

ANNUAL REPORT
2006-2007

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2006-07

INTEGRATED RESEARCH AND ACTION FOR
DEVELOPMENT (IRADe)

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Coordinated by : Dr. K. Sangeeta



FOREWORD

Every year marks new directions for growth of IRADe. This year, it was in three main directions.

Firstly, IRADe has established presence in policy advocacy that was demonstrated in three events: The Energy Conclave 2006 that was inaugurated by the Prime Minister Dr. Manmohan Singh was a mega event of three days participated by 300 high level delegates from various sectors such as coal, oil, gas, power, renewable energy, energy efficiency, finance and sustainable development. Another event was the multi-stakeholders summit for biodiesel, which discussed the biodiesel policy, technical know-how, energy security, climate change and its linkages among its stakeholders; and lastly, an international meeting in gender and energy, participated by Asian countries that discussed an Asian perspectives in the development of an international network.

Secondly, IRADe is now involved in evaluation work, which is a sign of having reached maturity and its recognition. For example, this year IRADe was invited for evaluation of projects viz. franchisee system for rural electrification in 4 states by Ministry of Power and Rural Electrification Corporation and for judging innovative projects in rural areas supported by Aga Khan Foundation.

Thirdly, IRADe's action projects got off the ground and were well received by the local communities in Gujarat and Haryana.

In addition, IRADe completed some of the earlier research projects viz. Natural Resource Accounting in Goa Phase II and also initiated new ones such as Developing CGE Model for Climate change policies in India, Model Demand for Natural gas in the Indian Fertilizer sector, etc. The International Training course on Renewable Energy was held as usual. We hope to keep up the same momentum in the coming year.

Jyoti Parikh
Executive Director

POLICY ADVOCACY AND DISSEMINATION

IRADe continues to initiate discussions on existing policy documents, suggest new ideas for policy formulation and organized public discussion on new policy model. This year three major events were held for policy advocacy and dissemination.

1.1. Energy Conclave 2006, "Implementing the Integrated Energy Policy-The Way Forward", 26-28 July 2006, New Delhi

The Integrated Energy Policy (IEP) was set up in 2004 by the Prime Minister under the chairmanship of Dr. Kirit Parikh, member, Planning Commission, Government of India. The report was finalized in June 2006 with comprehensive recommendations for the entire energy sector. IRADe decided to hold a multi-stakeholders event to discuss the report. The Conclave was the biggest event IRADe had ever organized and was graced by many prominent figures from energy sectors. The Hon'ble Prime Minister, **Dr. Manmohan Singh**, inaugurated the event.



From R to L: Mr. R P Singh, CMD, Power Grid, Mr. R V Shahi, Secy., Ministry of Power, Dr. Jyoti Parikh, ED, IRADe, Dr. Manmohan Singh, Prime Minister, Mr. Sushil Kumar Shinde, Minister of Power, Dr. Kirit Parikh, Member, Planning Commission and Mr. Rakesh Bakshi, MD, Vestas RRB

Prime Minister referred to the vast challenge of meeting India's energy needs to support rapid growth and improve the

lives of our people and emphasized the following:

- Need for a coordinated approach to energy policy;
- Need to develop all resources both renewable and non-renewable;
- Greater attention to energy efficiency and energy conservation;
- Rational inter-fuel taxes and prices;
- Importance of providing electricity and access to energy to all; and
- The role of decentralized generation based on local resources.

Shri Sushil Kumar Shinde, Hon'ble Minister of Power, also addressed the inaugural session. He expressed the importance of energy and in particular electricity for development and the welfare of the people. He also described recent progress on the development of hydropower in the country and elaborated on the role of Rajiv Gandhi Grameen Vidutikaran Yojana. **Dr. Kirit Parikh**, member, Planning Commission, gave the keynote address by briefing the outline of the report of Integrated Energy Policy. He described the energy needs of the country and the resources available to meet them. **Dr. Jyoti Parikh**, Executive Director, IRADe, gave the welcome address.

Actively participated by 300 delegates including secretaries to the Government of India, advisors to many government departments, heads of institutions, CMDs of public and private sector enterprises, state energy ministries, state electricity boards and electric utilities, regulatory bodies, Indian and international academic experts and the consumers who are key

players in the energy sector where IEP was looked at from multi-stakeholders perspectives. Many of them made valuable contributions as chairpersons, panelists, session coordinators and rapporteurs.

Realization of IEP policy framework in practice would require effective coordination, cooperation and collaboration among five energy Ministries, Ministry of Finance, several institutions and public and private sector enterprises.

The main objectives were:

- Understanding the implication of the IEP on key players and stakeholders across the energy sectors;
- Create an environment for effective coordination and networking among complementary sector such as coal and power, gas and power, downstream and upstream sectors to oil and gas, renewable, atomic energy and power; research and development for energy utilities and the consumers; and
- Identify effective ways to ensure improved access to energy for poor and rural India.

The Integrated Energy Policy and its rationality were discussed in great detail, most of the recommendations were supported, some new suggestions were given and few recommendations were questioned.

These issues were deliberated in the various sessions that were identified sector-wise. They are:

- Expanding options for power sector
- Challenges of oil sector
- Considering multiparty interest in gas sector
- Mobilization of coal supply
- Renewable energy: electricity and biofuels

- Energy efficiency and demand side management
- Global opportunities for energy security
- Technology frontiers and modernization
- Energy and sustainable development
- Financing reforms and governance

The rich dialogue and improved understandings among the key stakeholders were the valuable outcomes of Energy Conclave 2006. The report on the conclave was brought out subsequently and is put on the website www.irade.org.



From R to L: Dr. K K Jajodia, ACL, Dr. Kirit Parikh, Member, Planning Commission, Mr. Rajeeva Ratna Shah, Member Secretary, Planning Commission, Mr. Creon Butler, Deputy British High Commissioner, Dr. Jyoti Parikh, ED, IRADe and Dr. K K Govil, Senior Advisor, IRADe

The Conclave was privileged to get gracious support from Ministry of Power, British High Commission, Reliance, Power Grid, Vestas, GAIL, ONGC, NTPC, Torrent Power, Suzlon, Assam Tea Company, British Gas, IDFC, PFC, PTC, IDBI, IREDA, ALSTON, NHPC, CIL, etc. Besides, India Energy Forum, Price Water Coopers and Petroleum Federation of India gave intellectual and moral support.

The report containing recommendations of the Energy Conclave were brought out as booklet and forwarded to government. IRADe plans to follow up some of the suggestions made at the conclave. Report on www.irade.org.

1.2. The Third ENERGIA National Focal Points Meeting, 1-3 November 2006, New Delhi.



Participants at the Third ENERGIA National Focal Points Meeting, New Delhi

IRADe is active in advocating more attention to the non-commercial energy sector (fuel-wood) managed by women, which is the second largest energy source after coal. Without investment, management and technology the supply of rural energy will not be sustainable. IRADe advocated bringing energy within one km of rural habitants, and organized and participated in events related to United Nations Commission in Sustainable Development (CSD 14 and 15).

ENERGIA is an international network on gender and sustainable energy whose goal is to “engender” energy and “empower” women, through the promotion of information exchange, training, research, advocacy and action aimed at sustainable energy development that is equitable for all.

ENERGIA Asia Network in collaboration with IRADe organized the third ENERGIA National Focal Points Meeting from 1-3 November 2006 at New Delhi, India. The meeting provided an opportunity for the ENERGIA Asia Network to view its progress at the national, regional and international levels, strengthen linkages with other regional initiatives and institutions, and to mesh national and regional priorities with international developments and commitments.

