Vivek Jha | Untitled

Thank you Martin. Thank you Dr. Adrian. It has been a pleasure and honour to come here.

The movie screened just before me has solved a lot of my problems. It has put things into perspective so I will delve into the impacts of climate change but I will really focus on the issue of how disenfranchised people will adapt to climate change.

I do not have a presentation and Martin, I am sorry to disappoint you, I won't be speaking on urban and regional planning issues. I will be speaking mostly on community issues.

To start with, let's address the issues of vulnerability and adaptation. It acquires great importance in the context of climate change as we all know. The IPCC in the third assessment and the fourth assessment reports have clearly put forward that the prospect, irrespective of what happens globally in mitigation of emissions of greenhouse gases, the world will face climate change for a long time to come, extending possibly over centuries. So whatever harm we have done to date, we won't be able to negate it in the coming few years. It will possibly take a long while.

This, consequently, makes adaptation a very significant part of the strategy for dealing with climate change. For the next few years or probably a century, we will have to look at adaptation as one of the focus points in terms of climate change issues. It will require a clear assessment of vulnerability issues of different locations as well as the impact on ecosystems and communities. Some of it was mentioned. The Mumbai floods were mentioned. A few that we know of. Katrina we know of. We just heard about ice melting in the Arctic. So issues related to climate change are huge.

However, it is important that in analyzing this issue and mapping out different options, we do not see the issue of vulnerability in adaptation in isolation of past experiences. The world has dealt with naturally-induced climate change in the past and even more so with extreme weather events that have produced harmful impacts on ecosystems and civilizations over the past few years.

One such example is from coastal India where we are talking about traditional knowledge. Here, traditional knowledge has been passed on from centuries. This is not a written code of conduct but passed through stories. The inhabitants did not have a concept of tsunami. They did not know what a tsunami was, whether it was an earthquake, but what they had heard of was a saying: If the ocean recedes, then you recede further into the forest. By following this saying, a lot of lives were saved. So traditional knowledge is an important database that we have. In our future practices of undertaking anything with climate change or climate-induced change, we should keep this in mind.

In this presentation, I shall try and put forward some case studies based on a range of experiences in different parts of India. This is inherent in the fact that India is a country of enormous diversity, not only

in the range of ecosystems that exist and have been sustained for thousands of years in corners of the subcontinent, but also because the country has enormous diversity of culture, social systems and level of economic development.

The presentation, or what I speak, will be divided into three parts: the who, the how and the what. Who are the disenfranchised? How they are likely to be affected by climate change? How they have coped with such issues? And What can possibly be an approach to vulnerability reduction.

The who. Disenfranchisement has many faces. It is broader than a lack of rights and manifests itself across multiple dimensions: hunger, lack of shelter, being sick, not being able to read, being unemployed, losing a child to illness or unclean water and poor sanitation. The disenfranchised, if I put it in the Indian context, covers a big portion of the Indian population. It comes from various places.

My travels take me to various places within India and all of these remote places, the reality is really heartbreaking. I will talk about a place on the eastern shores of India called Orissa where a large part of India's tribal population lives. These populations are marginalized communities, which through the years have been ruled over, first by landlords and now by the recent politicians. The state of poverty is really heartbreaking as I said.

The family I am going to take about is a family that has four children. When you go into the house, it is a very clean house. They produce rice but they do not eat rice. If you eat rice, the supply is going to last a couple of days. What they do is brew the rice and they make something called rice beer. So they sustain on rice beer for what would sustain them for two days will instead sustain them for a longer period of time, let us say a week. But this just fills up the stomach. It does not do anything for the nourishment.

More so, they have four children. When asked, where are your children, they say that in the morning, our children leave. They come back just to sleep. When asked why, they say because if they stay in the house, they will die of hunger. At least when they are roaming around in places, they will at least get something to eat in the jungles. What they get is from berries, from different trees that they can scavenge from. So this is the state of condition.

If I take you to another place in India, to the northern sites where you have the Himalayas. Here, development has taken place in India but a lot of development has left the mountainous ecosystem apart. These people live in scattered populations so one village would consist of about 10 people. They are scattered as far as a six kilometre hike away from the nearest village. So there is no connection. They people have very poor infrastructure. They do not have access to health facilities. If someone falls sick, what do you do? You take the person on the shoulder and you hike down six, seven kilometres. If the sick person is lucky enough to survive and receives treatment, otherwise, well, a lot of other things can happen.

