

Report of the Joint UNESCO- Ethics of Energy Technologies: Energy equity and human security

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Background

This conference was held in the context of Working Group 7: Energy Equity and Human Security, in the Ethics of Energy Technologies in Asia and the Pacific (EETAP) project. This was the first meeting of Working Group 7, which was formed after the launch conference of UNESCO's Regional Unit for Social and Human Science in the Asia-Pacific (RUSHSAP) 'Ethics of Energy Technologies in Asia and the Pacific' Conference held in Bangkok, 26 to 28 September 2007.

The EETAP project is coordinated by the Regional Unit in Social and Human Sciences in Asia and the Pacific (RUSHSAP) at UNESCO Bangkok, and is linked to several key activities of UNESCO Social and Human Sciences sector, including the ethics of science and technology, environmental ethics, philosophical dialogues, linking research with policy-making and promoting the culture of peace. The work will also feed into considerations of the ethics of climate change that are being made by the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST).

The chair of working group 7 is Prof. N. Manohar, at The Tamil Nadu Dr. Ambedkar Law University. The objectives of the working group meeting and the Conference were to discuss ethical issues related to equitable use of alternative energy technologies from a holistic perspective, and to set the terms of reference and outline of the report from the Working Group.

This working group builds upon of the conference group recommendations prepared by the Small Group on Energy Equity and Human Security at the 2007 UNESCO launch conference of the EETAP in Bangkok, by the rapporteurs Prof. N. Manohar and Ms. Nadja Tollemache identifying the issues to be seriously deliberated in the context of the UNESCO EETAP project. Energy needs related to human rights were specifically raised as a concern in the group's discussion, as was the theme of the August 2008 conference in Bangkok on Ethics of Energy Technologies and Human Rights.

Summary

This was the first meeting of the EETAP Working Group 7: Energy equity and human security, jointly hosted by the Regional Unit for Social and Human Sciences (RUSHSAP) of UNESCO Bangkok and the The Tamil Nadu Dr. Ambedkar Law University, Chennai. The working group had extensive interactive discussion on social justice, equity and the ethics of alternative energy technologies and policies. The presentations will be made available on the EETAP website (<http://www.unescobkk.org/index.php?id=energyethics>). The working group session was jointly chaired by the Chair of EETAP Working Group 7, Prof. N. Manohar, and Prof. Darryl Macer, UNESCO, EETAP project coordinator. The papers will be used to shape the outline of the report of the working group, and feed into the body of knowledge produced by the EETAP project.

There were twenty-five participants in the working group session from Germany, India, Malaysia, New Zealand, and the UK. Participants attended in their individual capacity and

came from several backgrounds, including government, civil society organizations, and academia. The disciplines amongst academics ranged from law, philosophy, political science and international relations, ethics, environmental science and environmental studies, and sociology. There were fifty participants at the conference.

The group considered that lack of basic needs such as food, clothing and shelter are the most imminent ones to be immediately requiring greater concern by the world bodies and the governments of the region. It took concern on the ways these must be fulfilled. It clearly indicated that unsustainable methods of meeting these needs should be avoided while providing facilities in these countries. It should be, as the group sincerely felt, an opportunity to assist the invention and spreading of new sustainable technologies to make the life of the people more healthy, comfortable and pleasant.

New technologies should suit current levels of development and should help further augment development rather than inhibiting it. There is a duty to protect the social and economic security of the people. This will advance human security from the point of view of individual and community health and well-being and be of global benefit by showing that sustainable ways are possible to meet basic needs, whether it be solar cooking or building interiors in hot countries, or using solar or wind turbine techniques on high rise buildings or elevated plains to produce electricity. Another issue of equity highlighted was related to sharing of common resources, such as fresh water supplies, not only between communities within nation states, but between upstream and downstream countries, and related to avoidance of trans-boundary pollution including other emissions affecting neighboring countries.

Countries need to develop their own parameters in their economic policy, perspectives and ethos, retaining the spirit of satisfaction of national needs for peaceful uses of efficient energy technology available within their reach. Strict legalistic approach to developmental issues devoid of social security and ethics would fail the law and its system since the law sustains itself only on the value of ethics undercurrent thereof.