The main objective of the meeting was to take ENERGIA activities forward in Asia and to contribute an Asian perspective to the development of the international network. Broad objectives of the meeting were -

- To review progress of the network
- Review ENERGIA Asia progress made to-date in light of regional priorities at the national, regional and international level
- Share experiences and document national level processes (networking activities/ gender and energy project activities/impacts/further areas for work)
- To build knowledge on gender and energy issue among stakeholders, by sharing the findings and outcomes of various knowledge related activities by ENERGIA Asia in recent past.
- Future planning

Two representatives from each of the countries where ENERGIA Asia has a national focal point were present at the meeting: Bangladesh, India, Indonesia, Lao PDR, Nepal, Pakistan, Philippines, Sri Lanka and Vietnam. Other participants were members of partner organizations in India and the region, including the UNDP regional office. Also present at the meeting was the Executive Secretary, Ms. Sheila Oparaocha and Ms. Elizabeth Cecelski, a founder member of ENERGIA and a member of the international Advisory Group.

Outcomes

The outcomes of this meeting are of two kinds. A great deal of knowledge was shared and several issues discussed, starting with an expert panel at the start of the programme, followed by country

presentations and presentations on different aspects of the ENERGIA portfolio of activities e.g. research, tool testing, policy advocacy. Event enriched the network members individually and collectively. The group engaged in discussing and developing a set of monitoring criteria, and national plans for each NFP. Since the meeting had representation from senior government and donor community, it also provided an opportunity to share Energia work with with new stakeholders, and interest them in Energia activities.

1.3. BIODIESEL SUMMIT, “ A Discussion Forum For Biodiesel Stakeholders”, 29-30 January 2007, New Delhi

Non-edible oil seeds bearing trees such as Jatropha and Pongammia, which can grow on wasteland, have generated considerable excitement as they offer scope for increasing self-sufficiency and contribute a locally produced green and renewable fuels that can generate employment and substitute imported oil.

IRADe continues the lead it has taken in exploring the relevance of biodiesel option for India in its entire dimension. IRADe organized a two day summit, which was held at Hotel Le Meridien, New Delhi on 29-30th January 2007, provided a rare opportunity to all stakeholders to interact with policy makers form all related ministries. There are many stakeholders involved in biodiesel development mainly cultivators, oil extraction and processing units, oil marketing companies and end users. There is an element of risk for all stakeholders as there is hardly any past experience of Jatropha as a commercial crop and biodiesel production at commercial level.

This summit was organised with following broad objectives:

- To outline equitable and accessible biodiesel policy
- To describe technical know-how for commercial cultivation of oilseeds crops and biodiesel processing
- To exchange interest on progress made
- To liaise and facilitate linkages among all stakeholders
- To assess implications for energy security and climate change mitigation.

Target Audience

The sumit was attended by nearly 150 delegates from central and state government ministries, public and private sector companies, institutes and research and development (R&D) organizations, bank and financial Institutes and experts and academics.

The summit brought various stakeholders help to address their concerns, by bringing high level officials from the Ministry of Petroleum and Natural Gas, Ministry of Panchayati Raj, Ministry of New and Renewable Energy (MNRE), Ministry of Rural Development (MORD), Planning Commission, Rashtrapati Bhawan and various government departments.

The key issues addressed at the summit were:

- Overview of Indian initiatives
- Overview of methods/best practices of Jatropha plantations and other oil-bearing trees.
- Analysis of existing bio-diesel oil-extraction and processing techniques.
- CDM opportunity for biodiesel
- Marketing and end use practices
- Policy framework and road map for biodiesel

Major recommendations emerging from the deliberations at Summit

- Support plantations of Jatropha, Karanj and other similar species, with incentives and soft loans to farmers.



From Left to Right: Dr. Mathew Abraham, GM, Mahindra & Mahindra, Mr. R.K. Malhotra, GM, IOCL (R&D), Mr. M. B. Lal, CMD, HPCL, Mr. Anil Razdan, Additional Secy, Ministry of Petroleum & Natural Gas, Mr. B. V. Rao, GM (Biodiesel), IREDA, Mr. Anirudh Gautam, Director, Engine Development, Lucknow, Mr. Dilip Chenov, DG, SIAM.

- Significant research is still needed to establish promising germplasm and genotypes for bio-fuel plantations. Appropriate agronomic practices of Jatropha cultivation should be developed for marginal farmers based on marginal lands.
- It is recommended that the parallel route based on importing non-edible oil for biodiesel production should be pursued immediately through a reduction in import duty to 5% for high FFA vegetable oils.
- Trans-esterification facilities set up by entrepreneurs for using imported oils may also be given Tradable Tax Rebate Certificates.
- Encourage direct and local sale of bio-diesel where feasible. This can begin with the metro cities.
- Bio-diesel and/or blends of bio-diesel should be sold with full disclosure and priced differently from petro-diesel thereby passing part of the benefits of

the proposed fiscal regime to the consumer.

- Number of Biodiesel Oil collection centres should be increased in future sensing the market scenario.
- Co-ordination among oil companies and government would bridge the gap of price difference of biodiesel and diesel.
- Building of local competencies is required as it is related to agriculture. Competencies of local farmers and people would be an important asset.
- Develop on economically viable model for both farmer and investors.
- Adopt holistic approach and attract participation from farmers organization, Panchayats, cooperatives etc. Mutuality of interest is necessary for long-term relationship between farmers, govt. and business organizations. Full report on www.irade.org.

RESEARCH ANALYSIS AND CONSULTATIONS

2.1 Evaluation of Franchisee system for Village Electricity Distribution Management

Background and Introduction

Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) was launched by the Ministry of Power, GOI in 2005. RGGVY envisages creation of rural electricity infrastructure to provide access to electricity to all rural households and to connect all below poverty line (BPL) households in five years. The scheme intends to speed up household electrification in villages. As State

Electricity Boards (SEBs) find it difficult and expensive to post their own employees scattered in rural areas. Franchisee System, which outsources the distribution operations at the local level, was seen as the potent way to protect the investments under RGGVY.

The RGGVY scheme provides for 90% grant funds for RGGVY projects released through Rural Electrification Corporation (REC) and makes it mandatory for the States to utilize the service of franchisees to manage the rural distribution. The franchises could be Individuals, NGOs, User Associations, Cooperatives or Firms associated with Panchayati Raj Institutions (PRIs).

Deployment for franchisees for rural distribution system management was envisaged to achieve the following key objectives: (i) Revenue sustainability of village distribution, (ii) Uninterrupted quality of power supply, (iii) Maintain the infrastructure being created under RGGVY, (iv) Avail effective revenue subsidies from State Governments and (v) Non-discriminating supply of power between rural and urban areas.

Award of Studies by Ministry of Power (MOP)

The Ministry of Power awarded the study to IRADe in October 2006 for evaluation of franchises system in the States of Assam, West Bengal and Nagaland through study of randomly selected villages in a selected District Distribution Circle or in the State as a whole, where franchisee systems were in operation. Separate studies were conducted in each of the three identified Districts/States, i.e. Assam, Dibrugarh District Circle, West Bengal Bankura

District Circle and whole of Nagaland State.

Terms of Reference of Studies:

The studies were aimed at evaluation the varied Franchisee systems operating in different District distribution Circles/ or States and by studying in variable characteristics in the models of Franchisee systems provide a framework to improve the franchisee systems in operation. Study was also meant to facilitate refinements in the guidelines on Franchisee issued to define franchisee models for their successful operation.