This is the kind of poverty that we are talking about. If we go and talk to them about climate change, do you think they will listen? First, get them three square meals a day and then talk about climate change. Are they interested in climate change?

If I take it out of the rural context, if I take it to an urban context, about 40 to 50 per cent of our cities are slums. Now, this goes with all metropolitan cities. You have Mumbai, Delhi, Chennai. All the cities have a lot of population that are living in slums. These people were pushed out of their rural habitats to come to these urban areas where they came to look for jobs. What they have done in the course of events is they have been pushed out of a life where at least they had free air, nice air to breathe. They are pushed into an area where there is inadequate space, a lot of sanitation problems. It is high density and it is packed. They do not have a good quality of life.

The disenfranchised does not just mean rural people or rural poor. It also means urban poor. What they have in common is that they are poor.

How are they going to adapt to climate change? It is unfortunate that these people do the least to our climate. They have the least amount of destruction that they have done and they will be the ones who pay for it the most. Besides the inability to fulfill basic needs, poverty brings a sense of vulnerability, voicelessness – you are not heard. Powerlessness to influence the policies and processes that affect your own life. The policies that are affecting my life, I do not have a say in it. This is the condition that has gone with all poor people, not just in India but in any developing society. If we consider countries as individuals, then developing countries do not have a say in what policies are decided in the bigger groups like G20. That is the truth of life.

However, in the broader definition, poverty is not just synonymous with vulnerability. Some of the past work, which consists of work by Amartya Sen, Robert Chambers, some of the work done by TERI, they have highlighted factors that define vulnerability.

Entitlements. Entitlement to basic access of services. Entitlement to health services. Entitlement to a good education. Entitlement to clean air and clean water. Entitlement to irrigation water for your crops. If you do not have these, you are vulnerable.

Personal opportunity. Some people are faced with or are born with disabilities. Those fall into the category of vulnerable.

Variations in social obligations. We are in the 21st century but a lot of our social parametres are still in the same in India. There is still a culture of dowry. There is still a lot of pressure on dalits, we call them harijans, a lot of pressure on them by their peer groups. A person from a lower caste is not allowed to touch water in some areas, not in all. Things have rapidly improved.

Environmental location. If I am situated in the flood plain, as was in the movie where a lot of Bombay is made on the flood plains, then by the virtue of location I am vulnerable.

Livelihood diversification strategy. I am dependent on agriculture. Tomorrow, because of climate change, my rain water fails, for example. I do not have any other income source to look forward to. Hence, I am vulnerable.

Support networks. You have traditional support networks. People in villages have a support network. We as institutions, our governments are extended support networks. If these civil societies, these institutions, the government are not there for you, then you are vulnerable.

Access to knowledge, information and technology networks. If you do not have knowledge on what to do and what is going to happen to you if you do not have information on the policies, you are vulnerable. Empowerment or power relations between the communities. The last example that I gave you is of the caste system. In some parts, it is still prevalent. So if you are from a low caste, you are vulnerable.

Hence, disenfranchised communities may be defined as communities that lack one factor or a combination of the above factors. Further, there is the effect of the well documented impacts of climate change. I shall not delve into the impacts of climate change because it is very well documented and there is no thought about it, we are very close to the tipping point now.

Climate change will further enhance their vulnerability. The extent of vulnerability will vary across regions and populations within regions. In some areas, there may be a net beneficial impact. I am not saying that every place will be negative. But in most of the places, there will be a negative consequence. While the developed countries will be in a better position to deal with consequences of changes, the developing and the least developed will have to bear the brunt as they lack both the technical and financial capacities to deal with these changes.

Furthermore, the impacts of climate change will fall disproportionately upon the developing countries, particularly the poor and the vulnerable that I have mentioned in so many different factors. This thereby exacerbates the existing inequities.

Further, the economies of most of the developing countries are dependent on climate sensitive sectors: agriculture, forestry, fishing, mining. If due to climate change a lot of these climate sensitive sectors are going to be affected and hence, the livelihoods of a lot of these people are going to be affected.

Let us take the example of agriculture, one such climate sensitive sector in India. It is the single largest source of employment and one of the largest contributors to GDP. But as three-fifths of the cropped area is rain fed, the economy hinges very closely on the success of the monsoons. Under an enhanced greenhouse condition, the vulnerability of monsoon is projected to increase, resulting in increasing

floods and droughts. This would affect agricultural production and increase vulnerability of the larger agrarian population. Further, acute water shortage conditions combined with thermal stress would adversely affect the production of many food crops.