After all, Human security is the ultimate goal surrounding the concept of energy equity debate, while keeping the ethics of posterity in mind. Sustainable human security would balance the needs and restraints against misuse of energy technology. For these efforts to be successful a regional cohesion is needed and common concern and common needs should be chalked out for concerted efforts to reach the target. Regional unity and cooperation should be attained. Unilateral efforts of countries to monopolise the energy sector with technology capable of impacting the neighbouring environment should be properly monitored with a sense of equity, and not by strength and confrontation generating conflicts.

An important suggestion of the Group is that there should be common sharing of energy technology resources and facilities among neighbouring countries in the region. Bilateral or common regional arrangement to exchange or share knowledge will maintain a sharing culture while at the same time national decisional independence is retained.

The group also suggested identifying the inhibitors against achieving energy equity and human security in the region for obvious reasons. There is a need therefore, to address and identify, who has to be involved or consulted in the project and which are the probable

interest groups. Each country's energy needs should be assessed as well as their economic system and their ability to provide energy equity for sustained human security and development planning. All the countries in this region are suffering from the phenomenon of internal displacement of people. However, the priority should be to bring in energy technologies and resources from other countries assessing the demands and needs of the countries concerned.

The concern of the Group indicated a need for further debate on the definition of energy equity in greater detail and that its nature and relationship to human security should be further analysed.

Participants list (for 23 September working group meeting)

From The Tamil Nadu Dr. Ambedkar Law University:

Mr Ranjit O.Abrahan, Lecturer in Business Law.
Mr. S. Amirthalingam Lecturer in Environmental Law
Mr. P. Balamurugan Lecturer in Law
Prof. J.A.K. Jambu Kumar Professor of Commercial Law (Adjunct)
Dr. P. Kannan Lecturer in Political Science
Prof. N. Manohar, Dean
Dr. (Ms.) K. Ramami, Lecturer in Sociology
Dr. Kumudha Rathna Lecturer in Law
Dr. R. Revathi, Reader
(Ms.) K. Sangeetha Lecturer
Prof. D. Sankar, Head, Dept. of Criminal Law

Others:

Dr. Jayapaul Azariah, President, Asian Bioethics Associations; All Indian Association of Bioethics
Dr. (Ms.) Minakshi Bhardwaj, CESAGen, Cardiff University, UK
Prof. Abhik Gupta, Dept. of Ecology and Environmental Sciences, Assam University, Silchar, India
Dr. (Ms.) Brigitte Jansen, Bioethics Law eV, Germany; Guest Professor, University of Madras
Dr. Thomson Jacob, Dept. of Environment, State Government of Tamil Nadu
Dr. Darryl Macer, UNESCO Bangkok
Dr. Ravichandran Moorth, Ministry of Science, Technology and Innovation, Malaysia
Dr. (Ms.) Josephine Rani, Vice-Principal, Auxilium College, Gandhi Nagar, Vellore
Prof. S. Pannerselvam, Dept. of Philosophy, University of Madras, Chennai
Dr. M. Selvanayagam, Director, Loyola Institute of Frontier Energy (LIFE), Loyola College, Chennai
Dr. Swapna Sundar, PVS Giridhar and Sai Associates, Advocates Firm, Chennai
Dr. Joshua Kalapati, Professor of Philosophy, Madras Christian College, Tambaram. Chennai 60005. India

Meeting Report

In the **Inauguration**, a **Welcome Speech** was given by **Prof. N. Manohar**, Chair, UNESCO EETAP Working Group on *Energy equity and human security*. Prof. Manohar welcomed the group after the short prayer. **Dr. Darryl Macer**, Regional Advisor in Social and Human Sciences for Asia and the Pacific, UNESCO, Bangkok, and meeting co-chair,

gave an overview of the Ethics of Energy Technologies, with a brief descriptions of some closely related working groups in the project, explaining the linkages to the current group.

Prof. S. Sachidanandam, Vice-Chancellor, The Tamilnadu Dr. Ambedkar Law University, gave the presidential address. He asked whether human beings should continue to adapt to the natural systems? Every country would like quick advancement and rapid growth for economic development. But people are rapidly disrupting the earth's systems in dramatic ways. The consequence is that every human action causes loss. Nature has provided a protective shield around our planet, but humans have exploited the environment for the purpose of producing energy. We have to find out the way to protect the environment while exploiting resources for energy. Without energy we cannot live. We are controlled by time and space. The basic requirements of time and space are very important.