Award of Studies by Rural Electrification Corporation (REC)

In continuation to the award of the study by the Ministry of Power, Rural Electrification Corporation (REC) awarded further studies to IRADe in a time bound manner. Under the award of REC in January 2007 studies were conducted in the District Circle Bongaigaon in Assam, Purulia of West Bengal and Jodhpur in Rajasthan.

Specific Conclusions

Conclusions drawn from the studies at the State level, which could be used, are summarized here under:

West Bengal (Bankura and Purulia)

The franchisee system in West Bengal is operated by self help groups (SHGs) selected through a laid down procedure. SHGs consists mainly of backwards and women.

- Power interruptions and shortage of power is being tackled by WBSEB
- SHGs in Phase I of Franchisee development are providing services of meterreading, bill dispatch and

consumer mobilization to WBSEB. In Phase II and Phase III, SHGs would participate in revenue collection and accounting of input energy.

- Consumer mobilization in village the surveyed the surveyed have improved since use of SHGs as Franchisees.
- To make the Franchisee operations sustainable, WBSEB contemplates to give a cluster of villages to a franchisee (SHG) such that minimum size of consumers handled is about 600.
- WBSEB is strengthening distribution network and training few members of each SHG.
- Training of SHGs is essential to utilize their services as input based franchisees. This will also uplift the backwards.

Nagaland

- The Franchisees in Nagaland are Village Electricity Management Board (VEMB), an elected nominated group of the village residents responsible to village council and having legal status to commercial operation in electricity distribution.
- Metered supply at distribution transformers is given in each village of VEMBs . After allowing 10% of the technical losses VEMB has to make collections for the balance 90% electricity supplied and pay to the department of power (DOP) commission of 20% of energy at minimum slab rate of domestic tariff , metered is given to VEMB s to operate commercially .
- There were visible reductions in theft of electricity and efficient use of street lighting and public facilities in villages due to the local VEMBs participation.
- VEMBs area of operation is limited to the village only and it seems difficult to make them financially viable.
- Many village have very limited number of consumers.
- Training of VEMBs by DOP and introducing concept of VEMBs for a cluster of villages would be useful.
- Villagers face power interruptions, low voltage, prolonged power failure, and poor metering. There is a need to improve power availability to villages.
- There is a need to improve power availability to villages.

Assam (Dibrugarh and Bongaigaon)

- Single point power supply (SPSS) at down stream of distribution transformers to agents acting as franchisees were introduced in 2003 by ASEB to reduce losses which crossed 70% in villages.
- Franchisees are given metered energy DTR outlet .After allowing 10% in technical losses. They have to deposit revenue for 90% metered energy after deducting fifteen percent commission on domestic energy billed at declared rate (lowest domestic slab).
- Franchisees/agents are selected through open advertisement under laid down procedure for DTRs in villages offered to franchisees.
- Consumer records in villages have been systematized due to franchisees. Electronic meters owned by consumers are largely in use.
- There has been substantial improvement in reduction of theft, reduction in technical losses and attending to consumer complaints in franchisee area.
- The franchisees are many times youth

group. A cluster of DTRs need to be given to same franchisee to make their operation viable.

- Distribution network strengthening and better design to reduce technical losses are in process.
- Shortage in availability of power supply, interruptions and poor quality of power supply need to be tackled to sustain the viability of the system.

Jodhpur VVNL, Rajasthan (Jodhpur & Pali)

- They decided to give a cluster of villages in a Gram Panchayat to one Franchisee to ensure viability based on competitive service & charges for providing services in each village.
- Only one gram Panchayat in Jodhpur has been awarded and agreement signed with individual franchisee. Balesar GP has 31 villages.
- Franchisee has to manage distribution network and O&M in his area.
- The franchisee was satisfied by the size of his operations.
- Utility is providing networking strengthening and proper metering at DTRs to supply metered energy to franchisee
- The revenue collections have increased due to Franchisee operator.
- There was significant number of electric connections reported in the BPL families.
- Franchisee are working to reduce technical losses with the help of RSEB officials.
- Utility is planning to give bigger distribution networks to franchisee for O&M to make the scheme viable.
- Franchisee is provided share of profit when technical losses are less than 10%.

Recommendations

- In the Guidelines, define the size of business, to make the franchisee system viable.
- To make franchisee comfortable, adequate supply of power of good quality should be maintained by utilities
- Capacity building of franchisee would be needed in the beginning
- Bulk supply tariff from utility to franchisee be introduced early to make franchisee operations, a business propositions
- 90% subsidy provided under RGGVY projects should be converted into subsidy given by the govt. to the rural population.

2.2 Natural Resource Accounting in Goa Phase II, under SEEA Framework

Background and Introduction

Care, concern and love for environment have gone up considerably and is beginning to manifest into market place. The demand for nature can be judged by the income gathered by animal toys, books, documentaries, movies, dedicated TV channels, eco-tourisms and many nature products. Similarly, clean air and water have their markets in terms of real-estate prices for cleaner neighborhoods, water-purifying systems, bottled water etc. Yet it is difficult to put a value as they are clubbed among various already existing heads in the national accounts. Similarly, negative externalities are not only hidden, they manifest themselves into income, leading to erroneous conclusion that “more the environment deteriorates better is the economy”. Thus doctors’ income goes up with pollution; oil spills lead to vast expenses and revenues to same by the oil

company that year, deforested forest lead to income from the timber and fuel wood. Thus, environmental accounting is needed to avoid such misconceptions. It can help us to check the sustainability of many economic activities.

On the other hand, prudent environmental management that requires firms to pay for pollution abatement on a routine basis, show expenditures in their balance sheet regularly.

Central Statistical Organization, under the Ministry of Statistics and Programme Implementation, Government of India awarded IRADe a research project entitled “**Natural Resource Accounting in Goa Phase II**”, under SEEA, UN System of Environmental and Economic Accounting Framework. The broad objective of the project is

- To carry out natural Resource accounting for four sectors, namely, solid waste generation from municipal waste and water pollution from industries, and the hotel industries and forestry using the SEEA framework
- To prepare physical and monetary accounts for the aforementioned sectors
- Draw lessons for the country as a whole

The Solid Waste Management Sector

Municipal Councils (MC) are responsible for collection, transportation and disposal of municipal solid wastes (MSW) generated within municipal limits. Households and establishments including hospitals, private nursing homes, restaurants, etc. deposit their wastes in communal waste storage bins, for subsequent collection (manual) and transportation to a dumping site.

There is very limited information on the

environment and economic role of solid waste. This creates a lot of uncertainties in accounting for solid waste. Thus, a dataset was generated by means of a comprehensive survey at three levels viz., municipality, household and marketplace.

The cost of land was assumed from the prevailing market prices of the land occupied due to solid waste. The cost of collection of MSW is included in the municipality accounts in the conventional calculation of SDP, which however does not include the cost of uncollected garbage that lies around. The economic value of municipal land for disposal comes out to be Rs.1750/m³. The percentage of household waste generated per month in North Goa is 95Kg / Household and in South Goa it is 105kg / Household. The estimated total solid waste generated is about 1.3lakh tn/year in Goa. The total cost of collection is Rs.3 million/year or Rs. 82/ton/yr.

Industrial Water and Air Pollution Sector

There are a total of 506 factories in Goa, which forms 0.4% of total factories in India employing a total of 20740 people. During the year 2003-04 up to December 2003, 101 SSI units were registered. So far the State’s High Powered Coordination Committee has cleared 345 industrial projects in Medium and Large units in addition to the present 154 Medium and large Industries in the State.

Survey of various large, medium and small-scale industries in North and South Goa was conducted to gain an insight on the pollution load of such industries on the environment.

