. Perhaps a carefully customized statement would be in order.

I am also concerned about this question that we often ask ourselves 'Are we in a crisis?' I think we are always in a crisis, both in terms of the exploitation of the surroundings, in terms of individual choice of life and in terms of ethics. You find that in all civilizations the debate between Raj Yog and Dhyan Yog, the Bhog and the Satvik. It is not just today that we are saying that we need to conserve and we need to try and think of the minimum. The point is that all civilizations have recognized that there are two different tracks that humans can take – one is the track of so-called growth, and the other is the track of being a part of nature. The tussle between which track to take has always been there. Unfortunately the people who have argued for Dhyan Yog and the Santosh Yog have always lost in some manner. It has always been the Raj Yog and the growth revolution that has won. We need to take that into account which track is the more frequently chosen one. So it is not that this crisis is a new crisis. If we look at it as a crisis now, then we are ignoring the historic battle that has been won and lost many times.

The last thing I want to say is that we need aspiration for our lives. All of us do. At the moment the aspiration seems to be around the question 'can I become an evolved god?' which is really in the spiritual mode. The other aspiration seems to be around 'can I make my life the most comfortable, the most luxurious, with the most consumption?'

What we need is better alternatives that we can all agree on as meaningful, and collectively think about how we construct these. Otherwise, at the moment, we are just flaring the fact that 'I am unhappy, but I do not recognize the fact that unless I build up a purpose for myself, which is a meaningful purpose, I am not going to be actually able to ever satisfy myself. And I will always aspire to want more'.

In a nutshell I think that the environmental education challenge is actually to create in the child an aspiration which will satisfy him.

Venu

I think that sometimes when issues are dichotomized, instead of distinctions being drawn, we get stuck in a spectrum which is very fruitless. For instance, if we frame the debate between genetic determinism and the complete plasticity of the brain, we are going to get stuck at these two extremes. The problem is not with the answer, or finding an answer; the problem is with the question itself.

SC Behar

Firstly, I want to re-interpret Alok regarding Narayan's questions and his statement thereof. It is not scepticism. It clearly asks 'how do you do it?', and so it is really a question asking for creativity. It does not say that it will not be done or that it cannot be done.

Secondly, while education must be part of the solution, it cannot be the solution itself. It's utility in changing the paradigm of development, and consumerism or globalization needs to be questioned and pondered over.

Thirdly, I see the question very differently and so would like to frame it differently. What is the kind of education that will be able to achieve and how do we achieve it? I will re-frame the question – to what extent can we do in education, in a system, a household, and in what manner? I would also like to reiterate here that it is not just the pessimism of the mind and optimism of the heart; I call it optimism of the heart as well as the optimism of the mind. There are three categories – the first has to do with changing the self, the ecological self; the second is about the new generation; the third is about the existing generation. What I believe is that the existing generation has to be made aware and politically active. There are ways of leading people to political action, because without political action confrontation against the powerful in the world who are shaping the way we all behave or consume cannot be changed. Also, the new generation needs to develop the ability to fight so they can ultimately become activists. Not only should they know, but they must also be able to practice and confront.

I would like to thank all of you sitting here because this discussion brought to me a new insight – are we thinking of environment education as an excuse for moral education? Broadly, the consensus we have is that better education is required in this country or in the world at large, which we have not been able to achieve. To me, there is no separate need to think in terms of environmental education or ecological education. The question is – how do we manage thinking in terms of only ecological? Shall we start thinking in terms of how we can change education? How do we bring about the kind of education that this forum has been broadly highlighted? Thank you.

Sridhar

I also wanted to comment on the argument around whether or not we have been wired to think ecologically. I would agree with the stand that our brains are not wired towards ecological consciousness for which there is evidence when you go into evolutionary biology

and so on. But I do not think that that implies at all that we cannot embrace it, or that the brain does not do a hundred other things that it is not genetically wired for. It is not a situation of this versus that.

I want to make the rest of my comments more practical, in the direction of what we can actually do about it. We are dealing with a problem that itself is not clearly defined. Some people, though in the minority, argue whether it is a problem at all. There are very few who argue for something like 'if this can be done then everything will be solved'. We are essentially dealing with an undefined problem with undefined solutions. For example, awareness about environmental and ecological issues, and systems and design thinking needs to be built to recognize that we are a part of the whole. But this is not a part of our curriculum at all. Wipro does have access to certain schools: we have 3,000 schools that use our services of which a large number are in the government domain. In all, there are about 18,000 schools that we are in touch with. Perhaps we could make a module on ecology, on systems thinking. I think this is one example by which we reach out to a lot of people so they become aware of a few more facts so they could think about these issues.

The last point I want to make is about experts. I think in this room there are a lot of experts from different domains – some people in the ecology-environment space, some in the education space. I do not mean to speak pejoratively, but one of the big mistakes that experts make is that they do not speak out enough. They assume that what is fairly clear to them is clear to most people. But often it is quite the contrary. Experts should recognize that speaking about the problem itself is probably the best action solution we have today. There are too few people working in the area we are concerned with here today, and those who work are not in enough agreement with each other to join forces. The situation is exactly the same in education. I am not speaking in terms of theory, but in terms of change of attitudes by action implementation. We need two attitudinal changes: one, that we respect differences, and two, that we speak out more and try to reach out to more people consciously. I think that is our best bet at getting near a solution.

Venu

Since we are almost out of time, I will give the mike to Alok and Narayan to very selectively respond to some of the questions and issues put forth in this discussion.

Alok

I think one point I entirely agree with is that there is something special about the human species. I am not putting it in terms of advancement or most-intelligent, etc. But I do think it is the one species, as far as we are aware of now, that is self-conscious and is, therefore, able to give value and significance to things, is able to think of purposes, and meanings and things of that dimension. In that sense, I think knowledge of these traits that we have actually could have the effect of making us feel more responsible. We are also capable of seeking out our inter-connections with the larger system that we are part of. That itself could come within the area of providing motivations for moving towards solutions.

Next is about clarifying the point about the contradiction regarding human societies not creating their destinies and not being pre-determined. This is something that I often think about, that we are not a pre-determined species – that is very clear to me on the reading of evolution and history, and also in reflecting upon oneself. But at the same time I think we are not in control of what exactly happens around us because of many other factors outside of us – individually, society-wise and also as a species – which also shape things. I think we have to be very aware of that, otherwise it leads to a certain degree of

arrogance. There is a need for that humility of being aware of the fact that we are part of a larger system which has its own particular flows and streams and possible harmonies and disharmonies, and that our best bet is to try and understand these and maybe find alignments rather than collision courses. This realization coupled with good education could be a probable response to the situation we are in.

I also want to respond to the contention that the crisis at hand is not a new one. I think that at one level I would agree with that contention. Human beings, from the time they evolved on this planet and evolved self-consciousness, have had potential for making trouble among themselves as well as with other species. There is ample evolutionary evidence on how even very small human tribes have caused destruction in their neighbourhood. But apart from that, I think because of the way we are, we also are able to hold different possibilities and we could perhaps even attribute these conflicts to that.

Every culture has been able to hold different possibilities, different dimension of how to act, how to be, how to live in the world. Though these conflicts may have played themselves out in particular arenas, particular cultures, particular geographic locations, I think the one thing that is different about the last 50 to 100 years, which will be for the next several decades or centuries ahead, is that the arena now has become the whole globe. It is in that sense that I meant that we might head for a precipice. There are today Gaia theories, etc., and that is reflective of a global problem now, which it may not have been perceived as only a few decades back. This perception is very much there now and it should become part of our consciousness.

One very deeply held educational question which I will bring-up to add a new dimension is – can we have this perception of a global magnitude of the various issues that we have talked about and the dangers that are invoked by them, and yet be able to see with the eyes of, I will use a poetic word, ‘beauty’? There is a great deal of beauty in the world. It is not only about projecting the current trajectories and looking at it in terms of a problem or a multiple set of problems, and then to invoke our problem-solving minds with discussion, dialogue, thinking and reasoning.

The last thing I would like to respond to is that the word ‘spiritual’, which, I agree, is a very tricky word and has immediate connotations of different kinds, of seeking something higher or beyond. When I used the word, I meant it in a manner that would help understand oneself and one’s relationship with what one is part of, that if one goes this way, maybe there is a lot we could discover in our own capacities and consciousness, which perhaps has not come to the fore as yet, though it might. And I would like to say that education certainly has a role to play in that.

Narayan

Firstly, let me qualify this by saying that whatever I have put up does not represent individual opinion. It represents different facets of the questions, which were meant to be provocative. That was the primary purpose, and I do not necessarily agree with most of them, though with some I agree a lot.

I would also like to say that I do not represent a pessimistic viewpoint at a personal front. However, all points put forth are either facts or in some cases statements of opinion that have come about from different perspectives. So it is necessary to be pessimistic when you are evolving a response to such complex issues as these.

I have a response, specifically only to the point that was raised about evolutionary psychology which was Goleman’s proposition. My interpretation of it is this that the human life span is 70 to 80 years, and, therefore, most of our responses of thinking are not even 80 years

in the making, a fairly short time-frame. And our ability to understand cause and effect relationships that are beyond this span in a temporal and a geographical sense, that are beyond the community that they live in is probably not a natural thing. It will probably come by the process of continuous learning and reflection. An example of this is in this book called *The Canon: A Whirligig tour of the Beautiful Basics of Science* in which the author has said that when she was trying to think about who her great-great-great-great-great-great-grandfather was, or at what point of time he lived, her instinctual response was that it must have been very long back. But with a little bit of calculation, he probably was alive not more than 200 years back, which is a blip in the overall millennia time scale over which many of these cause-effect relationships play out. We do not have a natural ability to understand this.