We are still in search of different sources of energy. It should be cheap, safe and limitless. Physicists have explored this, and he gave the example of the International Thermonuclear Experimental Reactor being developed to attempt to use fusion for energy (*The Hindu* 21 Sept 2008). Can we develop a carbon free environment and policy?

In the Inaugural Speech, **Mr. Ravi Prakash Khemka**, Vice-Director, *NEPC Group of Industries*, Chennai, said that the Indian Electricity Act allows the flexible integration of electricity from alternative energy into the main grid. In India, recycle, reuse have been incorporated in many ways. The company philosophy is that if clean energy is supplied, India will grow. Today's energy is driven towards cheap forms of energy but we do not know how it will affect us. Almost all alternative energies the NEPC company makes are taken up by industry, not from villagers at the present. Nowadays the company is using NGOs to connect the village needs with the country needs. Much effort is needed to bring things back to normal. Renewable energy is by nature, for nature. He considered the term energy independence to be a misnomer. Our vision for energy security needs to be developed. Power blocks are being acquired by rich countries now, which can reflect that we are going back to medieval systems of control. Energy consumption per capita has grown 15 times since preindustrial times. The term energy poverty is important as over consumption holds major environment challenges.

In the first session, **Dr Jayapaul Azariah**, President, Asian Bioethics Association; President, All Indian Association of Bioethics, spoke on "**Global Warming and Climate Change**". If people and governments had heeded the earlier warnings there would be less problems. He described the ecological crisis, focusing on three topics - Ecology, Economics, and Ecuminics. New lifestyles had contributed to greenhouse gas emissions. Many activities affect energy use, including refrigeration, cremation, air travel, agriculture production, and automobiles. It is best to attempt to reduce fuel consumption instead of finding new sources. Responses to the problem include to reuse, recycle, reduce, reject, insulate, close doors, and buy energy efficient bulbs.

There was a question raised over the use of water in energy power plants from Pulicat lake. Dr. Azariah considered that Pulicat lake will be extinct in 20 years because a port was being build. Actually Pulicat used to estuary in Dutch maps made hundreds of years ago. There was discussion of the quantification of carbon emissions. The use of different technologies that were once thought to be great inventions has been later found to have ill side effects, for example, DDT was invented and banned, CFCs were invented and banned. Electricity was invented and now we have to power down. This can only occur if it becomes mass revolution. A bottom-up approach is needed, as a people's movement. Some lawyers reflected on how the law may not work. Can we impose a moral code of conduct to remedy the situation? Dr. Azariah suggested that we need self-discipline against consumerism. For

example, Diwali dresses are consumer marketing, but the new clothes are important for children. A balance between excess consumerism and clothes and some needs to be found.

The next paper was on “Identifying and Prioritizing Energy Technologies for Future: the Indian Perspective”, by **Dr. Abhik Gupta**, Chair, UNESCO EETAP Working Group on Ethical Frameworks for Research Agendas and Policy; Department of Environmental Sciences, Assam (Central) University, India. People who show-case technology often highlight the benefits of the technology, without raising the other issues.

India is not uniform, but overall energy supply is expected to double in the next 4 years. Resources and requirements vary with the climate. The biggest challenge is ethical. In order to meet the increased demand we can expect shortcuts on the ethical issues. When we consider ethical considerations should we follow a utilitarian approach or deontological principles? Indigenous concerns need to be balanced against cultural values, and international commitments. How can we make the right choice? All have a common goal of sustainability.

There is a need to reduce dependence upon thermal power. Clean coal technologies may help. He discussed the case of several alternative options, including nuclear (Referring to www.infochangeindia.org). There had been a history of lack of transparency from the regulatory authorities. Hydropower is underused, so there is lot of potential in India. Although it is said that the cost of smaller dams is higher than large the social cost is less. The precautionary principle is necessary. In addition to the environmental impact of dams there are costs needed for rehabilitation of displaced persons. However, protest movements were blocking many proposals. He recommended an independent body for decision making, and a separate act to the current Environmental Impact Assessment (EIA) act. The biodiversity hotspots should be governed by the EIA.