The focus is on 17 “high polluting” industrial sectors as identified by the Central Pollution Control Board (CPCB) for

implementation of pollution control programs, of these only 10 are in Goa. The total expenditure on fuels by these industries in Goa was Rs.40843 lakh in the year 2002-03. The results from IPPS (Industrial Pollution Projection System) have been used in various countries where insufficient data on industrial pollution proved to be an impediment to setting up pollution control strategies and prioritization of activities. Value of output for ten polluting industrial sectors of Goa is Rs.6570 million. Using the pollution load of SO₂ is found to be highest amongst the three air pollutants with iron & steel industry contributing the most SO₂ pollution load i.e., 98000 tonnes/yr. The one-time abatement cost to reduce one ton of SO₂ is Rs.1734 million, maximum for basic drugs and pharmaceuticals.

The Tourism Sector

“Trade, Hotels and Restaurants” is a component of service sector that contributes about 15% of value addition to the SDP (State Domestic Product) in Goa and most of the hotels and restaurants cater mainly to tourists. Tourism has also activated other sectors like transport, banking, insurance, real estate, etc., all of which contribute significantly to the SDP.

The survey design is based on stratified sampling procedure through a set of 3 separate surveys. The target population of the survey includes hotels (5 star, 4 star, 3 star and budget hotels), tourists (domestic and international) and tourist places (e.g. beaches, historical monuments, churches, etc.)

The waste generated from the hotels comprises of metals, paper/cardboard, food, plastic, glass, garden and others. The

maximum solid waste generated is from the 5 star hotels (210 tonnes per year). The total cost of collection of waste generated by the hotels surveyed in IRADe survey in the year 2004-05 is Rs.12.76 million / year. This amount may not be in the balance sheet of hotels and society pays for it.

The Forestry Sector

Accounting for forest wealth is an important ingredient in creating a framework for economic benefits of forestry of ecosystem. The accounts that we have presented for Goa forest describe forestry related stocks and flows in terms of land area (under forest), physical volume (of timber and carbon) and finally monetary values.

The forest area of Goa state has increased to a significant level. Forests and plantations provide many economic benefits e.g., carbon sequestration, timber production, non-timber forest products supporting biodiversity as well as promote eco-tourism. Asset value of forests should include the value of services such as carbon-sink, watershed, eco-tourism, provided by forests. The role of forest is huge in the economy of Goa. However there is paucity of data and the methodology of assessment are not clear. Nevertheless the importance of the forests sector in state GDP comes out call to improve allocation of budget for forest management, so that the Goa forests can be sustained for future uses. The Economic Value of Goa forest comes out to be Rs.550 crore.

2.3 ENVISION

ENVISION aims to strengthen Information Technology within the Ministry of Environment and Forests to speed up and facilitate various functions of the Ministry.

ENVISION is an initiative of Ministry of Environment and Forests (MoEF), Government of India, aimed at transforming the functioning of the Ministry in the delivery of services to its stakeholders.

The key objective of 'Envision' is to transform the functioning of the Ministry and its various constituent organizations under its purview with a business process perspective and also to transform the means of rendering services to its various stakeholders.

IRADe is one of the Consortium partners engaged as consultant at the Project Development stage for Subject Matter Expertise by M/s Pricewaterhouse Coopers (PwC). The PwC team reports "IRADe provided invaluable perspective to the stakeholders of MoEF. IRADe helped PwC team in the activities below for the promotional processes such as:

1. As-Is understanding of the Core Processes such as 'Tracking of Parliamentary Questions, Tracking of Court Cases, Processing of Proposals for various schemes funded by Ministry
2. Identification of Pain Areas, Bottlenecks and Opportunities for Improvement in each of the processes mentioned above
3. Identification of International Best Practices for these processes
4. Process Reforms and Design of Improved Processes"

After studying the recommendations, MoEF hopes to bring out a detailed Request for Proposal (RFP) for services that will be taken up in Phase I.

2.4 Extension of Minimum Support Price (MSP) : Fiscal and Welfare Implications

The Planning Commission, Government of India awarded IRADe Grant-in-aid for conducting a research study on "Extension of Minimum Support Price (MSP) - Fiscal and Welfare Implications".

Background and Introduction

Currently Food Corporation of India (FCI) procures sizeable quantities of food grains (mainly wheat and paddy) harvested in a season on behalf of the Central Government and supplies them to the state governments to meet their requirements for Public Distribution System (PDS). Earlier, surplus production was concentrated in a few states and there was a large regional mismatch between supply and demand of food grains, which required movement of grains from surplus to deficit states. But now significant changes in agricultural production have taken place in the past few years. This trend is expected to continue in the coming years as well. Parts of former deficit states like Bihar, Assam, Uttar Pradesh and Madhya Pradesh have started generating surpluses of certain cereals. The states that were earlier running gross deficits have started generating surpluses of several agricultural commodities. However procurement is currently taking place in only a few selected states at the MSP.

The research deals with the implication of extension of MSP scheme in the surplus states that are emerging recently and also those districts of covered states where it has not been extended so far. The MSP scheme was introduced to address the issue of uncertainties in food grains prices to

provide farmers assured return and encourage them to grow more food.

The concentration of procurement in few states deprives farmers in other states from the benefit of MSP. It also increases the cost of transporting food grains for the PDS. It was felt that by encouraging states to take up procurement operations, the states would locally procure, store and distribute food grains as per allotments indicated by the central government under PDS. This will bring the benefits of MSP to the farmers of the state and reduce transport cost. On the other hand higher procurement in aggregate will impose a larger fiscal burden and larger political pressure to increase MSP that may further enhance the prices of cereals. Thus, it appears that if not handled properly, the policy may not only lead to a rise in subsidy burden but also may even lead to an increase in prices that can hurt poor people in rural and urban areas and worsen aggregate welfare.

Methodology

This study highlights the problems by case studies of two states viz. Uttar Pradesh and Madhya Pradesh. NSSO 55th and NSSO 60th round data is taken for the analysis. Broadly, the present study will analyze the impacts of the extension of MSP at both macro and micro levels such as the impact of the policy on the level of procurement, total consumption of food grains, impact on local mandi prices and the fiscal burden in terms of burden on state exchequer.

The NSS collects data, not only on food expenditures, but also on quantities purchased, so that the survey can be used to measure prices, actually unit values and to examine how prices vary across space and time.

The data are analyzed for wheat and rice for all the villages and then summed up for the whole state, The impact of raising prices to MSP levels on consumption and procurement are assessed to obtain distribution of real income across different households.

Current status and findings

Data for Uttar Pradesh has been analyzed for the NSSO 55th round data using Ordinary Least Squares (OLS) estimation technique to assess the impact of extension of MSP to so far uncovered districts. The result shows that:

Extension of MSP will raise the retail prices of wheat and rice all across the regions of the state. Also under increased prices, assuming ceteris paribus (quality and quantity of consumed rice and wheat remains constant) the total expenditure of consumers on cereals (wheat and rice) increases marginally and on the other hand producers' incomes also go up. As expected the cost of procurement also increases. Unfortunately, one of the benefits of MSP viz. increase in production cannot be captured in the study.

2.5 Developing CGE Model with Activity Analysis for Climate Policies in India

The Ministry of Environment & Forests, Government of India awarded the project "Developing CGE Model with Activity Analysis for Climate Policies for India" to Integrated Research & Action for Development, (IRADe) along with other organizations such as IIT, NCAER, TERI and others.