Venu

I will now just say two things that will hopefully set the stage for the afternoon's discussion, which is on understanding educational frameworks – one is that much of thought, be it social, philosophical, political or economic, arises from a certain mode of understanding that I would call dichotomous. This process of thought production postulates a dichotomy and then uses that dichotomy to bring out insights. Unfortunately, there is also an implicit difficulty there that very soon the dichotomy stops yielding useful results.

The nature-nurture debate or the mind-body debates are examples of dichotomies which have indeed been useful but are no longer so. Again, in the social sciences there has been another dichotomy which has been a source for large amount of scholarly work which is called the structure-agency dichotomy. I am sorry for using this jargon, but the idea is to enunciate that social reality can be expressed and explored in terms of structures which have come about because of various factors. There are also people who emphasize agency, who feel that society and social reality is constructed by individuals going about their day-to-day living, nothing more, nothing less, and that has given rise to a tremendous amount of thought.

There is now a synthetic approach which is at least being explored. My suggestion for the afternoon is that without denying the usefulness of the structuralist or agency driven understanding, we probably need to understand the responses which go beyond those dichotomies. We should at least allow the co-existence of these various perspectives – perspectives of spiritualists, perspectives based on empowerment of teachers, or who look at only individual children's learning, or of those who argue that large structural understanding of existing educational frameworks is required to make any change. Thank you.

Summary

The speaker talked about the extent to which education could provide a response to environmental crises. He spoke about the kind of learning that is required in the light of the current and impending crises, within which he included the need for education to build wider awareness and understanding, critical questioning, practical intelligence, a deeper understanding of human nature and its sources of well-being and the very nature of the state of well-being that we would wish to preserve. The speaker also impressed upon the need for adults to be seen as learners in addition to children. The discussion touched upon such issues as education and leadership, the scope for confrontation in educational discourse, whether or not human beings have a naturally built ecological consciousness, the need to tap traditional concepts around ecological consciousness and the extent to which human beings can determine their own destiny or the planet's destiny.

Understanding Educational Framework

Rohit Dhankar

I would just like to say a few things by way of reminder. I think that when we look for educational frameworks, perhaps it would be best if we remind ourselves that education itself is an important part of the response. Many of the problems that we want education to solve and change have perhaps emerged because we have failed to evolve a rich educational dialogue in the first place, both in terms of having a framework of education and in terms of agreeing upon an understanding of the ideals of education.

Lastly, many feel that attempts at educational reform at the individual level are not going to help. To them I would just like to say that if we lose faith in the individual to stir change, then we lose hope in affecting changes in the realm of education altogether, as education has an impact on society essentially at the individual level.

Educational Frame Work, NCERT

Jitendra

Jitendra is a Fellow at Wipro. His presentation was about the outline, objectives and pitfalls of the National Focus Group Position Paper on Environmental Education.

Jitendra

My name is Jitendra, and I am from a small village near Mussoorie in Uttaranchal. I have worked as a teacher mainly with young people and children. I moved to Bhopal recently, and am now working with Anjali from Eklavya on two different projects in trying to understand educational issues in urban areas. I am deeply interested in those aspects which I think are not much explored or are controversial, such as trying to understand the quality of life that we are trying to address through education, the meaning of justice, etc. To give an example of how I look at things, we focus too much on what is unjust or unfair. In my understanding, we have a sense of injustice only because we also see cases of justice around us. What we have not really focused our attention on is defining justice the way it is.



A brief sketch of the framework

Environmental education is a compulsory part of the school syllabus. I have prepared a short presentation on the framework put forth by the NCERT in the National Focus Group Position Paper on Environmental Education (EE) called 'Habitat and Learning'. As is obvious by the title, they have tried to connect our understanding of learning in the context of our habitat. The introductory part of this framework deals with why we need to focus on environmental education, for which the NCERT gives two reasons – one, that there is widespread environmental damage and degradation around us about which we need to become more sensitive; and two, our schools are completely alienated from the habitat of the students with which they need to get better connected. In the light of these two concerns, the paper states that there is a need for a paradigm shift in EE from textbook learning to learning through the real, natural, social and physical environment for knowledge generation. The framework also talks about how we need to draw strength from Gandhi's Basic Education.

There is also mention of efforts by the government to establish eco-clubs at every district, to organize the Children's Science Congress every year, and to circulate journals like School Science. Interventions by other institutes and agencies like the Union Ministry of Environment and Forestry have also been mentioned. As for the textbook, there is no doubt that the content given in the books is valid, but they make the assumption that the issues addressed in the text are the prime environmental concerns that need to be taken into cognizance and are the main objectives for EE.

At the end of that section they say that in spite of all these efforts, little learning is happening. The emphasis is still primarily on rote-memorization and even concepts are just being memorized. Project work too has not been a success; often it is parents of the children who end-up doing the project work. In fact, there are also some commercial agencies that get paid to make school projects for children for their exams. Keeping such troubles in mind, the document also mentions that there is a national level database which is updated every year which can be accessed publicly, and which can be used for doing projects.

Key elements of the paradigm shift and implementation strategy

Broadly, the main paradigm shift in EE is one marking the shift from an emphasis on teaching to an emphasis on learning involving scientific enquiry, invoking a multi-disciplinary approach, and involving a participatory approach in understanding indigenous communities to develop within the children sensitivity to diversity, equity and gender, and to go beyond the textbook. These kinds of issues which also need to be dealt with within environmental education can be addressed through project work, rather than rote-memorization, which could initiate dialogue and discussion in class. In this way students will be involved in a different kind of knowledge generation that will in turn lead to their empowerment.

The implementation strategy of the environmental education curriculum says that we need a total change in the system in a step-by-step fashion. Within this, three determinants of change have been specified – firstly, a fundamental change in the examination system; secondly, that teachers become partners/facilitators in the learning process; thirdly, that locale specific instructional material be developed.

Areas of implementation

Keeping this in mind, six major areas of intervention have been identified. Firstly, curricula must be revised on the primary, middle, secondary and higher-secondary levels, in view of the broader, specific objectives of environmental education. Secondly, 'greened' textbooks need to be developed which provide adequate space for local specificities. Thirdly, schools need to use Information and Communication Technology (ICT) for field work and need to share information by forming a public database. Fourthly, teachers, too, need to be empowered with the perspective of environmental education and need to develop competencies within that. An evaluation system reflecting the very objectives of environmental education must also be developed. Lastly, schools need to become practicing communities of environmental values, i.e., that the role of the schools is not just to teach but also to practice what has been taught.

Methodology

The methodology employed is naturally in tandem with the strategy for implementation. First and foremost, the curriculum framework needs to define the basic policy issues

regarding environmental education. As for the syllabi and instructional material, the broad outline for the content needs to be specified at the national level, but there is also a need to develop locale specific instructional material, as mentioned earlier. Thirdly, we need to lay stress on the importance of project work and activities which should form the backbone of environmental education. A basket of activities needs to be prepared to make an accessible public database. There are some model activities that have been given at the end of the Position Paper itself. But if we are going to give the teachers some such model activities, then the kinds of resources available to the teachers and their competencies must also be kept in mind. Fourthly, the examination system developed needs to assess students on their attitudes, skills and values in the context of environmental education. They have also talked about the limitations that teachers have in terms of their own competencies and also in terms of the resources that are available to them. Teachers need to be empowered further by preparing teaching modules for them, by conducting in-service and pre-service trainings through both contact and distance mode. Further, networking between teachers and institutions needs to be done for the exchange of information, ideas and experiences. The last point emphasized upon is the road map for implementation, a 5-year plan in which it has been said that a separate provision be made for environmental education within the school curriculum which not only entails allocating a specified time in the time-table for making projects, but also including objectives of environmental education in other subjects.

Comments on the framework

The paper was much focused on teacher education and training, but I did not find anything radically different in what they said from what has been said earlier. They have also said that the text books that are already available have enough content for fulfilling environmental education objectives. But as the Position Paper progresses, they contradict themselves when they speak of re-designing the whole curriculum. I also think that they draw very little from civil society movements and campaigns on environmental issues that ought to be included in any framework on environmental education. There is little reference to movements led by NGOs on environmental issues, and how we could use their example in enriching our understanding of the environment, not to mention the invaluable nature of literature and debate they have generated which can also be used for education.

I would also like to say that they have dealt more with the natural environment, in turn leaving out references to human lifestyle and related social issues which form an essential part of our understanding of the environment.

The way I see the situation in today's schooling is that most schools follow rote memorization, i.e., following or repeating. But there are some schools who follow the concept of 'learning by doing', i.e., understanding a concept by actually doing activities involving the concept to strengthen the concept further. There are very few schools that talk about learning through dialogue, especially when it comes to abstract issues. And there are, to my knowledge, even fewer where learning through self-reflection is the core.