In the discussion Dr. Brigitte Jansen, from Germany reported that wind energy is not so attractive as it seems from the growth in Europe, because birds die and villages had needed economic incentives. Prof. Paneerselvam said we should consider human security concerns of the long term risk of nuclear energy. Abhik Gupta replied that all types need to be included among the alternatives, using total life cycle analysis. Some technologies use heavy metals and there are serious impacts of mining. He was against using *Jatropha* plants in Indian deserts, citing problems in Brazil. He said it has created food problems in many areas. He considered *Jatropha* as a problem for biodiversity because its invasive potential is still unknown. Dr. Thomson Jacob reported that some farmers had been misdirected, and had been given subsidies. Dr. Joshua thought that one of the important issues is displacement of people. Prof. Manohar asked whether we should consider providing income support for the displaced people. Are we going to have development of people driving out of the area? How to take people out of these areas? It is a difficult question. How are we going to share the income generated out of the region so developed and exploited by the State or outsiders, with the people who belonged to them.

The first paper after lunch was “ASEAN Energy Equity and Human Security Scenario”, presented by **Dr. Ravichandran Moorthy**, Ministry of Science, Technology and Innovation, Malaysia. He explained that human security had previously been dealt with at level of national state, but it is now dealt with at the level above that of nation state. He referred to the definition in a statement of Mr. Kofi Annan, in 2000 at a workshop on human security in Mongolia: *“Freedom from want, freedom from fear and the freedom of future generations to inherit a healthy natural environment – these are the interrelated building blocks of human, and therefore national security”*

He also discussed that we should consider self-sacrifice for the greater good. People are becoming more vocal about the environment. There is a gradual shift among those of minds in the east. People embrace a different value. People are looking for higher values in life now like freedom of expression, rather than just globalisation. He pointed out eight realms of human security: personal, economic, health, political, environment, food, community, and energy security. He talked of the ASEAN vision 2020, regarding energy. There is a power grid and a trans-ASEAN gas pipeline and water pipeline. In Malaysia about 30% of fuel consumption is paid for by government subsidies, so only a few people are talking about renewable energy in Malaysia, behind Thailand. Among the ethical issues he discussed access to energy varies (with different levels of development). There was green thinking at different stages, with little consultation on energy choices. In the discussion there was a concern about deforestation. There was also discussion of the challenges for ASEAN in crisis management.

Dr. C. Thomson Jacob, Senior Programme officer, Department of Environment, Government of Tamil Nadu talked on “Global Warming Issues in India”. He gave facts about global warming with examples of climate change. A shift in agricultural practices is occurring. He mentioned the damage to coastal areas, for example, floods in coastal Orissa and cyclone damage. There are Indian initiatives on climate change, including a national action plan to promote solar energy. He called upon sophisticated countries to transfer technology for adapting to climate change rapidly, because developing countries are more affected than developed countries.

In discussion, Thomson remarked that the Indian climate change action plan does not have a target percentage for renewable energy at present. A discussant noted that because of climate change children are affected with lung disease and pollution. There was also concern about the growing military environmental footprint.

Prof. Panneerselvam, Professor of Philosophy, University of Madras, talked on “The Philosophical aspects of Energy Technologies: End and Means”. There is a saying that energy saved for one day is energy for another day. In Indian philosophical tradition the word ‘sakti’ or “shakti”, is used to denote energy meaning power or the capacity to do work. Power represents the time rate of energy production. In his opinion although nuclear technology may have a good end it has dangerous means to get there. He emphasized the importance of wind and solar energy.

In discussion Dr. Ravichandran Moorthy pointed out that municipal waste was a useful source. There was a discussion of subsidizing alternatives, and how state subsidy schemes allowed comparisons between how efforts varied between states.

In the next session **Dr. Selvanayagam**, Director, Centre for Environmental Technology, Loyola College talked on “Energy Equity”. He described the Loyola Institute for Frontier Research (LIFE) which works on interdisciplinary research. He explained the history of the word “energy”. He said that equity is a branch of jurisprudence. Fairness is required. He considered that any investment in short and long term will pay dividends. The impacts on society of energy shortages will be dramatic across the society. This will affect the way we work and live. Effects have already been felt in vulnerable groups and societies. We have to reduce our consumption to reduce the impact on different persons and communities. Persons of low income tend to live in areas affected more by climate change. They are also less likely to be able to make changes. Households of lower incomes also spend higher proportion on energy compared to the wealthiest households.

Policy responses could include increasing energy efficiency. This is the quickest way to cut greenhouse production. A range of smaller scale technologies can deliver same services. Increased cost effectiveness can increase the effectiveness of energy. The costs of the schemes need to be shared proportionately. All persons need incentives to use alternatives. Such policies can bring benefits to all involved. A massive private sector program could be used to retrofit all homes, to improve the efficiency of energy use and outcome. Financial incentives can also be used to retrofit. Emission trading schemes need to be developed, for equipment appliances. He concluded that clean energy is required for downtrodden groups and persons. The paper represented the feedback received in their research. In discussion it was pointed out that the routine powercuts are different for each area, because if VIPs are living in an area it would not have the electricity turned off.