Under this project IRADe's approach will be adaptation and mitigation aspects to reduce

the risks of climate change to nature and society. The study aims to:

- Update the existing model with the latest input-output table of 1998-99, provided by CSO consisting of information on 115 sectors. These will be aggregated to 24 sectors, especially by choosing these sectors that are climate sensitive – either in terms of mitigation (e.g., energy, transportation, construction) or vulnerability and adaptation (e.g., agriculture, fishery, forestry etc.).
- Update the direct and indirect emission of CO₂ for various sectors of the input-output table (IOT) for the year 2003-04.
- Natural gas is considered as new sector and scope of bio –fuels and land as a constraint.
- Consumption pattern of different income classes and CO₂ emission corresponding to 2003-04 input-output table using Social Accounting Matrix (SAM) for 2003-04.
- Updating and expanding the sustainable development model.
- Carbon emissions by income classes.
- IRADe approach is to develop emission inventory, carbon reduction options by considering alternate technical activities that reflect various options in an activity analysis framework. Thus electricity generation by each fuels will be considered as a separate activity. Four broad groups are made consisting of 24 sectors.
- The model will be solved using General Algebraic Modeling System (GAMS) programming tool.

Expected Output

The model outcome will account for the behavioral responses of economic agents (such as consumers and producers) to changes in policy. The model will ensure a consistent outcome in a number of ways, which is important but not normally realized in other analytical approaches.

2.6 Demand for Natural Gas in the Indian Fertilizer Sector

Background and Introduction

The objective of the Stanford study which is a part of the Program on Energy and Sustainable Development (PESD), Stanford University, USA is to understand the future demand and supply scenario of Natural Gas at the global level with particular emphasis on India and China. The study awarded to IRADe entails estimation of demand for Natural Gas in Indian fertilizer Industry on the face of changing fertilizer Policy options of Central government. Constantly increasing fertilizer subsidy, changing international price for Natural Gas and Fertilizer and other likely scenarios can have significant impact on demand with implications for government policies.

Agriculture accounts for approximately one-fourth of Indian GDP and provides employment to two third of nation's labor force. The success of green revolution of 1970s was attributed to combined use of fertilizer; irrigation and high yield variety of seeds. The green revolution ensured food production at a higher growth rate and provided the nation with food security. The scheme of subsidy was initiated in early sixties to induce Indian farmers from all regions to use more fertilizers to increase production and also to compensate them for generally low output price they received.

Currently, the New Pricing System (also known as Group Concession Scheme) is in force for computation of subsidy of Urea fertilizer. The fertilizer subsidy has shot up dramatically and continues to climb rapidly. Government is focused on controlling the impact of subsidy on Indian budget, while ensuring agricultural GDP growth, constraint of paying capacity of Indian farmers, considering operational viability of fertilizer industry. The price of Natural Gas is regulated for anchor customers (Fertilizer Industry, power and uses mandated by supreme court) under APM (Administered Price Mechanism). But the source of APM supply gas is declining and expected to reduce dramatically over time. Henceforth, the Fertilizer industry too will have to buy their feedstock from private suppliers, which will cost substantially more than the current controlled price of gas. Whether, the fertilizer industry would be able to pay for increased feedstock prices, is a question to be looked.

The IRADe study explores the impact of a range of reforms on gas demand from the fertilizer industry and analyzes the political economy of such reforms. It is perceived that there are a number of potential reforms that could play a large role in the future of the gas industry and hence, these scenarios are taken into consideration. The study is an effort to address the following questions:

- What is the expected impact of reforms in Administered Pricing Mechanism (APM) of Natural Gas on subsidy burden provided by Government of India to Urea manufacturing Units in India? What will group-wise (as specified by Department of Fertilizer) subsidy burden? What will be effective gas subsidy due to APM rationalization?
- Evaluation of impact of degree of self-sufficiency in domestic Urea production level, demand of natural gas and subsidy mix (Subsidy share of indigenous producers, Farmers and Subsidy to subsidize imported urea).
- Estimation of demand projection of Urea fertilizer for next two decades at different farm gate urea price scenarios.
- How will the New Pricing Scheme (NPS) and associated reform improve efficiency of existing units (By switching from Naphtha, LSHS/FO to Natural gas feedstock) and thereby influences gas consumption by the fertilizer sector.
- What will be the role of fertilizer sector as an anchor customer on natural gas market of India?
- Evaluation of Joint venture project in production and market access of Urea fertilizer produced in Gas rich countries.

Current Status

An Autoregressive Time series Econometric model to estimate the demand for fertilizer is formulated, in which gross irrigated area, gross sown area, rainfall index, price of fertilizer and agriculture GDP deflator are considered as explanatory variables and their impact on fertilizer demand is estimated.

For the projected future demand (Years 2005, 2010, 2015, 2020 and 2025) of fertilizer required demand for Natural Gas has been calculated under different scenarios of progress of irrigation, domestic self-sufficiency level, tariff policy for imported fertilizer, price charged to farmers, etc. by making certain assumptions about plant

efficiency, available set of technology and operational capacity of plants etc.

Urea equivalent of nitrogenous requirement for year 2025 varies from 40 Million Tonnes to 57 Million Tonnes across the scenarios. Urea consumption of nitrogenous requirement in 2005-2006 was around 27 Million Tonnes. The natural gas projection for the year 2025 varies from 23 BCM (Billion Cubic Metre) to 30 BCM

To understand the subsidy required by each individual plant (which will cumulatively give total subsidy burden by industry on the state exchequer), vintage analysis of Indian fertilizer plants is used. A generic model of production cost is formulated to understand the cost structure of Indian fertilizer plants by doing a case study of two fertilizer plants.

ACTION PROJECTS WITH COMMUNITY PARTICIPATION

IRADe has been active in projects that require action for developments. The details of the action projects and progress in them are as follows:

3.1 Village Energy Security program in Vavdi and Vaddithar in Patan District of Gujarat

This is a part of the Village Energy Security Programme under Remote Village Electrification programme of Ministry of New and Renewable Energy. IRADe intends to install the energy systems consisting of biogas plants, improved stoves, wood gasifier based electricity generator and Jatropha plantation for biodiesel in two villages Vavdi and

Vaddithar of Santalpur Taluka of Patan district of Gujarat. IRADe in close cooperation with Self Employed Women Association (SEWA), Gujarat Energy Development Agency (GEDA), the village Panchayat and village population is implementing the programme.

The objectives of the MNRE programme and IRADe's project are:

- To provide access to electricity through biomass resources to households in remote villages which are not likely to get covered through grid extension
- To go beyond electrification by addressing the total energy requirements such as energy required for household cooking, lighting, entertainment, primary school, commercial facilities like shops, streetlights, flour mill and pumping water for irrigation.
- To meet village energy requirements through biomass material and biomass based conversion technology or other renewable technologies where necessary.

Current status of progress

Trainings & Awareness Generation:

- Participatory Rural Appraisal (PRA) was done in both the villages, Vavdi & Vaddithar.
- Village Energy Committee formed and account was opened and money transferred on date 24.03.2006.
- IRADe and SEWA team have given "Skill up-gradation trainings" to local masons for construction of biogas and gasifier.
- Two village masons of Vavdi were trained on the construction of

household level biogas plant by Master mason from Gujarat Agro Industries Ltd, Baroda. In Vaddithar hamlets, local masons have been identified for training.



Women of Vaddithar during the Awareness Generation Meeting

- Confidence building and awareness generation meetings were held for use of improved stoves.
- IRADe and SEWA team members made contacts and followed-up with local gram panchayat and local govt. officials for material to arrange at the beneficiary site to start biogas plant construction.