I think the shift begins with self reflection so as to understand the purpose and the value of education, the next step being meaningful dialogue. The actualization part would come with learning by doing, and memory would indeed be used for all three – reflection, dialogue and learning-by-doing – for memory, on some level, is indeed invaluable to learning. But memory merely forms the last part of the methodology.

There are, in my sense, four components of education – purpose, content, methodology and environment. It is impractical to have a separate committee working on the methodology, and a separate one that tries to understand the aims of education, as has happened with the NCERT, which might lead to a gap in understanding. I think that there is an assumption that everyone knows what the purpose of education is. But questions around these four components need to be dealt with parallelly and not in a patchwork manner.

To define the paradigm shift we essentially need to, first and foremost, define the purpose of education which, as mentioned earlier, can come through self reflection. Next, we need to define the content of education where abstract concepts must be at the centre. For example, we need to define such abstract concepts as value in a school, what this value means in the absolute sense, its cultural manifestations, etc., without which we cannot begin. I have already spoken in detail about the need to define the methodology, and the methodology that has been adopted by the National Focus Group. Lastly, it is crucial to define the right environment for education, within which the relationship between the teacher and the student is at the core. The infrastructure does not matter as much as this relationship – one can have an equally good class under a tree as under the roof of a fancy building.

This is all I would like to say at the moment. I would just like to acknowledge those who have drafted the Position Paper. Thank you.

Summary

The speaker highlighted the key elements of Environment Education (EE) as highlighted in the National Focus Group Position Paper, 'Habitat and Learning'. He also emphasized on the status of EE in school education today, and the kinds of changes that have been envisaged within the framework to improve the nature of EE discourse in schools. These would include a greater focus on learning, the need to develop locally contextualized study material that embraces concepts such as diversity and gender, improved role of teachers, an improved evaluation system, etc. The speaker also states certain aspects that do not find mention in the framework, such as the approach to teacher empowerment, the lack of mention of environmental campaigns and civil society movements that could prove vital to a social-justice based understanding of environment related issues, etc.

Framework on Education for Sustainable Development, UNESCO

Ram Kumar

Ram Kumar is a Fellow at Wipro. His presentation was on the framework on Education for Sustainable Development prepared by UNESCO.



Ram Kumar

While Jitendra has shared something about a national framework, I will talk about an international framework developed by UNESCO.

Before I begin, I would like to acknowledge the efforts of Kanupriya, Fellow at Wipro, who initiated the earlier work on this paper. I will be frequently referring to the United Nations Decade of Education for Sustainable Development, (UNDESD)), and the Decade of Education for Sustainable Development (DESD).), the decade referred to being between the years 2005 and 2014. The document prepared by UNESCO in the year 2006 is the framework for the UNDESD, and International Implementation Scheme. However, i will not elaborate on implementation aspect but instead I will briefly talk about the background and efforts towards development of the framework on Sustainable Development. its vision, objectives and scope. In the latter half, I will broadly talk about defining education within sustainable development. I would also like to share some issues and concerns; I felt the need to raise while going through this framework.

Background to the framework

To give a brief account of its history, the framework has come out with a lot of international negotiations and deliberations. Since the 1960s and 1970s, the industrial world has used several natural resources extensively without being bothered about the environment. But the 1970s also witnessed a growing awareness regarding the scarcity of resources, and as a result some significant debates were raised over resource consumption. One of the aspects that was emphasized upon was the role of education in generating awareness around issues around resource consumption. With the Jonathan report in the 1990s, the role of education itself was realized in the framework of international work. It was later realized that in talking about education for all, questions about sustainability and environmental issues need to be adequately represented. This aspect was first represented at the Earth Summit in Mexico in 1992, where over 200 states were represented and where nearly 1,300 representatives from the NGO background as well as members of the civil society came together to address the role of education in developing environmental consciousness. Broadly within these debates in the 1990s, a crucial aspect that came to the fore was that we need to respect and nurture the natural environment, and that this needs to be highlighted in the schooling curriculum as well.

The next important step was at the U.N. Johannesburg Summit on Sustainable Development that happened in 2002 where the vision of education within sustainable development got broadened to include social justice and the fight against poverty. The focus was to include an understanding of all aspects of human interaction with the environment. This was a turning point in the construction of the new framework vis-à-vis the older one. In December 2002, the U.N. adopted a resolution that an internationally compiled and agreed-upon framework for education within sustainable development be

brought forth. It was in 2004 that a consensus was reached, when all the stakeholders met to discuss the several issues around sustainable development, and arrived at a broader framework two years later, the framework which I shall now discuss.

The report has 4 sections; the first section deals with what 'Education for Sustainable Development' (ESD) means; the second section talks about the stakeholders and various strategies they might employ to implement the framework; the third section talks about evaluation and learning outcomes, the kinds of indicators we need to use to assess the impact of education; and the fourth aspect talks about the timeline for change. For today's discussion I will primarily talk about the theoretical basics, dealing with the meaning of ESD, highlighting aspects regarding the conceptualizing of the framework.

The vision and objectives of ESD

According to the D.E.S.D. the vision of ESD is as follows – “ ... a world where everyone has the opportunity to benefit from education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation”. Within this vision we can highlight two important aspects – one which has to do with the nature of 'values and behaviour', and the other, to do with 'positive societal transformation'. In determining both these aspects and in turn facilitating change, education can play a pivotal role. Keeping that in mind, the report set forth the following objectives:

- give an enhanced profile to the central role of education and learning in the common pursuit of sustainable development;
- facilitate links and networking, exchange and interaction amongst stakeholders in ESD;
- provide a space and opportunity for refining and promoting the vision of, and transition to sustainable development through all forms of learning and public awareness;
- foster increased quality of teaching and learning education for sustainable development;
- develop strategies at every level to strengthen capacity in ESD.

Let us come to the first question – what exactly is the meaning of education for sustainable development? The report looks at ESD in terms of a process where there is a need to stimulate a holistic, integrated and inter-disciplinary approach, developing knowledge and skills needed for a sustainable future. ESD is also looked upon as an important way to bring changes in the values, behaviour and lifestyle, within the purview of human interaction with the environment. ESD embraces the wider role education plays in life long learning, i.e. learning being a continuous process, hence playing a significant role in societal transformation.

The characteristics of ESD include not only value-driven, inter-disciplinary and holistic approaches to developing the curricula, as mentioned earlier, but also an inclusion of aspects of critical thinking and Problem solving. ESD must be developed with a multi-method approach, involving participatory decision making, and an applicability to the surrounding environment which must be locally relevant. In this way sustainable development must be seen in relation to human society, economy and the environment with human culture as the underlying dimension.

The socio-cultural perspective of ESD

As for the socio-cultural perspective of ESD according the U.N.D.E.S.D. framework, it includes various aspects of society and societal institutions, their roles and structures,

and the nature of participation of the people, all of which play a significant role in preserving the physical environment. Keeping this in mind, aspects of human rights, right to participate in a democratic process, peace and human security, gender equality, cultural diversity and inter-cultural understanding, concepts which are sensitive and fragile in the light of recent communal tensions, aspects related to health such as the transfer of the HIV, and governance have been considered as essential to be included within the understanding of ESD. All these aspects are seen interrelated with culture, i.e. with a particular society's concepts around values, language and behaviour patterns, all of which are equally crucial in connecting human beings to their natural environment. We are all aware of pollution and climate change which are affected by a heavily market-driven, consumer-driven economy. There is also an obvious imbalance in consumption patterns, in that some consume less and some consume a lot more. But one could safely say that less than 60 per cent of the world is privy to the benefits of such a market economy, but bares the brunt of it in terms of environmental damage.

We could dwell endlessly upon the aspects of human rights that enable people, including children, to participate in a democratic decision-making process. It is perhaps in the light of such debates around human rights that the Right to Education Act has been shaped. Gender equality, too, has been highlighted, i.e. giving voice to the girl child and to women, to take part in the democratic process. The aspect regarding cultural diversity and inter-cultural understanding, which is often neither acknowledged nor accepted, has been mentioned earlier. Lastly, we come to HIV/AIDS which is a medical issue related to social concern. In this case governance needs to be held accountable. As already mentioned, it again comes to whether we can develop a perspective for the framework where all citizens realize that they can take part in the decision making process, where they can and do have a say in their own development. It is also crucial for us to understand that people's participation is imperative while taking into account the exploitation of fragile natural resources such as water and energy.

The environmental and economical perspectives of ESD

Another significant perspective that comes across in the framework has to do with direct environmental concern. There have been several discussions around the measures that can be taken for environmental protection in the light of the impending climate change, such as adopting ways of life by which emission of green house gases can be reduced, around which there has been a legally binding agreement. Of course, there are some countries that have indeed adhered to this agreement, but some others have signed it but not followed it. In this document, climate change has been internationally recognised as an issue concerning even development.

Cities, too, are growing rapidly as they witness large scale rural migration. But the key is rural development and sustainable urbanization. For example, more resources of the Karnataka government are pumped into the development of Bangalore because of the sheer expanding size of the city, while smaller towns get ignored in terms of resources allocated for development. It boils down to how we sustainably urbanize cities, resolving the contradiction between the haves and the have-nots, keeping in mind flocking rural populations. Within this sustainable urbanization, disaster prevention and mitigation are also matters of concern in the context of the environment.