Dr. Minakshi Bhardwaj, CESAGen, University of Cardiff, Wales, talked on “Energy: The Variability of Ethical Principles and Challenges of Environmental Governance”. She included an impact assessment triangle, to consider the economic, environmental, and social elements. How do we know what people will need in the future? Resource reliability is important for people. Surveys have shown that 75% of household consumption and production is done by women. Therefore it is important to include gender aspects. She called for consideration of various technologies that can affect energy consumption from all dimensions of the approach, not only in production and use. Resettlement issues have been a reason for the failure of some energy schemes. What framework is adopted depends on both science and political expediency, depending on the country. In discussion there was consideration of the reasons why rich countries do not transfer technology. We do not know all the requirements of most situations.

Dr. Brigitte Jansen, Visiting Professor, Dept. of Public Administration, University of Madras, presented a paper on the Ethics of Energy Technologies: Technic, economics and culture. She argued that energy technology and economy are so tightly interwoven that they have become one flesh. We also need to consider that the economics cannot be separated by the differences. We do not have any experience of the technologies. Lack of experience, stupidity and waste add to the seriousness of the problem. Ethics must relate to good conduct of people. How can we judge good and accountable actions? The idea of autonomy doesn't take into account the idea of responsibility. Motives, values and norms make the judgment about specific technologies.

What is the place of people in the context of these actions. She examined the differences in philosophical world views, and history and the meaning of ethics. Technology takes place in a different political and social context. The possibility that all have a spiritual background cannot be ruled out. Currently there is a deficit of love and ethics in the world. In conclusion she argued that the ethics of responsibility like that of Hans Jonas is the most important for the technology.

There was discussion of the ethics of responsibility of the person to the whole world. Like ourselves on side of the garden, we do not send the side effects of one tech to the other side of the world. Europe is sending all the illegal pollutants to other parts of the world. Side effects are felt in other parts. There is a need to link energy ethics to the economic ethics.

Prof. N. Manohar, Dean and Professor, Dr. Ambedkar Law University gave the final paper on “Human Security and Sharing of Energy Resources”. He discussed the COMEST report on energy and the roles of the United Nations in global energy debates. Overall national needs had to be supplied due to the heavy needs of industrial development in the

country. Common energy strategies need to be identified and shared for bioregional security. A welfare state strategy may not work. Renewable sources have social and economic aspects. There is an urgency to sensitise regional countries to share technologies for their common utility by some kind of peaceful arrangements. It will avoid over seas powers unconnected to the regions from interfering in the energy security levels. It applies to the energy resources as well. It will auger well for building a regional peace.

Day Two: Working Group Session to Outline the Report

The Working group meeting was held on 23 September, 2008 at Dr. Ambedkar Law University. The first session was a brainstorming on the issues that might be included in the working group report. These issues could be clustered under the following headings. These headings also will provide the outline of the report.

In the Sub Group analysis of the issues developed from the brainstorming session the following major themes were agreed upon for future work:

1. Identification of Stakeholders
2. Ethical Issues
3. Cost Benefit Analysis (including Identification of Externalities)
4. Legal Approaches, such as Regulatory Laws and Labeling
5. Industry Approaches, such as Corporate Social Responsibilities
6. Policy Options

1. Identification of Stakeholders

All those present wanted to include not only human beings but other organisms in the report for consideration. The range of stakeholders will be surveyed in the report, and the vulnerable ones in different circumstances has to be identified.

Dr. Darryl Macer pointed out the difficulty for society to find models that include human beings and nature in coexistence that do not lead to environmental destruction. One of the methods was in the tradition of Indian sacred groves, i.e. to set aside a nature preserve where green belt and natural reserves versus corruption

The issues developed are ethics, solidarity and world view about the impact and identify and sensitizing stakeholders including the importance of preserving environment and resources for the posterity.

2. Ethical Issues

The issues included accessibility, energy deficiency, social equity, solidarity, vulnerability, utilitarian versus deontological theory, altruism, intra- and inter- generational issues.