Biogas plant



A family at Vavdi village feeding the Biogas plant

Ten beneficiaries in each village have shown their willingness to construct biogas plants at their site. A Deenbandu model biogas plant (2 cum.) is selected. Five biogas plants have been constructed and commissioned in both villages Vavdi and Vaddithar. All five families in Vavdi and Vaddithar village have deposited their contribution of Rs. 1000/- each.

Gasifiers

Construction work of Gasifier workshed and biomass storage room was completed in Vavdi village. All machinery items including two Gas Engines, two Gasifiers and accessories were delivered at Vavdi village site. Three persons from village were selected for Gasifier Power Plant operators' training. After completion of operators' training, installation and commissioning of gasifier will be done in Vavdi. The collection of contribution for operationalising the gasifier power plant in Vavdi village was started. In Vaddithar village, Metal workshed for gasifier and biomass storage room was completed. Three persons from village obtained training from the gasifier supplier viz. Ankur Scientific Energy Technologies Pvt. Limited, Vadodara.



A gasifier work shed and biomass storage room in Vavdi village

Generated electricity will be distributed to every household through overhead distribution cable. Surplus energy will also be available for livelihood purposes, which are necessary for socio economic development. Electricity will be supplied through meter for all purposes.

The existing Village Energy Committee (VEC) is executing the ongoing construction of the gasifier power plant. Apart from the electric supply, additional benefits will be delivered to community:

- Cleaner than fossil fuel fired plants,
- Cheaper & cleaner process energy from waste utilization,
- Income from local renewable energy sources, including unwanted weeds and agro residues,
- Sustainable local livelihoods (plant operator and new need based local enterprises), and
- Reduction of migration to cities,

Improved Stoves



Improved cook stove distribution programme in Vavdi village

Presently villagers are using unprocessed fuel-wood and dung cake for cooking while kerosene is used only for domestic lighting. An average household consumes approximately 200 kg of wood for cooking purposes and about 3-4 lit. of kerosene oil for lighting per month.

All families in Vavdi & Vaddithar village have deposited Rs 30/- as their contribution for improved cook stoves. Improved cook stoves were distributed to all families by Dr. Jyoti Parikh, Executive Director, IRADe on 25th March 2007 by organizing a cook stove distribution launch in Vavdi village.

Plantation

In Vavdi, about 13200 Jatropha plants were planted out of 15700 pits dug covering 4.0 hectares area on the land allocated by gram panchayat for liquid fuel. A water tank having size (12 feet x 6 feet X 4.5 feet) has been constructed for irrigating the plants.

In Vaddithar, 1630 plants were planted out of 2100 pits dug. Two ladies from each village have taken the responsibility for irrigating the plants regularly.

3.2 Rural Microenterprise Model for Biofuel Extraction in India

Background

Wuppertal Institute for Climate, Environment and Energy (WISION) through its Sustainable Energy Project Support (SEPS) has floated an initiative to support financially for one year (2006-07) to IRADe to implement a project entitled "Rural Microenterprise Model for Biofuel Extraction in India". This project attempts to harness locally available Jatropha plantation to generate bio-fuel in the Bawal Tehsil (area constituting a revenue district) of Rewari District in Haryana state. The project aims to establish microenterprise model for locally available bio-fuel extraction and put a model for producing biodiesel at village level. The project will trigger the development of decentralised biofuel extraction in rural areas of India and improve the livelihoods of villagers.

Further, it will lead to increased access to alternative fuel at local village level. The project will reduce the dependence on fossil fuel, increase green cover and encourage community towards biomass energy.

The specific objectives of the project are:

- To formulate microenterprise model for biomass based energy system at village level
- To extract fuel from oil seeds that provide alternative fuels in rural areas
- To provide sustainable livelihood options for women at village level
- To develop enterprise to process locally available jatropha and other oilseeds
- To identify current activities in biomass based strategies for extraction, utilization and commercialization of oil.

Unique Features

The Jatropha plantation on about 16 hectares of wasteland in 3 adjoining villages of Bawal (Haryana) was established and is near to attain maturity. It is the appropriate time to introduce extraction facility so that end uses of biodiesel could be demonstrated. The oil extracted in this unit will be used by community in their stationary equipments like diesel engines, water pumps etc.

- This system will be managed by rural people essentially including women who will get livelihood from various project activities like seed collection, cleaning, operation and maintenance of unit etc.
- Replicable in Haryana state as well as in India.
- Involves participation of local community.
- Cooperative structure in the model

- A model for post implementation activity for the bio-fuel plantation programme of Government of India at rural level.

The project is economically feasible as the local resources are used and the community will be responsible for managing the assets, operation, and marketing and end uses of extracted oil. The cooperative mechanism will ensure the collection/procurement of oil seeds and marketing of extracted oil at village/local level.

Social and Environmental Benefits

- The project activities will generate employment in terms of labour, operation and management of extraction unit, seed collection and other income generation activities by BBC members.
- The use of bio-fuel avoids fossil fuel use and hence reduces financial burden.
- Substantial reduction of unburnt hydrocarbons, carbon monoxide and particulate matter.
- Decrease the solid carbon fraction of particulate matter.
- Increase in the green cover as result of plantations would check soil erosion and retain moisture and soil nutrients.
- Positive ecological benefits in terms of lending support to biodiversity, especially since degraded lands are involved

Partners involved

A) Village Panchayat: In India, the local governing body at village level is called Panchayat. The Village Panchayat, Bhadoj has provided land for extraction unit and all needed support for establishing the unit. In the project, the

local community would own the assets and manage their entire facilities. Three Panchayts are involved in project.

- B) Regional Research Station (RRS) of Chaudhary Charan Singh Haryana Agricultural University, Bawal: A Centre for Excellence in research, development and extension especially in rainfed agriculture and oilseeds crops. The center is technical partner for this project.
- C) Bawal Biodiesel Cooperative (BBC): The common interest groups constituted of 6 male and 5 female members from three project villages will manage all project activities.

Project Replicability

India has nearly 63 million hectares of wasteland available in the country, out of which 35 million hectares of wasteland have been allotted for tree plantation. National Mission on Biodiesel targets to bring 0.4 million ha area under *Jatropha* plantation from 2006-09. This provides an immense scope to replicate the model at national level.

The micro-enterprise model of the project could be replicated in many villages in Haryana and elsewhere in the country, where plantation at small scale exist. For example, IRADe intends to replicate the same model in Gujarat where *jatropha* plantation has been raised on community land with support of SEWA (a local NGO).

Project activities completed

Awareness Generation

Several community and village level meetings were held to highlight the potential of biodiesel and livelihood

generation options. People were made aware about the benefits of producing and using biodiesel in their villages.

Formation of Bawal Biodiesel Cooperative (BBC)

A committee with eleven members was formed from the three project villages for the management of the extraction unit and other community development activities. This will lead to sustainability to the project activities and participation of community people in their own development.

Training Programme

A three days training programme on "Participatory Approaches and Management" was organised for the committee members of BBC. The programme helped the members in their capacity building to understand role of rural institutions in their development and management of their cooperative. It was the first experience for all members.

Construction of Building

The construction of building for extraction unit at village Bhadoj is completed and operation is expected to start functioning from April 2007.

3.3 Model Bioenergy to complement a development project consistent with the principles of ecology, equity and energy efficiency and thereby guarantee long-term sustainability of programme

Global Environment Facility (GEF) has approved IRADe project titled "Model Bio Energy to complement a development

project consistent with the principles of ecology, equity and energy efficiency and thereby guarantee long term sustainability of programme”.