In terms of understanding ESD within the economical perspective, mention has been made of three aspects – firstly, the reduction of poverty; secondly, the significance of corporate responsibility and accountability for actions; and thirdly, the role of the market economy in terms of balancing out the consumption of resources.

The learning-oriented perspective of ESD

As for learning perspectives, learning within the ESD framework would entail a life-long process of understanding the relationship between human beings and their environment. This would need to be done by engaging all possible learning spaces – formal, informal, non-formal – from early childhood to adulthood.

Prime areas of concern

In light of the perspectives involved in the framing of the ESD document, there are four prime issues and areas of concern that I would like to highlight. Firstly, in terms of changing the values of human society, it would take decades to dent a value system. But at the current rate of resource consumption, 30 to 40 years will suffice to exhaust many of our planet's resources. It is at this juncture that I would like to state that education could bring a pivotal change in the value system of a generation. But the question that comes to mind is – how do we conceptualize this education that can play a role in accelerating a change in attitudes and values? And, within this context, how willing are adults to welcome alternate ways of thinking? It is, after all, adults who are in the business of moulding children. Secondly, a critical issue lies in defining sustainability itself. The inter-connections between the different methodologies of research within this field are complex; some might adopt a scientific approach to studying sustainability and education within social reality, while some may cater to an anthropological or a graphical approach. Thirdly, the inter-disciplinary nature of ESD must never be lost sight of. And the final question that needs to be explored is whether an individual can connect himself or herself with the vision of sustainable development.

In all, there are significant questions that have been raised in the report which have to be looked into – Can we have a framework which is subtle, yet clear? Can we have a framework which is holistic and tangible, which can be executed in school curricula within a stipulated time period, that might yield results? Can we have a framework which is multi-dimensional yet direct? These questions are deep, and require further debate and discussion. Thank you.

Rohit

Two very comprehensive frameworks on what role education could play have been discussed. The first was around the NCERT Focus Group paper 'Habitat and Learning', and the second was on education for sustainable development. Let us start with questions as well as comments which need not necessarily be directed towards the presenters. There may be general questions which we want to explore among ourselves as a group. We have talked about the problem, about its implications on humanity, and what could be the educational framework which might respond to the problem. Your deliberations are going to be quite important in understanding the issue. The floor is open.

Anjali

It is perhaps coincidental that both the documents discussed here were developed in the same year, i.e. 2005, and that both take the perspective that curricula needs to be informed by broader perspectives that need to be reformed. Coming from the education communities' point of view, this often happens and it happens as mandates; you have to subscribe to the U.N. mandate and to the NCF mandate. But then what jumble does one make of it? I think the issue for unpacking revolves around the question – how do we reform curricula considering whatever these papers are saying?

I also feel that in my overall understanding of both these papers, there are a lot of niceties that have been mentioned regarding values, methodology, multi-disciplinarity, etc. But there is something amiss when one thinks about actual content. What exactly are the kinds of issues that they are dealing with? This was not crystallized very clearly.

What I feel in the context of the last two days' discussion is that people shy away from the concept of conflict. When we are talking of the environmental crisis, there are conflicts between different uses of the environment, different extent of the exploitation of the environment, and different environmental impacts on different uses. There are also conflicts between two stakeholders or parties staking claim on the same environmental resource. And the answer to the question 'how does one resolve this conflict?' cannot be limited to 'by respecting everyone'. Yes, I have respect for you, but I feel that I have greater right on something than you or anyone else. 'Respect for everyone' as an answer is too idealistic and definitely impractical. I might respect diversity of opinion as a concept, but have a strong opinion of my own. So, to reiterate, this issue of conflict is certainly shied away from, particularly in the context of environment and sustainable development.

Also, the historic perspective and the Marxist perspective on this issue must be included because the reaction to Marxism has been so strong, particularly among the educated classes, that even putting it in education as a way of analyzing history and society was controversial for quite some time in tackling questions like – who had/has control over the society? Was/Is it private? Was/Is it atomized? What happens when there is private ownership over natural resources? When natural resources get differentiated, when they get collective, what are the different ways of handling the environmental resources altogether? In that, the Marxist perspective on history and utilization of natural resources needs to be brought into education to stir thought and understanding in another direction.

As for the D.E.S.D. paper, the values part of it talks about recognizing diversity of human experience in many physical and socio-cultural contexts, growing in respect and tolerance of difference and differentiation in terms of poor bastis and poor castes, so that we can respect differences, etc. I think that this issue of differentiation is also sort of avoided, and needs to be mulled over. Secondly, the statement on the ultimate goal of D.E.S.D. is to achieve peaceful co-existence amongst people with less suffering, less hunger, less poverty. I would like to say that we as educationalists certainly do grapple with some of these concepts and try to see how we can bring them into the central perspective.

Siddharth

I would like to say something on the vision and purpose of education, which I am going to graphically pose as binary. But sometimes binaries are useful in terms of clarification. To make it clear, let me illustrate further. You have a mode which I would call as a vertical mode of education, as the vision, goal and purpose of life; and another which I would say is horizontal. The vertical mode now is the global mainstream mode where the child is taught to compete in school, college, at the work place, where it is all about climbing to get to the top. After getting to the top at the age of 60 years, you find that there is nothing at the top, though you have struggled all your life to get there. This is the dominant framework of values – a vertical, highly individualistic, competitive and aggressive perspective, where the other is a threat and is not a relationship. If this is what mainstream education is about, how can we care about the other, the other here being the Earth?

As opposed to this vertical understanding, you can have a horizontal understanding where your fulfilment comes from your relationship with other human beings. Here, the fulfilment is not the denial of the individual, but embracing the individual relationship with other

human beings and with the Earth. I think we have to, at this point in history when there is a looming ecological crisis that is already there, embrace the notion that everything is valuable as part of the discourse. Keeping in mind the frameworks that have been discussed, are we talking about a life-denying vertical mode, or are we talking about a life-affirming horizontal mode?

Meera

One of the important questions to ask is – what are the kinds of concepts that we want at the centre? Concepts are very complex and abstract, often unrelated to the ‘real world’ as we see it; they are always frozen, like the concept of an electron or the concept of force. What you are probably talking about is ‘conceptualization’. Conceptualizations, on the other hand, are dynamic. They move with the times; they move with the culture. So the concept of nature is not there in India. We do not have the word ‘nature’, so we do not have the concept of nature. But a conceptualization of nature as a natural word as ‘prakriti’ or as ‘nisarga’, is again abstract, often vague and inconsistent. Conceptualization is a dynamic understanding of a particular phenomenon, whereas concepts are something that you write down as definition, or as something that are in the textbook. An example of this is that for a long time I did not understand what the formula ‘force is equal to mass multiplied by acceleration’ meant, until my father got a carom board and explained it to me. Now the conceptualization of force for me is always the striker, and not the theory of the formula.

This ‘doing’ part of conceptualizations are usually touched upon while doing a PhD, and not during school. So, at the upper primary education level, global warming is a complex concept. The conceptualization is the dried up river next door. With this small shift of focus, things can get clearer.

Also, Ram questioned the term sustainability. But nobody seems to question the term development, which certainly needs to be challenged because the U.N. cannot singularly tell us what particular path there is to a particular kind of development. I am honestly quite fed-up with this word ‘development’ the word itself means that if I have just one acre of land from which I am feeding myself from it, I am not doing well enough. Or that if I do not have two mobile phones I am not doing well enough. Today, the paradigm of development is actually a paradigm of more consumption, reaching a place faster, and not the nature of the journey one makes from point A to point B.

I would very strongly say that sustainable development is an oxymoron. You cannot use the phrase ‘sustainable development’ because, to my mind, if it is sustainable, it cannot be developed. If it is developing, then it cannot be sustainable. So what are we trying to sustain, the environment or development?

Amartya Sen in his book *Development as Freedom* has tried to bring out another interesting conceptualization of the word development. Development means having access to education, having access to human rights or even understanding how to file an RTI report.

Rohit

I think the idea that concepts are frozen and are often unrelated to reality, needs to be looked into. Fortunately or unfortunately, people who deal with concepts do not see concepts like that because they do not analyse how their concepts are formed. This is not to say that concepts needn’t be analysed at all. But perhaps we should not look at concepts in such an adversarial manner, otherwise we will lose a substantial part of our knowledge and understanding.

Perhaps development could be conceptualized as a desirable state of humanity. To someone, a very opulent material existence could be desirable. To someone else, a very satisfied life may be one consisting of very meagre material resources but adequate intellectual stimulation. If we conceptualize development in such a manner, then what could be the kind of development which also sustains humanity over a longer period? I must put a caveat in here – why are we so worried about sustenance of the human race on this earth as a species? Exactly what we want to sustain is important to think about indeed.

I have been thinking about it for long, that there are three things without which we cannot sustain life as it is at this moment – one is the warmth of the human heart towards other human beings and other life forms; the second is an intellectual understanding of what human beings have gained today; and the third thing is the idea of fairness among humans – justice.

Comment (audience)

That is a tricky terrain you are treading on, Rohit.

Ram Kumar

I would like to add something which I forgot to make mention of in my presentation. It is a particular position, a certain statement mentioned in the U.N.D.E.S.D. which 'is related to curriculum. I would like to read it out – Education for Sustainable Development should not be seen as one more subject to be added to an overcrowded curriculum but as a holistic or "whole school approach" where sustainable development is seen as a context for delivering existing aims of education and not as a competing priority.'