So you have farmers with small land holdings. On an average, people have 2.5 to 3 acres of land (close to one hectare). These small landholdings are difficult to till anyway. After the changes in climate, they make the situation even worse for them.

Change in precipitation levels would also affect rivers, reducing the flow during critical summer months when the demand is the highest. Water quality would also emerge as an important issue with the potential to engage human health. As the water flow decreases, the dilution capacity of water for pollution also decreases. The water that we know now has X ppm of pollution, this pollution will be doubled if the flow is reduced by half. So the quality of water is also set to degrade with the changing climate. All these are impacts.

It becomes important to build adaptive capacities of these people and these communities. At the beginning of this presentation, I laid stress on some traditional adaptation strategies supported by traditional institutions. I am going to explain a couple of them.

In India, we have a very rich traditional knowledge. This water harvesting is not something that has come to us in the last couple of decades. It has been followed for time and ages long forgotten. Due to access of modern amenities, these traditional knowledge bases were soon lost. In villages, what they used to do is to dig up ponds and they used to harvest water. Now, during times of drought or during times when they need the irrigation the most, they pull water from these ponds and they can irrigate the fields. These ponds also lead to percolation of water, which was explained by our Brazilian speaker, and increases the ground level. But with the coming of modern amenities, a lot of these traditional knowledge bases were forgotten. These ponds went into disuse. But as soon as there is a stress on communities, they go back to these traditional knowledge bases.

They are not new to people, but they have to be rethought of and they have to be one of the mechanisms to adapt to climate change.

Another example is of buildings. I am talking some planning in the sense that we used to have a structure where our houses used to have a courtyard. As India has a hot climate, the courtyard circulates air. Your inside air is cooler, inside your house is cooler, whatever be the climate outside. With aping the Western culture, a lot of us are into making glass buildings, buildings with totally glass facades. These are not made for the Indian climate. We have to fall back onto our traditional knowledge base.

Another good example, though it might sounds a little off context is the concept of the dining room. There was a dining table and there were eight people who used to sit around it. Now from your own experience, how long in a day do you use this dining room? Maximum for one hour in the whole day to

sit and have your lunch, dinners. Probably now in the working society, you do not even have lunch and dinners, you just have breakfast. So about half an hour you use this space. So this space of 10 feet x 10 feet is wasted. There is no other use to it.

In traditional India, you had a system where the kitchen and the dining space were in the same room. You used to have a mat that used to be spread out. People used to sit cross-legged and they used to have food. Where now you have your system of kitchens and dining rooms in the same space or you have an open kitchen. It is all coming back.

The whole thing is that we have to give it a push now and we have to respect these traditional knowledge bases.

The developing world faces risks from the enhanced vulnerability. It inhibited the disenfranchised from gaining access to or for improved technology, products and basic services related to shelter, education, health, transport and energy. People who do not have money or do not have the eight factors that I mentioned, do not have access to some of these. These are critical in today's world. If you do not have communication, you are left behind.

Yet, simple handout solutions by distributing food, by distributing housing and other necessities that were sometimes followed by the state, it is not enough. The state has gone into a lot of new schemes and policies. But if we talk about things like subsidies, if we talk about just handing it over or just donating it, unless the ownership is there, these things will not function. They are not a sustainable means of reducing people's vulnerability in the long run. Helping them build assets, assets in terms of land, livestock, savings and opening up trading opportunities through infrastructure investments are the essentials in providing security.

A very important point I wanted to make here is that although I have been warned not to talk about technology in the question/answer session, but I would say that technology is one of the solution. Technology can be exploited in this regard to enhance assets. Technological interventions in the absence of appropriate enabling environment are unlikely to yield desired results. In order to empower the vulnerable and ameliorate the state of degradation, these initiatives must be linked with opportunities for livelihood. So renewable energy technologies should be linked with some livelihood activities.

Then we have the concept of decentralized distributed generation, which is very prevalent now in developing countries. Sometimes extending the grid to the last house becomes very cost ineffective. The costs of extending the grid is very high. So you have smaller solutions. You have a technology like a biomass gasifier or technology like micro hydros (dams), river schemes. Not large hydros, but small hydros that can give power to a community of 50 households. These need to be looked at again.

Enhancement as well as capacity building. These communities need to be provided with these technologies and their capacities need to be built from them to optimally utilize these technologies. I would talk about integrating new and sustainable technologies. Different aspects of poverty interact and reinforce one another in important ways, making it essential to deal with all the aspects together. We need to look at an integrated solution. We need to look at holistic solutions, holistic approaches.