The objective of the project is to ensure access and assimilation of sustainable energy systems through the Remote Village Electrification Programme of Ministry of New and Renewable Energy (MNRE), with the aim to replicate in other such communities. It also aims to encourage participatory management of energy systems installed under the programme, so as to ensure the long-term viability of the development project.

The project would be executed in two hamlets viz. Vavdi (100 households with a population of 756) and Vaddithar (82 households with a population of 612) in Patan District of Gujarat in two years. The Vavdi hamlet is un-electrified while Vaddithar hamlet has electric distribution network laid out, but is not operational and stands abandoned.

The project would use a three-pronged strategy:

- Develop village work plans outlining clear roles and sharing of service costs and responsibilities.
- Establish small SHGs (Self Help Groups) in communities for better sustainability of the programme.
- Create skills among locals to take actions forward. The skills to be created include operation and management of biogas, maintain biomass-fired gasifiers,

electric systems at household level etc.

This project will serve as a demonstration activity for other communities and exhibit the techno-economic parameters for village energy security, provide operational experience and mobilize local communities to operate and manage the project themselves. The project plans to measure changes in socio-economic conditions of village communities after availability of energy. Key issue is to monitor whether all sections of the community benefit and how do different stakeholders perceive various technological impact of availability of energy. In addition, availability of energy will expand livelihood options of the rural population. Accordingly, the project intends to identify energy based livelihoods and support villagers to engage in those alternatives.

The project was initiated in January 2007. During this period, capacity building process has been started for the community, particularly women, to enhance and strengthen their participation. Dr. Jyoti Parikh, Executive Director, IRADe visited the villages and had interactive group discussions with the Village Energy Committee as well as community members. She explained the positive implications of energy security, and emphasized the importance of their enthusiastic involvement in the activities. In addition, our team organized focus group discussions and carried out a PRA exercise to determine present socio-economic status and livelihood strategies of villagers.

SEMINARS/TRAININGS/ WORKSHOPS

4.1 Training Programme for the members of Bawal Biodiesel Cooperative Under the Project 'Rural Micro-enterprise Model for Biofuel extraction in India' 27-29 November 2006, Bawal District, Haryana.

A three day training programme on "Participatory Approaches and Management Techniques" for the members of Bawal Biodiesel Cooperative (BBC) was organized by IRADe from 27th – 29th November 2006, at the premises of Regional Research Station, Bawal of Chaudhary Charan Singh Haryana Agricultural University, Hisar. There were 11 participants in the training programme who are members of BBC and belong to three project villages of Khijuri, Bhadoj and Majri of the Tehsil-Bawal, Rewari-District.



Standing Second Row (from left): Mr. R. K. Divedi (IFFDC) & Dr. Amit Walia (IRADe) with members of the Bawal Biodiesel Cooperative (BBC)

The committee – Bawal Biodiesel Cooperative, has been formed to invoke community participation under the project "Rural Micro-enterprise Model for Biofuel extraction in India". Under this project, IRADe is demonstrating a business model

for production and commercialization of biofuels at village level. Capacity building activities are also performed so that the villagers conform and manage their own biofuel micro-enterprise.

Two resource persons from Indian Farm Forestry Development Co-operative Ltd. (IFFDC), experts in imparting training to community people and scientists from the Regional Research Station, Bawal, worked together with IRADe to conduct training programme. The training was imparted with the help of different tools like lectures, group discussion, group exercises and games.

The main objectives of the training programme were:

- Capacity building of the members of the cooperative for the management of the bio-fuel extraction unit.
- To create awareness among the members regarding the participatory approaches and management tools.
- To generate a sense of ownership of decisions and actions amongst members.
- To develop leadership skills and team spirit among committee members.

Training

- To inculcate among the members team spirit, a sense of responsibility and realize the importance of community participation, participants worked in groups (as a team) and conducted exercises in the training programme.
- Participants were told about management and functioning of a society and how it helps to attain and enhance an

economic status by working together with the help of available skills and knowledge of the members

- It allowed different stakeholders, and especially those whose voice may be marginalized, to articulate and present their needs, interests and expectations, to work through differences with others, and to develop longer-term strategies.
- Lectures were delivered about Jatropha plantation, how to maintain a cooperative and about leadership qualities to run a cooperative successfully.
- Participants learned how to conduct cooperative meetings, how to keep records and formation of plans to utilize all resources judiciously

However, participants were of the opinion that since the training programme covered such a vast number of topics, which required a lot of practical exercises and lectures that the duration of the training could have been longer. Participants also emphasized the need to have such trainings on a regular basis.

4.2 IV International Training Programme on “Role of Renewable Energy in Energy Planning and Expanding Livelihood Options”, 14-22 March 2007s

Background

Due to the importance of Renewable Energy Technology (RET), Integrated Research and Action for Development (IRADe) organizes International Training Programme every year since 2003 for participants from Asia and Africa. In the past, participants have

appreciated this programme prompting us to do one every year. The fourth International Training Programme on “Role of Renewable Energy in Energy Planning and Expanding Livelihood Options” was held from 14 March- 22 March 2007 at India Habitat Center, New Delhi and was sponsored by Ministry of New and Renewable Energy (MNRE), Govt. of India. This year we chose the theme “Role of Renewable Energy in Energy Planning and Expanding Livelihood Options” which connects renewable energy with energy planning and livelihood options. The main purpose of the training session was to create awareness about renewable energy technologies and their role in Energy Planning as well as expanding livelihood options. The training program was specially designed to be of particular relevance for the developing countries of Asia and Africa.

Dr. Jyoti Parikh, Executive Director, IRADe welcomed all the international participants and gave a brief introduction of the course. Shri V. Subramanian, Secretary, MNRE inaugurated the training programme expressing his pleasure and congratulating IRADe for the initiatives taken and choosing this new theme for the Training Programme. He further discussed the present and possible future magnitude of renewable energy contributions to global energy supply, efficiency gains that are possible by modernization of renewable energy, alternative sources of biomass for energy, a variety of socioeconomic and environmental issues that can arise with the production and use of bioenergy, and institutions and institutional mechanisms that would facilitate a greater role for modernized biomass energy. Dr. Kirit

Parikh, Member, Planning Commission and Chairman, IRADe delivered the keynote address stressing the role of renewables in the Integrated Energy Policy for India and using renewable energy technologies as a tool for developing income generation activities and a key element for project sustainability. He emphasized the need to develop political commitment and appropriate policies and strategies supported by both the public and private sectors.

Participants

There were 14 participants from Nigeria, Tanzania, Cameroon, Sudan, Indonesia, Pakistan and Nepal. They were middle and senior level rank officers (Director, Advisor, Assistant Lecturer, Lecturer, Manager, Program Officers and Engineers etc.) from ministries, government organizations, Non-Governmental Organizations and from different universities of Asia and Africa. They were from different professional

backgrounds like engineering, economics, energy, environment etc. and had work experiences in topics related to renewable energy and environmental management, natural resource management, geology, small hydropower, solar, biomass and many more.

Course Contents

The overall content of the training course covered topics such as Growing Importance of Renewable Energy in the New Millennium, Renewable Energy: Global Policy Experience, Distributed Generation from Renewable Sources: Experiences in Livelihood & Income Generation, Institutional Framework for Sustainable Project Implementation, Role of Renewable Energy in Energy Planning & Expanding Livelihood Options, Financing of Renewable Energy Projects & Sustainable Development, Role of Renewable in Energy Planning, Nursery and Agro-techniques of Jatropha, Alternative Low-Emission



Dr. Jyoti Parikh, ED, IRADe, Mr. V. Subramaniam, Secretary, MNRE, GOI, Dr. Kirit Parikh, Member, Planning Commission with participants and IRADe at the Fourth ITP, New Delhi

Fuels: Solutions to Emerging Energy-Environment Crises, Renewable Energy Development and Rural Livelihoods, Climate change and Clean Development Mechanism (CDM).