Prof. Manohar considered the Indian situation, and democracy. He said that the Indian constitution emphasizes distribution for common good, and avoids concentration of wealth. Should we aim at human security as the first principle? The state needs to support the persons who do not have a minimum standard of living. The public distribution system is subsidized. Farmers are given subsidies for purchase of fertilisers. Agricultural loan waivers and free electricity are given for small land-owners. Rural people get periodic and seasonal assistance on festive occasions with clothing, food and other material for their shelter. Minor housing units with ownership are also provided to the poor inhabitants.

Human Rights and Human Security are people centered values. There is a debate in some countries about whether to adopt people-centered values or a God-centered value. There is a shift in movement towards faith in God, according to Dr. Panneerselvam, which

seems to be considering that nature includes the entire cosmos. Are human beings trying to limit the human beings, to the environment as a whole? There are questions of differences in understanding God centered values by various people. Ravi indicated Malaysian Indians Chinese, Muslims all have different views. Attempt for uniformity would lead to contradictions. The question is what is naturalistic and universal.

Value is normative that which people work for. Thomson mentioned that as a matter of fact, that farmers waste lot of electricity if it is given freely – making it of no economic value. In India, technology though available there is no adequate networking. In this context, once again there was further suggestion that the buildings should be made energy friendly. There was an idea from Dr. Brigitte towards energy efficient universities and households. Enterprise can check if all items are in order and meet energy efficient criteria. Dr. Revathy indicated of the new developments where hotels are built eco friendly but, costly. However, if some benefits are shown to the industry they may be cost friendly.

A subgroup comprising Dr. Panneerselvam, Dr. Minakshi, Dr Ravichndran and Dr. Sankar divided ethics into anthropocentric principles and bio entric values. Rights of future generations and the principle that resources should be preserved to be available for the posterity of future generations require fair dealing.

3. Cost-benefit approaches

Cost benefit approach appears to be difficult in welfare economies inspired by socialistic conceptions following distributive justice as the core philosophy, which ensures equity and security.

Darryl Macer summarized a general model for Cost Benefit Analysis that needs to be developed further from a macro economic point of view to relate to ethics and legal framework. The existing enterprise system must be focussed. The approach should link utilitarianism and simple benefit and harm analysis to be understood.

The study of concerned enterprise may be designed as follows:

1. Key case:

Identification of all stakeholders.

2. The matrix style and cost benefit analysis:

Identify all benefits and advantages and also merely economic ones.

Develop a human rights framework in terms of Development orienting economics and social values. A Human Rights analysis will be important in order to clearly understand the human security perception and the future needs of the generations. Safety measures concerning both the people and environment are a key for happy living.

3. Identify the costs including the so-called externalities.

4. Analysis with a flow chart.

5. Balance the issues

Over-arching principles must be elicited and evolved for a detailed examination or consideration in order to minimize harm.

6. Phased production regarding output and input level and sustainability must be applied.

After this process one needs to apply cost benefit analysis on each alternative under study.

Environmental Impact Assessment

Abhik Gupta indicated that Environmental Impact Assessment has been diluted much and the parameters which originally guided EIA. So EIA has now been slackened thus reducing the authority of EIA. The need for EIA is inevitable to keep energy efficiency in

tune with eco friendly targets. No doubt various laws provide support and contribute for the eco efficiency policy to some extent.

Mr Amirthalingam explained how the Supreme Court of India has introduced the environmental jurisprudence and introduced the polluter pays principle into the legal system and quantified the assessment of damage. It is said people hamper the future by non-compliance. Implementation of law is not strong. Punishments are simple and rare, more over very difficult to impose punishments. Brigitte suggested penalties and fines are required.

4. Legal approaches

The legal approach through support in establishing an orderly condition of the society, supports the inclination to abidingness and needs to be prompted by ethical values. Asian societies have in common this value component and a sharing attitude is not rare within the societies both at the micro and macro level universe, in the region. Law by its pervasive presence shall bring in a culture of compliance by perseverance, even in weak societies. The constitution neither permits waiver of fundamental rights nor excuses the states' evasion of duties towards the citizens. This acts like human rights principle today. Yet the legal approach yields good result in realizing the models suitable to balance human needs and nature's sustenance.

Law is inevitably the only source of compulsion capable of regulating the system of governance in the larger sphere. The justice delivery system is more towards ensuring security of human being and the nature. Judicial intervention under public interest litigation process and under the principle of judicial activism ensures good governance in place.