Whether we like it or not, certain international agencies are likely to thrust the educational process in development as an agenda, something which has already reached the mainstream schools. There is, for example, already a circular from the Government of Karnataka to start eco-clubs across all the schools, and as many have one lakh schools have done so. Perhaps as educationists we need to respond to this.

Hardy

Coming to the two frameworks that were discussed, I think that the major problems with both these documents is that they do not recognize the terms and implications of what they state, in the light of, for example, the kind of issues that were raised by Sharad yesterday, and in the discussion that followed. Many such documents, when they are constructed at such a wide level, sound very impressive, but often cannot be translated into practicality.

There are certain issues I would like to raise around sustainable development. One is that there are two ways in which the phrase can be read – you could read it as sustaining people such that they remain developed, or you could read it as sustaining development. I do not think that we are clearly distinguishing between the implications of these two. To my mind, it is similar to asking – to preserve or conserve something, does one allow that something to change?

Someone here spoke about poverty. One could argue that at that level, one cannot talk about equity. To say that there should be less poverty does indeed show concern. But there also underlies a concept of resource distribution and equity, and underlies the conflict and confrontation regarding control of the resources. There is no reference in the documents to such issues, to how these can be addressed through education.

Thirdly, I would like to ask the question – is there a discipline called sustainable development? If you are not talking about economics, physics, chemistry or engineering, then what are you saying about the environment and about its development and sustainability? We cannot answer these questions in the context of the two frameworks because they not include the inter-relation of these disciplines either.

Also, one of the major lacunae in these frameworks is that that they do not talk about the fact that children need to be able to analyse for themselves and come to decisions, to be able to make choices. Such frameworks are frameworks of preaching rather than allowing students to develop the capability to make informed choices. I think students need to be able to understand and reflect on their own about what they want to sustain, where they want to go in their lives, how they analyse the phenomena around them, and how they understand their environment.

Sunita

I think the general context has to do with how our education system actually gets planned. The first level entails what the experts have proposed. The second level has what the government states. Then there is a revision by a consultant committee, and then the final approach is agreed upon. These are the steps to constructing a framework for a curriculum. What I am trying to say is that when you design your systems, be careful about this process as well, that there will be plenty of back and forth, and agreement has to be met upon at various levels.

Ram Kumar

My response to your comments would be to invite all of you to read this document thoroughly, because I have presented only a brief aspect of it. It is essential to look at the document in depth, as well as to look at its history, to see why it caters to a particular perspective.

Also, perhaps our way of looking at things also shows an aversion towards international agencies, their way of looking at education and perhaps their way of defining development. There could be other perspectives to these as well which need to be looked at, which we might be unaware of. There is also a concern to define the words ‘sustainable’ and ‘development’. I would concede to the fact that this document does not clearly define either. But I would also like to acknowledge my own limitation here, because this document has a history of forty years which I need to educate myself of. So it is also crucial to look at its history and development, how it has come into being as an important document, the way the terms have evolved through the perspective of industrial countries, the meanings they attach to words and the context in which they employ certain terms.

About what was mentioned regarding the ownership of the process, I think that the way the concept of ownership is being looked at is entirely different. ‘We need to own the Earth’ is the broader way in which this framework talks. I think the difficulty lies with how I, as an individual, can relate my day-to-day experience to the broader framework of the Earth that is being talked about, in the global perspective. And that can be relative. That is why I mentioned towards the end of the paper – can we relate the self with the vision? That is certainly something that we need to examine.

Venu

In many parts of the ‘Habitat and Learning’ document, elements of what they considered would go into what they call EE, Environmental Education, are quite interesting in the

sense that they call for a re-focussing of education in many ways. It seems to be a proposal for educational reform in totality rather than a framework for environmental education. The concerns, for instance, of sensitivity to diversity, gender, local specificity, and learning rather than teaching and building, etc., are aspects of a much more widely based educational process, not necessarily of environmental education.

In a way, in this framework, a sufficient case has not been made to convert those broader concerns of education into a subject-specific syllabus process, and I think here lays its weakness. In fact, those broader concerns have been centered on habitat and environmental education, per se, with rather unsatisfactory results.

Shifting to the whole notion of education for sustainable development, for instance, one particular definition of ESD is that it enables people to develop their knowledge, values and skills to participate in decisions about the way we do things individually and collectively, both locally and globally, that will improve the quality of life now without damaging the planet for the future. The problem is in the detail of how we are going to translate this broad aim to our various micro foundations. In this light, I will end with a quick run-through of both the strengths and weaknesses of this particular approach. I will begin with the weaknesses.

Firstly, sustainable development is contested on the grounds of the variability of defining both 'sustainability' and 'development'. Clarity and consensus of defining both these terms is yet to be achieved. Once the concepts around these two words have been established, understanding where education would come in is another grey area. The assumption seems to be that there are several power issues that exist in the current education systems. On that note, many people would say that currently education is an instrument of power and of exploitation. We cannot assume that a broad ideal of education for sustainable development would be able to overcome the existing power structures in educational organizations to deliver a more equitable and more sustainable development. In this light, ESD becomes just another moral aim in education, to be promoted by education. Does it deserve a special status at all?

Having said that, I would also concede to the fact that the idea of ESD itself is potentially a powerful one which could gel social, ecological and environmental concerns, and could address justice related issues. ESD could it lend itself to direct application at the curricular level. For instance, as Indira and Sunita presented this morning, the sensitivity to our own immediate living environment is something which the children and teachers can very directly experience. Specific curricula can be developed for particular contexts, say for south Karnataka or East Karnataka. We do not need to have a centralized curriculum for environmental education.

Devisree

The most important aspect of education is contextuality. Our country is so diverse. For instance, in West Bengal itself, the north-east part of the state is so different from the south, but even such a division is too broad. Every school in every area would have its own local, socio-cultural flavour. Is it possible for every school to have its own curriculum and its own textbooks? If not curriculum, then syllabus? How practical or feasible would that be?

Shashidhar

My comments are not directly connected to the afternoon session but are related to many questions that have come up from yesterday and today. One, there seems to be a little

confusion about whether there really is a crisis upon us. The way I understand it is that from all the evidence that we have on climate change and global warming, there is no doubt that there is going to be a severe impact on of human beings. Looking at India, the glaciers are melting, the dams have been silted or flooded, there might possibly be flooding on the coasts because of which there will be mass inland migration. According to some pessimistic estimates, it is said that things will change drastically in the next hundred months. No one can be assured of the accuracy of such estimates.

From what we can understand, as far as human beings are concerned, a large population is going to be severely affected. As far as biodiversity is concerned, even without global warming, there has been serious concern about extinction. The concern today is whether or not there will be enough genetic diversity left to even regenerate any forms of life if there is a severe bout of extinction. We do not know.

The question then that we are moving towards is – what is the role that humans have played in this whole crisis? We do have to recognize that we humans do have a great capacity to control our environment. We have a brain that can create concepts, plan in time and talk and communicate, all of which gives an edge over other species, and enables us to control our environment to such an extent that today it is turning around and causing difficulties for us. But the question here is – is this inevitable? Jared Diamond gives an example of an island where pig farming was done, but the people there found their lives unsustainable because they did not have enough fodder to keep the pigs alive. So a decision was taken to slaughter all the existing pigs, after which that particular community survived. What I am trying to say is that is it possible for a group of people to recognize, in a span of time, that certain actions that they are taking are unsustainable, and then revert back to certain actions in enough time to survive effectively? I think humans do have that capacity, and that is where education comes in.

From our personal experience at CFL, a lot has been done as far as environmental education is concerned, starting from getting the children to relate immediately to their environment to being intimately connected with the wild beings around them with whom they developed a relationship and affection. Such children would not look at a Polar Bear and say ‘so what?’, as someone said yesterday, because they would have cultivated sensitivity towards other beings with whom they feel they could relate. So, in terms of habitat studies, there is a lot that can be done to sensitize children, to mould the way they relate to their environment.

Parminder Singh, Disha - India

My understanding says that the purpose of education is to understand the environment around us. I do not know why we are coming back to something like environment education. I think all the subjects, whether it is physics or chemistry or engineering, are specific disciplines that help us to understand our environment. But in the recent years there has been a lot of talk about having a specific framework for environmental education. Is that valid at all? That is one question which comes to my mind. Also, is it a systemic approach that we are talking about or are we considering a theme-based curricula? Again, I am not sure if we need a separate environment education framework altogether.

Devisree

After so much discussion having taken place here, I have come to the conclusion that it is probably unnecessary to think in terms of environmental education. Any good education, whatever we consider to be ‘good education’, will necessarily bring in environmental

consciousness. Multi-disciplinarity is the key, multi-disciplinarity not in the sense that each discipline be addressed separately, but that an integrated holistic approach to all disciplines be carved.

Sunita

Here I would like to add that it is not only important to have a multidisciplinary approach, but it is also important to have a trans-disciplinary approach. As someone mentioned earlier, subjects like physics and engineering are meant to address environmental issues. Unfortunately, in our system, they have not done that so far. This is why I increasingly think that there is a need to fill in the gaps that are related to very primary issues that concern water or life or food, which was probably why environmental education arose in the first place in our context.