Applications of biotechnology, low cost micro credit and let's not forget finance, renewable energy technologies and efficient resource use are some of the interventions that could help. But a holistic approach needs to be adopted. The digital revolution is not going to bridge the widening gap by itself. Someone will have to do it. Provisions of renewable energy technologies in themselves are not a solution. They will be of no use without adequate micro finance. And better methods of agricultural production. The interlinkages between poverty, environment and sustainable development on a whole need to be taken into account and integrated solution sets need to be developed.

Such solution sets would include three factors that I would like to talk about. One, devising a set of technology interventions with full participation of the community, encompassing innovations in agriculture, rural energy, natural resource management, and information and technology. Second, developing institutional, market and financial mechanisms. These mechanisms are of utmost importance. Policy frameworks at the level of government. NGOs, civil society, corporate, and other funding institutions. W e have to look at the whole perspective. Third, building local capacities and capability among the community.

This is the philosophy behind what we call INSTEP (Integrating New and Sustainable Technologies for Elimination of Poverty). INSTEP is an approach that was adopted by TERI in 2000. It is integrating new and sustainable technology for elimination of poverty. It talks about various things. It talks about the role of technology in improving agriculture. It talks about the role of technology in providing rural energy. It talks about the role of technology in environmental protection and it talks about the role of technology in bridging the information gap.

I am very briefly going to talk about each one of these and then I am going to end this presentation with a film about one of the initiatives we have launched in the past few years. It is called 'Lighting a Billion Lives'. A lot of people do not have access to electricity. They do not have access to energy. TERI has taken on a mission where it is going to light about one billion people's lives in the coming few years. We hope to do it in the next four years but En'shallah**,** we hope to be able to do it much before that. I will come to that at the end of the presentation. But before that, I will talk about each of these intervention and what role that can play.

The role of agricultural intervention. Modern technology. Superior variety of seeds, which are high yielding and have a better nutritional quality. Integrated crop management through bio agents. Bio pesticides and transgenic crops. Genome mapping. These provide high gain in productivity thus resulting in stability, protection and regeneration of the environment by improving soil and plant health and

minimizing the use of conventional pesticides and use of fertilizers. So there you have it. Technology is a solution. We have to harness it in the right ways.

However, harnessing the potential of modern bio technology requires improving the capabilities of farmers through education, dissemination of information through field demonstration. Otherwise, these people will not understand the way. They really need to see it happen in front of their own eyes. So you need field demonstrations that are supposed to happen. And capacity building. Agricultural interventions need to be coupled with policies that favour access of the poor to land, extension and information, services and publicly-funded health and education. Agriculture has been getting the back seat in policy discussions; it needs to get the front seat. It is one of the largest employers.

Increase attention to small holder farms and the landless and research and development retention system, which focuses on resource management, especially on how to minimize the use of external inputs traditional knowledge base. How do regenerate degraded natural resources and how to increase productivity through better soil nutrient and water management. This is how technology can help agriculture.

How can technology help rural energy intervention? To put things in perspective, this is dominated in most developing countries by bio fuels, with wood being the main bio fuel. We don't mean ethanol, we mean raw wood. Inefficient use of biomass in traditional devices has serious environmental effects at the local and global levels. Deforestation and reducing the resource base, the inability of the poor to shift to commercial fuels because they do not have the paying capacities. They do not have deep pockets like us. Make provision for rural areas on account of low purchasing power for energy for achieving ecological sustainability crucial.

In this context, the attractiveness of renewable energy technologies such as wind, solar and biomass lies primarily in abundance. They are abundant in all developing countries and developed nations. We just have to go out and use them. In their greenhouse gas mitigation effect. Thoughtful interventions in the rural energy sector could bring about a host of social and economic benefits, namely healthier lives, less strain during cooking, usage of lesser quantities of fuel, leading to reduced time.

Now just to put things in perspective, the usual household in rural India has to walk four kilometres to get fuel wood. This is the case with most of the developing countries. They have to spend a better part of their day just to go to the forest, collect fuel wood and come back. More time for economic activity due to lighting would be available and easy availability of groundwater because a lot of these technologies can be harnessed for using groundwater for irrigation purposes.