The small group on law highlighted the symbiotic situation of land, property, law survival and livelihood issues of rural/tribal poor and development and environmental impact. There is an analysis of Indian laws in Annex 1 that relate to the topic.

5. Industry approaches

Here there was a strong emphasis on developing models of deliverables and labeling which might sensitize and bring in the best practices and methods by the industries. The Corporate Social Responsibilities (CSR) cannot be divorced from the present concept under discussion and it has to be integrated within the developmental issues whether of energy technologies, equitable sharing or marketing concerned, the externalities and economics of the CSR, according to Dr. Ravichandra Moorthy.

It needs to be an important part of the focal point in report preparation and ultimate presentation in the UNESCO report. Case studies relating to CSR must be looked into. Funding process to meet new challenges and to create new areas of focus must be driven into. Pre commercialization situation and thereof should also be well studied for theorizing the impact. Innovative energy generation methods should be done in the light of this. Renewable and durable energy system should be given priority. Countries having good R and D system should focus on innovation and downstream the process.

Dr. Panneerselvan emphasized on corporate responsibilities under three avenues, viz., social corporate and the government. According to him the corporate need to return the fruits to the society. There should be a mobility of corporate existence from cities to the rural. It is the vision of Gandhi, that 'economics needs to be based on proper means in order to have proper ends.' It is to equip all villages to be self sufficient. It is the only way and means sensible for a social democracy. Dr. Brigitte Jansen, emphasized the theme of economic ethics. She insisted energy is not separate to business ethics – they go in parallel.

Thus there was emphasis by the Group Discussion towards Corporate Social Responsibility to be spread more in the energy producing sectors. Proper networking should

be made/developed by the Government creating more awareness over the existing laws, rights and duties of the people particularly the stakeholders and to bring in regulatory regime for eco labeling and stringent measure in this regard.

The government mandate needs to be clearly understood, but in addition the impact of corporate social responsibility on environmental impacting and eco sensitive projects must be made out clearly. A thorough survey will be in order. Instances of EIA clearance of cases and projects and examples must be collected to develop models ad for further analysis.

In India a review of CSR can be made and it can explain the law, tax system, exemptions concessions, incentives etc. Cases and regulatory mechanism could be found. Schools and rural education can be adopted by the enterprise under CSR initiatives. Malaysia has some worthy models. Brigitte suggested a review of the business ethics model related to environmental ethics. Dr. Ravi stated that there are already models of business ethics connected to environmental ethics carried out by Shell. While Brigitte explained how Freiburger Institute Analysis had opposite results from an industry framework. Thus there is a need to link the data to the model to be a viable analytic study.

The reliability of enterprises following business is questionable. Over-production of power from nuclear energy is one instance whereby Germany imports power from France. There should be buyers in such case. Dr. Macer explained that there should be examination of assumptions in the models. There should be efforts to identify hazards in different technologies, the role of Industry concerned and establishment of Special Economic Zones for the reliable output for sustainable development.

The government policy affects the enforcement of CSR and industry standards also. For example, the government subsidises petrol for cars to spur economic growth. In the process of good governance, government being the ultimate trustee, it shall facilitate electricity and power to the sectors to provide benefit to both the producer and the consumers. There is no doubt a wastage can be encouraged. But creates a competitive edge for each other.

Brigitte brought forth the German example of energy labels for products. Some law prohibits this labeling. Also damaged computers cannot be sent to Africa, rather they should be recycled in Europe. The US adopts credits for efficient energy use. It is down cycle rather than recycle that is more favoured by governments providing credits for efficient utility of the energy and power.

6. Policy Options

On the question of policy options, Dr. Darryl Macer reviewed some of the parameters and was followed by Dr. Abhik Gupta, who noted that there is a demographic expansion in small cities. There is increasing demand for energy. Which means that we need innovative energy efficient designs for constructing buildings. In India and elsewhere in this region there have been such housing developments. Remote areas are now with energy projects and the landless and the Tribals face the brunt of the thoughtless projects. They are very sensitive and vulnerable against the multipurpose projects like dams and most countries fail to tackle the issue efficiently. Nuclear energy projects face similar challenges already and it may be more in future since India is on the onset of nuclear energy generating process. In the case of nuclear energy, the real question is who are the stakeholders?