Rohit

I have no wish to defend these two documents that were just discussed, but they are not as bad or as empty of value as they seem. Their problem of prescribing an agenda or overtaking the educational agenda is an endemic problem in many aspects. If we look at the attempts and frameworks for, say, life-skills education or for peace education, or the framework for gender education, they are all supposed to be special species of education. Each one of them will mention equity, justice, critical ability, ability to make informed choices, etc., which is the central aim of education itself.

If education in general were achieving that end, then half the issues that these frameworks had the job to address would already be touched upon. Such documents then simply recognize that many aims of education are not being met with holistically. This is something like a patchwork of education. Since you cannot have a holistic, good education, such patches need to be applied.

Maya

Considering that EE is compulsory for all schools to teach, we simply need to address the question – how can we make it a meaningful experience for children? Also, how can we make it meaningful for teachers to teach professionally?

In this context, I would like to share a particular incident. As part of a study in an English medium school, a teacher was given the task of teaching EE as a compulsory subject to students of class 12. The teacher taught from the textbook as that was the only material that she had been assigned. When the teacher came to the topic of crop rotation and strip farming, a few students giggled. This was because of the use of the word ‘strip’. This annoyed the teacher greatly and said that all of them, the children, had dirty minds. She said that she would no longer teach the class, and that, as punishment, the rest of the year they should study from textbooks. And that is exactly how these students of class 12 studied EE for the rest of the year – from a textbook and without a teacher.

What I am trying to say through this example is that environmental education is not taught as a meaningful subject, in the context of the world that we experience. To this effect, I would even say that ideally we do not need EE as a separate subject at all as long as we can make all other areas of study exploration related, integrated, meaningful, holistic, and sensitive to the environment. The question is primarily around how meaningful we are able to make the subject.

Rohit

I would like to reiterate something I said at the beginning of this session. We cannot discount the role of the individual for two reasons. If we want a larger systemic change, the very idea of that systemic change is going to evolve in one particular human mind. It is impossible for that idea to be generated in the air or simultaneously in all human minds. Also, if we think that these kinds of debates on education can have any impact, then we are in fact trying to change the individual value systems and individual responses. So, until we have any faith in the change at the individual level, in changing a person's world view, there cannot be any chance for change at all. Holding such forums then would become an exercise in futility.

Why did we reach such a crisis? Let us understand that human beings do require a purpose for their lives. Having a sense of purpose is a necessary condition when they become self-conscious. How is it possible to develop a capability in the whole of humanity to craft a purpose for their own life, a purpose that is crafted in such a manner that human life on the Earth becomes sustainable? At this moment, I do not know that purpose. Religion, on some level, gives purpose which, as we have seen in the recent past, could cause severe conflict. But now, the biggest stumbling block in being able to identify the purpose is the market. The market feeds people with the purposes of producing, selling, earning and consuming. If we somehow identify the manner in which space could be created for people to realize their purpose, then perhaps there could be a chance to fight the market-driven life of today. I do not know how we could do that, but it seems that critical thought and ability to make self-realized decisions, and the ability to question and reflect would be central to that mindset.

I also have some comments on the environment. Let us recognize that human beings do have an element of selfishness deep in their hearts, and that this selfishness, too, is a necessary condition again to develop self-consciousness. We need to expand our consciousness in a manner that it at least includes other human beings, if not other species. This can be done only through the child. If children are taught to understand this world through understanding their surroundings, social as well as physical, then they can immediately forge a personal link with that surrounding. Therefore, this idea of the environment would be considered as their own surrounding, and will enhance their empathy towards the other beings in the surroundings.

Summary

The presentation was a brief summary of a framework developed by UNESCO for Education for Sustainable Development. The framework places the central role of education/ curriculum in providing opportunities for everyone to learn values/behaviour required for a sustainable future and positive societal transformation/ The focus is on to understand and develop curriculum through inter-disciplinary approaches for developing knowledge and skills needed for maintaining a sustainable future. The speaker emphasized on the environmental, socio-cultural, and economical perspectives related to Education for sustainable development., within the purview of which the speaker asked questions about how such an education can be practically conceptualized in terms of reforming existing curriculum. The discussion problematized several aspects of the framework, such as – what is the meaning of sustainable development? Is it possible to have a framework which is subtle and yet clear, holistic and yet tangible, multidimensional and yet direct?

Day 3 – 18 September 2009

Group Discussion



Prakash Iyer, Wipro

Since so many crucial issues have surfaced at the forum, a summing-up is in order. I now invite Venu to walk us through what we have thought about and spoken about over the past two days.

Venu

In summarizing the events of the past two days, I will be limited by my own understanding of the concerns that were brought to the table. As I see it, we began the first day with identifying the problem statement. Soumitri's presentation was an introduction to the kind of impact human activity has had on the environment in the last 300 years, and the environmental problems that have arisen thereof. The word 'environment', in this sense, implies the physical environment. The archetypal problems are climate change, loss of biodiversity and habitat destruction, each of which are equally worrisome. Human beings are affecting the physical environment in fundamentally significant and measurable ways. For example, one of the statistical readings is that the average surface air temperature will rise by 5.4° by the year 2095, considering there is no policy intervention to strategies how to amend our ways and reverse the impact. In this way, Soumitri's presentation highlighted the dramatic contours of the problems we are facing today and might face further in the future.

In his presentation in the afternoon, Sharad Lele took for granted the substantial changes that have taken place in the physical environment as a result of human activity. The question that he tackled in great detail was – how do these changes in the physical environment translate into changes within the social, economical or even cultural dynamics of human society? Or, to put it simply, why does it matter? To such complex questions there are no readily available answers. Sharad brought to the fore the different perspectives to understanding the environment and to understanding environmental problems. For example, for somebody living in coastal Bangladesh or in the Maldives, the perspective of climate change is very different from somebody living in Bangalore. While coasts might get submerged under water in the coming decades, cities like Bangalore might benefit as a result of excessive rainfall. According to different perspectives, the interpretation of the situation regarding whether or not it is viewed as a problem or not, and the response to it would be dramatically different.

In this light, a third world country may feel that the only way to escape the impact of dramatic environmental change might be to accelerate its growth so it can tackle any challenge better. First world countries, while implicitly acknowledging that several problems have arisen in the first place as a result of runaway economic growth with

industrialization within their nations, might not be willing to reduce their ecological footprint, and might perceive the problem in terms of preserving wild life. Another question that arises is – what are the possibilities of economic growth in the face of impending environmental crises?

The spiritual angle to looking at the problem embraces the fact that there is intrinsic value or worth in our planet. There is a value to what is understood as nature, which has to be defended regardless of human concerns and human self-interest. In this light, it has been argued by some that the fundamental problem is not one of economic or social issues, but lies in the fact that it is because, in some sense, human beings have lost touch with the fact that they are one form of life on a diverse planet. What is required is to recapture and embrace the direct experience of being a living being on a wonderful planet. In such an understanding, the rationale for responding to the crisis does not come from economic, social and cultural angles, but from the very experience of being a human being.

There are bound to be a broad set of solutions which should be available, which have to be acted upon. Let us highlight the personal, institutional, community-based and state-centered responses that we have possibly discussed here. In the context of personal responses, we have talked about the importance of individual responses and individual change which is the seed of all change. In the context of institutional responses, we have talked about responses from business organizations and from NGOs. As for community-based responses, Avinash gave the example of a residential community that took the matter of water management into its own hands. Lastly, there are larger attempts by the states, nations and multi-lateral organizations on various issues.

In yesterday's sessions, it was asserted that one kind of response is the response of education. Education is about understanding contesting meanings, and its role is to develop in children an understanding of their environment so they can develop an ecological consciousness. Education must nurture within children sensitivity towards their environment. Such an attempt has not only socio-economic but also broadly ethical challenges. In such a framework, we are not talking about education as merely institutionalized school education. Education here includes all attempts to communicate certain information and understanding to a broad audience. Therefore, within this we will also include adult education and meaningful, practical education for marginal communities, as Sunita mentioned.

What happens in a classroom learning environment is what you could call a micro-activity which would entail interaction not only between teachers and children, but also among children themselves, and with parents. The educational challenge is to translate concepts around the environment into fairly interesting concept and information based activities in the classroom to facilitate practical understanding. One way would be to create a subject called Environmental Studies, create a syllabus for it which is centrally drafted so that it can be sent to all schools to be followed prescriptively. But would this be effective? For any material to be successful, it is crucial for it to be contextualized for the children, placed within their own local environment which the children directly experience every day.

The prime question is – how can we translate the notion that human activity impacts the environment in meaningful ways for children between the ages 6 and 18 years? The curriculum, syllabus and activities need to be coherently and meaningfully drafted so that they are effective. Local communities and local educators should also have the capacity and, more importantly, the freedom to translate the curriculum into meaningful and intelligible ways in the classroom, and the syllabus too should be flexible, not predetermined and centralized. Curriculum, on the other hand, can be centralized if it is flexible enough.

Vikash Naik

You just mentioned that classroom requirements are information and understanding, communicating a sense of ethics and justice, and direct experience. While these certainly hold as essential elements of a good classroom, I would like to add another element – the person who communicates this, i.e. the teacher. The teacher must himself or herself practice some of the things that have to be communicated, otherwise the classroom will not be a success.