In particular, decentralized energy production and distribution provides rural development opportunities and encourages local institutions to manage their own energy needs. You have demands. We give you the technology. Or you get the technology and you manage your own demands. What can

be a better solution than that? The technology has to be introduced. The capacities need to be built. These are coping mechanisms. These are adaptation strategies.

However, renewable energy interventions in rural areas must take cognisance of key factors, such as the high cost of technology, high subsidies on commercial fuels, in adequate budgetary allocations for the renewable energy sector, inadequate emphasis on research and development of cheap renewable energy technologies and limited local capabilities for repair and maintenance. Capacities again.

Well, there are a lot of benefits. I am going to skip a couple of them because of the interest of time I am going to come to information, communication and technology.

The rural poor are least able to get information about important public policy and planning decisions and least able to express their views. They do not have access to information and they are the most voiceless. And our policies affect them the most. What can be a more ironic situation. Empowering them in this context would involve decision making processes that are open to dialogue. However, a better representation and decision system alone will not ensure adequate community involvement. Such a representation becomes meaningful only through provision of education and access to information that help the poor make informed choices.

Another dimension to ensuring empowerment and hence, eliminating poverty, is market access. Market access is essential. An average farmer in India follows a three-step procedure to the market. The farmer grows the crop. There comes a middleman who takes the produce. The middle man goes to the market, sells it to a bigger middleman who finally sells it to the main market. So this is a three-step procedure. So what my farmer has sold for 10 rupees will get sold in the market for 40 rupees. The 30 rupees gets siphoned off by these middlemen. This needs to be stopped. These linkages need to be created.

This can be provided through infrastructure development in terms of connectivity and building access through information access capabilities. A plan for involvement of women and minorities should include better health care and providing economic opportunity. Information and communication technologies can be a powerful tool in ensuring empowerment in all its dimensions. These are technologies, technologies that you and me know of but the rural people or the poor haven't heard of. We as civil society, we as government, we as institutions need to introduce these technologies to these vulnerable, disenfranchised people, which can help shape up their lives and give them capacities to cope with further strains.

The last two points I would want to make at this junction are what would be the role of policy and what is the need of global actors.

The role of policy. Good governance with transparency and the presentation of rural community in decision making, investments in public health and education and a level playing field for the poor by increasing their access to land, financial services, information, technology and markets are essential in

the elimination of human poverty and hence reducing vulnerability. The exact mix of policies to eradicate poverty and safeguard human rights is country-specific. It will differ from India to Ethiopia to other countries.

However, six elements have been identified that are central to poverty eradication and realization of human rights. These are derived from various studies we have done in the past couple of decades. Pursuing pro-poor economic growth, budgetary structure to provide adequate and non-discriminative expenditure for primary concerns, ensuring participation of the poor and their advocates on decisions that affect them, protecting environmental resources and social capital of poor communities. These call for a stress for the removal of subsidies on some commercial fuels like diesel and petrol and kerosene. This encourages waste and misallocation of resources and imposition of tax that redirect consumption towards socially responsible basic needs.

This is the sense of what 'Lighting a Billion Lives' is also doing. What it is trying to do, people use kerosene, we are trying to substitute it with solar power lanterns. The use of kerosene is then minimized and they use good quality light to get their lighting needs.

Other two points are removing all forms of discrimination and securing human rights. I guess York is also doing something on human rights. I would be interested to know what and probably Dawn (Bazely) can tell us in detail later.

Where do we stand in the global community? What do the global actors have to contribute to? Today's age of global economic integration increases the role of global actors. International financial institutions, global corporations, global media, global NGO networks and global forums such as these can help eliminate poverty. There is a need to bring together all of these different actors into one programme that addresses the problem of poverty eradication through technology. Technology transfer and technology adaptation are areas where research organizations and countries with technological know-how, such as Canada, the U.S. and European countries, can provide relevant help to developing countries in poverty eradication using technology.

The developing countries, on their part, can help global organization understand the social structures in which they are to operate and therefore help them develop a corporate philosophy consistent with priorities of developing societies.

There is something for all of us to do. We just need to look at the right perspective. Like India, like China, we cannot do away with our development challenges. We cannot leave a lot of people who do not have access to basic amenities just like that. You cannot ask us to stop our development and our growth. That growth will need to continue. But you can help us in doing it in a responsible way. Better developed countries have the technology, we need to share it. There needs to be technology transfer. We need to interact more. You need to learn from us and we need to learn from you.

With that thought and the thought of lighting a billion lives, I am going to just play the movie...

Viewing of the film

Martin Bunch:
Thank you Vivek.