However, on the most pertinent issue of solidarity the Group discussed the status of the poor and whether they need to give away their land, culture community strength and spiritual affinity to their habitat, namely to nature and to the broader society. The rich have to provide technology to others by sharing the technology, benefits, impacts and other costs.

Dr. Ravi was of the view that the rich have to provide technology to others. That is one way of bridging the technology gap and the culture of sharing resources. Dr. Brigitte

emphasized that law has a major role to play and hundreds of laws impact on environmental protection and on energy related industries in Germany. People should be made aware of the laws. Ethics has to be integrated into the instruments. Dr. Selvanayagam was of the view that the Environmental Impact Assessment, EIA, provides benefit to the local communities, though their need is lesser when provided to the local interests.

The corporate sector should help the local sectors. Dr. Darryl mentioned in the discussion that in some ethical guidelines, only appeasement and small gifts are given but not concrete measures to help the locals. Dr. Kumudha Ratna stated that land owners whose properties were taken over should be provided with alternate employment and help. We start without the merits of the larger issues. Dr. Abhik insisted for legal stakeholder capacity building in this sector under development. The order goes down to the field impacting on the poor and the peasant or the tribes. The forest officer or lawyer has no knowledge as to what is happening there. They must be sensitized first. Awareness is lacking on their part. Thus there is an immediate need to empower stakeholders and there is a need to engage them.

On the issue of cost benefits, in a recent report from Malaysia the nuclear option is being considered as Malaysia considered nuclear energy. ASEAN has a zone of peace and neutrality too.

The Working Group wound up the work with formal vote of thanks by Prof. N. Manohar and Prof. Darryl Macer. An outline of the draft would be circulated and members would contribute sections to that.

Annex 1: The subgroup on Legal Aspects of Energy Equity and Human Security made a list of related laws that apply to India under the following headings:

a) Constitutional and Legal Provisions in India

1. Articles 39 (b) and(c) of the Indian Constitution Pt. IV: Ownership should not be concentrated in a few hands.
2. Articles 48 A and 51 A(g), Pt .V (A)
3. Articles 19 (1)(e), Pt III : Citizens freedom subjected to reasonable restrictions
4. Article 21, Pt III: right to life includes livelihood, living in wholesome environment
5. Land Acquisition Act, 1894.
6. Forest Act, 1927
7. Wildlife Protection Act, 1972
8. Forest (Conservation) Act, 1980
9. Environment (Protection) Act, 1986
10. Energy Act, 2000.
11. Biological Diversity Act, 2002
12. Right of Scheduled Tribes and Others Act, 2006
13. Coastal Regulation Zones Rules, 2002
14. Noise Pollution Rules, 2000
15. EIA Notification, 1994, and 2006
16. National Disaster Management (NDM)
17. Public Liability Insurance Act (CRPC Section 133)

b) Indian commitments to International Conventions (International Instruments)

1. Permanent sovereignty over natural resources, 1962.
2. UN Conference on Human Environment, Stockholm, 1972.
3. Nairobi Declaration, 1982

4. Earth Summit + 5, 1992, UNCED Rio de Janeiro (Sustainable Development, Biodiversity, Climate Change, Agenda 21, GEF)
5. World Summit on Sustainable Development, 2002, (Johannesburg Summit)
6. Montreal Protocol, 1987
7. Kyoto Protocol, 1997
8. NPT
9. CTBT
10. GATT (Article XX), WTO

c) Judicial Contributions

1. Article 21 of the Constitution: Widening of Scope: linking life and livelihood and right to live with dignity
2. Strict Liability
3. Absolute Liability
4. Parens Patriae, SC
5. Public Trust, SC
6. Precautionary Principle
7. Polluter Pays Principle
8. Inter generational Equity
9. Third generation Human Right, Madras High Court

d) Case Law Study

- M.C Mehta cases
- Oleum Gas Leakage
- Sriram Oleum gas Leakage cases
- Bhopal Gas Leakage Cases (Union Carbide Corporation)
- Trail smelter Arbitration case (Canada Vs U.S)
- M.C Mehta Vs Kamal Nath
- Samatha Vs State of A.P
- Shachithananda Pandey Vs State of West Bengal
- Subhash kumar Vs State of Bihar
- Narmada Bachavoo Andolan(Mehta Badkar) (In re inter linking river Case)
- Vellore citizen welfare forum Vs Union of India
- Shobana Rama Subramaniam Vs The member secretary CMD
- Taj Trapezium Case