Also, I was very happy to learn that the NCERT Position Paper that was discussed yesterday has a component which says that it is very essential that the institutions or the schools themselves start using sustainable, eco-friendly materials. If children are made aware of the need to use such material, the reason why they are using them, it will definitely breed a degree of sensitivity among them. Schools need to set such practicing examples.

Anjali

I would also like to say that the understanding of how to develop values through value conflict is certainly an important aspect of classroom learning, though in no measure do I mean that it is the only way to develop values. But conflict resolution must be included in a curriculum, but the methodology of it should be taken-up in a classroom, must also be clearly defined, be it in social sciences, language or mathematics. What should be the nature of activities to this effect? That is another important issue.

Jitendra

I feel that order is something we understand, but disorder is something we do not, which is why it is disorder. By extension, conflict is difficult to understand, in contrast to harmony. Conflict can be understood as the opposite of harmony, perhaps as the lack or absence of harmony. When we check a mathematical problem, we can say it is wrong only if we know the correct answer. So the wrong can be understood only in the context of the right.

What we are mostly focusing on is trying to understand what is not right – what is a conflict? But we will not understand it unless we know what is right. And we all have an inherent sense of what is right, if not a complete understanding of it. That is how we come to know that something is wrong, but what exactly that something is, we cannot understand that fully. We should focus on what is right.

Rohit

I am not sure I cater to the argument that people do not understand conflict but understand harmony. On the contrary, I would say that people do not understand harmony, but easily recognize disorder and conflict instead.

I would also like to add a very small comment on classroom interaction. Every classroom should have an objective. Some purpose, some information or understanding and some engagement directly with the environment and with people, all woven around activities should be part of a classroom.

Shubhra

The discussions in the past two days have given me considerable food for thought. While some of my questions have been fruitfully answered, some are left unanswered. This is the reason I feel that I must speak out.

It is interesting that the very term ‘development’ was questioned. I understand the implications of the word in, let may say, the popular sense. Being developed means having more resources. I understand that on a macro scale, first world countries, by virtue of having much of the resources under their control are dictating terms of ‘development’ to third world countries. And even on a micro scale, for the groups that I work with, who are, as we would call them, underprivileged, and are from the marginal sections of society, development is an aspiration. The word certainly has an elitist connotation. Considering this aspiration to be developed, nature studies do not inspire interest among these groups. Environmental Studies would need to be much more fundamentally rooted to their lives, about asserting their rights in an unequal world where resources are in the hands of a select few.

While sitting through Avinash’s presentation on water management on the first day, I was reminded of an exercise we did with some children from these underprivileged groups. All the children were between the ages of 10 and 12 years. There was a chapter on water in their syllabus, so we asked them to conduct a survey on the sources of water available to them in their slum. The slum was an extremely congested one in north Kolkata, Narkeldana. We also got permission from some neighbouring multi-storeyed houses to be part of the children’s survey. The children were to ask in each household how many members and how many taps they have. There were as many as four taps in a kitchen, six taps in each bathroom, and some houses had as many as three bathrooms. The survey revealed that some houses had over 20 taps for a household of three members. Then the children surveyed their own slum where twenty families shared one tap, where the average family size was between six to eight members, bringing the total to roughly 150 people per tap. The water was rationed from 5 AM to 8 or 8:30 AM, still we expected the children to come bathed and clean to school. The injustice of the situation was flabbergasting. Uptil the moment of the survey, the children had taken their own situation for granted. But seeing the richer households with their multiple sources of water struck them very badly. They realized that they needed more. One of them came to me and said, “Miss, this is not right. What do we do?” In response, the process of taking action started when we went to a local councillor. Eventually they got more water.

Seeing such situations, I look at the environment from a very different perspective, and try to think about how people can be made to become sensitive to their condition. What kind of role can education play in a world of shrinking resources, where resource distribution is terribly unequal? How can people stand up for their rights? Addressing these concerns would demand a very different kind of education. The children from the slum only got a sense of justice-injustice when they saw such a stark difference in water distribution after the survey. But what I am trying to say is that children can comprehend even such complex issues as judicious distribution of resources. Even though it is a complex issue, having experienced it, they know what it means. What we need to do in education is to build concrete experiences so that there is greater understanding.



I could give you the example of another experiment conducted in a rural school where the entire village for the past five years switched to sustainable farming practices using organic fertilizers. This was done keeping in mind the economics of it, that they do not suffer as a result of switching to another type of farming practice. But it was recently realized that as a result, the ground water table in the area was depleting. For five years we have been able to sustain the practice, but I am not very sure whether we will be able to carry-on for long because of the impact it is having on the ground water. The question is – who pays the price for this, and why? I know that education is part of the response in this situation as well, but how? I am not too sure. This is where the practical aspects of education become hard to articulate.

Sridhar

The question contains the answer. You are absolutely right that these kinds of injustices exist, and that there is no clear answer, no completely fair solution. But as awareness like this builds, like in your example, the slum children became aware of the injustice done to them, the first step gets taken. But I must state here that it is equally important to build awareness among the rich and well-to-do so they can lend support, as it is to build among the victims of injustice. Also, individualized awareness can be a powerful mechanism to inspire change.

Anurag Behar

Shubhra's question raises, what I would say are a multi-layered and differential educational response. Long ago I had written a piece on education for the underprivileged and education for the privileged, how they should be different. The key, indeed, is to bring about a realization and awareness of notions of justice and injustice within their own contexts. In this way, education certainly has an ethical dimension to it. Confrontation through activism certainly is one path. But what are the other paths that can be employed for confrontation? Though this point keeps coming-up, we have not addressed it frontally. But perhaps, education, too, can have that element of confrontation.

Manoj Kumar, Digantar

Yes, there is an issue of economic and perhaps even social distribution – that some people are getting less water and the people living in apartments are getting more water. But somewhere along the line, we need to communicate that water itself is a scarce item, and if some people need more water, then somebody has to curtail use of water. Otherwise, the response from people living in apartments could simply be, "Give the slum dwellers more water; give them twenty taps", which would not be possible for logistical reasons and would be environmentally unviable.

What would be the adequate response? Both slum children and the children living in apartments need to understand that water is a scarce entity, and that many other natural resources are also depleting. This ecological consciousness is as important as social justice. The question is striking a balance between the two in a sustainability perspective.

Concluding remarks – sharing the experience of the WATIS 10th Partners' Forum

Prakash

Over the last nine years the Partners' Forum has certainly evolved. The idea was that all of Wipro's partner organizations should come together and brainstorm on the kind of programs that could be done. This year's forum has been a true manifestation of that community of partners. The meetings have mostly been spaces where we delve deeply into some aspect of education.

Now, I would just like for all of you sitting here share your thoughts regarding your experience of what has happened here in the past three days.

Vijay Gupta, Shikshangan

My takeaway from the last two days of discussion here was that whether we speak of sustainable development or environmental education, ultimately we are talking about what good education means. Our job about how to deliver good education is not over; perhaps it has not even begun. What is good education and how can we provide it? – that is the question.

Whatever I have experienced in the last one-and-a-half years of our engagement with the schools, government or otherwise, there is a huge challenge as far as teacher preparation is concerned. How do we equip teachers at various levels to be able to engage children? That, to my mind, is the question that if dealt with can change the face of education drastically. I would be very happy if we can engage in such discussion again and again simply because we need to.

Parth Sarwate, Azim Premji Foundation

I would agree to that effect, that teacher education really is the central issue to be addressed because, after all, the fate of the academic output rests on the teacher. Perhaps in the next forum we could talk about what the nature of teacher education should be.

Anjali

I have been involved in this forum from the beginning with Vijay, Anand and Prakash. I remember Vijay saying that there is an urgency to changing the world, to change it faster than what the government commits. In that direction, I think we are simply in for as long as it takes.

Wipro has been partnering with individually very reflective people and organisations, and that in itself brings richness to the forum. But somehow as a community, we are not engaging critically enough with each other. We are not even sharing our own work enough, or evaluating each other's work. This critical engagement is lacking in the education field as a whole. I think we can form an e-group and share what we are doing, the manner in which we are, say, engaging with teachers or children, the responses we receive, etc. There needs to be a lot more sharing and critical reflection amongst the partners.

Sharat Chandra Behar

Perhaps we should put together what has happened over the last ten forums in the form of a document so that we can make available to a larger audience what we have shared here.

Sheel Galada, Teacher Plus

In the context of sharing experiences and material, I would like to share what happened when Teacher Plus became part of the forum. When Teacher Plus was approached by Wipro, Orient Longman (now Orient Blackswan) proposed the idea of bringing out a magazine. Wipro, too, at the same time had the idea of bringing out a magazine, but somehow the idea did not materialise. So, Wipro thought that Teacher Plus could be the magazine where educators in the forum could connect. The prospect of doing so was exciting, and we tried to contact several of the partners to ask if they could contribute to the magazine. There were a lot of promises and indeed many were interested, but somehow the attempt to integrate contributions from partners fell through. When we say that we can work together and share experiences and ideas, can we do that formally? This would naturally involve taking on a responsibility in addition to your other commitments. But can we spare that much time and energy? Can we devote one person who can link between all of us here?

I would really urge people to use Teacher Plus as a forum for any opinions or ideas anyone here would like to air. It is certainly a platform through which you can reach teachers who are not part of such forums as we are part of here.

Maya

May be as a practical initiative within the forum, two or three partners could together work on a project which is meaningful, and share it with the rest of the partners at subsequent forums. In this way the sharing could be greater because it will not be individual partners but a collaborative effort of partners which would become easier to share.

Shashidhar

This is the first forum that I have attended, so I would like to take this opportunity to thank Prakash and the host. I would like to say that even at CFL, which is an institution where dialogue is extremely important, we have realized how difficult it is to maintain that dialogue. When you put 20 to 30 people together in a room, is it really possible to talk? We need to understand the meaning of dialogue. I understand that the purpose of this forum was to bring people from different areas of education. But I found myself confused at whether when somebody made a presentation and comments were made, could I respond to the question or only the speaker could? How does one proceed with a comment? What is the process of the dialogue? Also, if I make a comment, am I sharing my opinion?

I also feel that there more experiences should be shared of teaching children environmental education so that we could have a better practical understanding of how we can engage children.

I would also like to extend Mr.Behar's suggestion of documenting the proceedings to the next step. Perhaps certain questions that came up in the forum but not addressed adequately for the lack of time, could be re-addressed in writing.

SC Behar

Earlier there was more emphasis on teacher development. Then we came to whole school transformation. Maybe this is the third phase where we are engaging ourselves with quality ecological education or environmental education. In my understanding, there is a much greater need for us to intervene in three areas – one, in areas of tribal

concentration. Considering my concern has largely been with equity, I am glad that three of the partners are working in tribal areas. There are certain scheduled areas which have already been identified legally and constitutionally. These areas will, therefore, be relatively easier to operate in. Secondly, areas where there is a concentration of scheduled castes. Many of these areas are not constitutionally identified. These areas again require greater attention for education. And the third is areas of concentration of minorities. I was happy to know, for example, that Vikramshila is engaging with madrassas. That is an interesting example. So these are the areas where we certainly need to intervene.

Anwar

There are certain other aspects in education which would be useful for all us practitioners that the forum could think of holding its discussions on, for instance, child development, sociology of issues and problems the teachers face, nature of good classroom interaction, etc. Taking into account cognitive psychology and sociology and the role these disciplines play in education, a forum on the cross fertilization of disciplines might give us insight into understanding education further.

Devika

For me, it has been quite a journey from being a Principal of a very mainstream school which catered to middle-class children in the city of Pune to suddenly becoming a partner for Wipro Applying Thought in Schools, and then harnessing the energy of so many teachers across the city of Pune, and then, five years ago, training them right from developing content to actually training others. We were so used to working in urban, elite schools, training their teachers. But from then to now, it has been a long journey of working with tribal people, spending days on end staying with them and working with the teachers, working with the community and listening to, if not addressing, their concerns.

I sometimes feel that it is interesting only in a way to share each other's work when we come here, but after that it gets tedious because sometimes we merely showcase what we are doing. We can further add to the richness of and depth to our discourse to make our learning deeper, be it regarding transacting training or developing curriculum.

I also agree that we need to share with each other what we are going. I have begun networking online on Facebook, and through blogging many of us are able to share our experiences. We must certainly ensure that we are in touch with other, exchanging ideas and experiences.

Anurag.Behar

This two-and-a-half-day forum, in my view, was quite illuminating. I learnt a lot more, and it has been quite useful to me. I hope it was useful and meaningful to all of you as well. There is certainly a need for us to carry such a dialogue forward. I thank you all for being here.

Wipro Applying Thought In Schools

10th Partners' Forum - 16-18/09/2009



AGENDA

10:00AM-11:00AM

Introductions; Context setting
- Anurag Behar

11:00AM-12:00PM

Ecological Sustainability: The Problem Statement - Soumitri Das, TERU

Discussant: Srikanth B.

12:00PM-1:00PM

Understanding Sustainable Development - Sharad Loh, ATREE

Discussant: Hardy Vidya Khawar

1:00PM-2:00PM

Frameworks for social responses -

Vishwanath, BOME

Discussant: Anwar, Saravesh

← DAY 1

DAY 2 →

9:15-11:15

Educational responses

The Poorna experience
- Indira, APF

Alternative livelihood context
- Sukita Rao, ATREE

Discussant: Venk, CFL

12:00PM-1:00PM

The Education solution: First principles

Alok Mathur - Riski Valley

PS Narayan - Wipro

2:00PM-4:30PM

Understanding educational frameworks

- Kanupriya, Jitendra, Ramkumar -
Wipro Fellowship

Moderator: Rohit D., Digantar

← DAY 3

9:15AM-10:15AM

Reflections from Day 1 and Day 2 -
Open discussion

10:30AM-1PM

REE: Our role in the universalization of
Quality Education

Moderated by: Anjali

3PM-4PM

Feedback; Suggestions for next Forum

- Anurag, Sreekanth, Prakash

Forewords

Day 1

16th September 2009

Ecological Sustainability : The problem statement

Soumitri Das - Fellow, Climate Change Division, TERI

Discussant : Sridhar Rajagopalan, EI

A complete picture of the impact of issues connected with ecological sustainability can be captured as : Climate, Habitat and Resource issues. This session will put information on global warming, climate change, nature of resource depletion in perspective. And in the process articulate the ecological sustainability “problem statement”.



Understanding “Ecological Sustainability” and “Sustainable Development”

Sharad Lele, ATREE

Discussant : Hardy, Vidya Bhawan



That we are facing an ‘environmental crisis’ is something we all seem to agree upon. Concepts such as “ecological sustainability” and “Sustainable Development” have emerged as ways of describing a state of affairs or goal that is different from current states or processes that seem to be taking us towards this crisis.

But what do they mean? Let us try to explore ways in which these concepts have been articulated, and how they relate to each other and what they might mean for action and for education.

Social response to sustainability issues :

Framework for participatory water and sanitation solutions

Avinash, BIOME solutions

Discussant : Anwar Jafri

India’s dependence on groundwater is one of the highest in the world. Water shortages all across urban and rural India are common. India has perhaps the largest populace in the world without access to sanitation and toilets. Urban flooding is a serious issue. The challenges are many but what are the beginnings or the approach to solutions?

Knowledge and participation seems at the heart of it... the talk will try and put in perspective the core issues and emerging solutions in the “water for life and livelihoods” front in India.



Day 2

17th September 2009

Educational Responses

Moderated by : Venu - CFL, Bangalore

Integrating Ecological Sustainability into the Educational Experience :

The Poorna Experience

Indira V-Azim Premji Foundation.

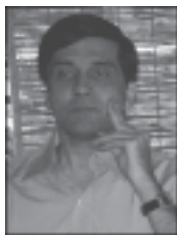
This talk is a reflection on the Poorna (school) journey - both personal and institutional about working and thinking about the kind of education that would enable children to feel that they are active agents in creating/sustaining/enhancing their environment. The understanding of environment as transcending the physical and functioning as a socio-cultural construct has been part of the journey.



Education solution : First principles

Alok Mathur - Rishi Valley

PS Narayan - Wipro



This session will locate fundamental questions with regard to looking at formal schooling and education as solutions to sustainability issues. Based on the understanding from the experiences shared earlier, the idea is to reflect on the scope and the extent to which education of the future generations contributes to resolving the sustainability problem.

Educational Interventions : The alternative livelihood context

Sunita Rao - ATREE, Vanastri

Ecological sustainability raises many social issues including that of livelihood. Though it is not the only purpose of education, livelihood is shaped significantly by education. World over people have been rethinking the concept of learning and the real life value of the present education system. Many different “alternative” learning approaches have emerged and are working well.

The focus has been on using the head (thinking), heart (feeling), and hands (doing), leading to a sensitive, wholesome way of learning and being able to apply what one has learned to life. Such a new and more holistic learning could lead to wider choice of livelihoods that are more sustainable and fulfilling.

This will help with the genesis of a green economy. We will explore this concept collectively and come up with ways to make it work.



Understanding Educational Frameworks
Moderated by : Rohit Dhankar - Digantar

UNESCO's ESD framework, NCF's Environmental Education focus group paper
Ramkumar, Jitendra, Kanupriya - Wipro Fellowship



In this session we move on to understand existing educational frameworks that deal with ecological sustainability. The idea is to take the morning discussions further and understand possibilities to devise a larger framework for education that helps engage with sustainability issues; and taking a critical look at existing frameworks, to unravel both philosophical and practical issues.



Day 3

18th September 2009

Reflections from the previous days

Open discussion facilitated by : Rohit, Venu, Sridhar

An hour of open discussions reflecting on the discussions around education for sustainable development.

RtE : Our role in Universalisation of Quality education

Moderated by : Anjali Noronha

RtE is part of the democratic process - it is up to us as concerned citizens to make this process as strong or weak as we deem fit. We are all committed to the universalisation of equitable quality education. This forum of partners is one of the places where the inquiry and discourse on implications of the Bill on quality education can begin and be taken forward.

In this context as civil society we have to look at how we can respond to the fundamental issues that the bill raises and to develop a common understanding of the bill with a view to take the discourse, deliberation and impetus forward. This session is with a view to form a group of interested partners to participate in this process.

Feedback; about the next forum

Anurag, Sreekanth, Prakash

Open discussion on the 3 day Forum, reflection on Partners Forum as an idea and thoughts on the next Partner's Forum.

**Wipro Applying Thought in Schools
10th Partners' Forum, Sep 16-18 2009, Bangalore
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