The lectures were given by highly reputed experts and eminent persons from Ministry of New and Renewable Energy (MNRE), Indian Institute of Technology (IIT), US Agency for International Development (USAID), Indian Renewable Energy Development Agency (IREDA), Integrated Research and Action for Development (IRADe), UNDP-CEE, Haryana Agriculture University (HAU), etc.

Participants also gave presentations about their country, gave detailed feedback and suggestions for further technological collaborations.

SELECTED PROFESSIONAL ACTIVITIES OF MEMBERS IN 2006-07

Dr. Kirit S Parikh

Membership of Committees

Policy

- Member, Planning Commission, Govt. of India, New Delhi
- Member, Committee on Infrastructure under the Chairmanship of the Prime Minister
- Member, Energy Coordination Committee under the Chairmanship of the Prime Minister
- Member, Committee on Rural Infrastructure, Govt. of India

- Chairman, Expert Committee on Integrated Energy Policy
- Chairman, Expert Group to review the issue of ground water ownership in the country
- Chairman, Expert Group on Bio-fuel Policy

Academic

- Chairman, Governing Council, Centre for Environment Education (CEE), Ahmedabad
- Chairman, Indian National Committee (Indian NMO Committee) for the India-IIASA (International Institute for Applied Systems Analysis) Programme
- President, Governing Board, Gujarat Institute of Development Research (GIDR), Ahmedabad
- Member, Governing Council, Indian Council for Research on International Economic Relations (ICRIER), New Delhi
- Member, Governing Council, CUTS Institute for Regulation & Competition (CIRC)
- Member, Advisory Council of IIT Delhi

SEMINARS, CONFERENCES, MEETINGS (only selected few)

- Presentation on “Energy Perspective of India” at the Indo-German Energy Symposium, BDI (Association of German Industries) and Deutsche Messe AG Hanover Trade Fair, Hanover, Germany; 26th April 2006
- Delivered National Technology Day Lecture on “Energy Technology and

- Importance of R&D” at Indian Institute of Petroleum, Dehradun; 11th May 2006
- Presented a paper on “Energy Needs, Options and Environmental Consequences” at the PAN Asia 2006 - Annual International Conference of the Stanford Centre for International Development (SCID), Stanford University, California, USA; 3rd June 2006
- Delivered inaugural address on “The Importance and Challenge of Management Education” at the 18th Annual Convention of Association of Indian Management Schools (AIMS) Lucknow; 25th August 2006
- Addressed the Session IV – “Options to Increase India’s Energy Security” at the 15th Meeting of the Indo-German Consultative Group (IGCG) by Ministry of External Affairs at Wiesbaden, Germany; 16th September 2006
- Delivered inaugural address on “Petroleum & Beyond – Fuel Options” at the 5th Petro India 2006 function by India Energy Forum, New Delhi; 24th November 2006
- Led the key discussion on “Electrifying India: Can Public-Private Partnerships Deliver” at the India Economic Summit 2006—India: Meeting New Expectations by Confederation of Indian Industry (CII) New Delhi; 27th November 2006
- Delivered keynote address at the Regional Conference on “Natural Resource Conservation, Use and Sustainability in Drylands” by Gujarat Institute of Desert Ecology (GIDE), Bhuj; 17th December 2006
- Delivered Rai Bahadur Ravaji Ramchandra Kale Memorial Lecture 2006 on “Bridging Divides and Reducing Disparities: Empowering People” at Gokhale Institute of Politics & Economics (GIPE), Pune; 15th January 2007
- Delivered theme lecture on “Sustainable, Equitable Energy Strategy for Rapidly Growing India” at Petrotech-2007 by Petrotech and ONGC New Delhi; 17th January 2007
- Delivered keynote address on “Importance of Bio-diesel and Challenges Facing It” at the Bio-diesel Summit by Integrated Research and Action for Development (IRADe) New Delhi; 29th January 2007
- Delivered keynote address titled “Climate Change Impacts and Options” at the International Workshop on Monsoon Climate Variability and Change and Their Impacts on Water, Food and Health In Western India by Nirma University of Science and Technology, Ahmedabad; 5th February 2007
- Delivered special address on “The Integrated Electrical Energy Development in India: The Way Forward” at the 3rd National Conference - Synergy with Energy by Saket Projects Ltd, Ahmedabad; 25th February 2007
- Delivered distinguished lecture on “Role of Science & Technology in Ensuring Social Justice” at Madhya Pradesh Institute of Social Science Research (MPISSR), Ujjain; 16th March 2007

- Delivered valedictory address at the 4th International Training Programme on “Role of Renewable Energy in Energy Planning and Expanding Livelihood Options” by Integrated Research and Action for Development (IRADe), New Delhi; 22nd March 2007
- Delivered special address on “India’s Energy Needs” at the National Conference on India’s Energy Sector by Gujarat Foundation for Development Alternatives (GFDA), Ahmedabad; 24th March 2007

Awards/Honours

Felicitated as one of the engineering personalities at an event entitled “Glimpses of Engineering Personalities” at the 21st Indian Engineering Congress at Guwahati on 22nd December 2006.

Dr. Jyoti Parikh

- Panelist at the Round Table on Environmentally Friendly Energy, India Energy Congress, 31 January 2007.
- Convener of Biodiesel Summit: “A Discussion Forum for Biodiesel Stakeholders” organized by IRADe at New Delhi, 29-30 Jan, 2007.
- Expert presentation at Workshop on Scoping Exercise for Adaptation to Climate Change organized by South Asia Co-operative Environment Programme (SACEP) at Colombo, Sri Lanka, 19 January 2007.
- Panel discussion on Urban Energy management at IIE Imagine 2007, 17 January 2007.
- Keynote speaker at Global Gender Equality Retreat organized by UNDP, Greenwich, Connecticut, USA, 12-15 February 2007.
- Participated DFID Consortium workshop at Imperial College, London, UK, 11 December 2006.
- Convener of The Third ENERGIA National Focal Points Meeting, IRADe, New Delhi, 01-03 November 2006.
- Chaired a seminar and presented papers at World Renewable Energy Congress IX and Exhibition at Florence, Italy, 22 August 2006.
- Convener of Energy Conclave 2006 – “Implementing the Integrated Energy Policy: The Way Forward” organized by IRADe at New Delhi, 26-28 July 2006.
- Keynote address at Workshop on Introducing the Concept of Integrated Assessment organized by Sustainable Development Policy Institute at Islamabad, Pakistan, 15-16 May 2006.
- Delivered keynote address in the inaugural panel on “Concepts and Insights on Vulnerability Assessment and Adaptation”, at an International workshop on “Vulnerability and Adaptation to Climate Change” at New Delhi, 11-12 May 2006.
- Panel Discussion Commission for Sustainable Development, CSD Meeting organized by the United Nations as a representative of ENERGIA network at New York, 1-12 May 2006.
- Keynote address MNES-SAARC Summit on Renewable Energy at New Delhi, 18-19 April 2006

Dr. Amit Walia

- Coordinator of Biodiesel Summit: “A Discussion Forum for Biodiesel Stakeholders” organized by IRADe at New Delhi, 29-30 January 2007.
- Delivered a presentation on “Biodiesel Development in India: Appraisal and Action Plan” at 9th Biennial ISEE Conference organized by ISEE and INSEE at New Delhi, 15-17 December 2006.
- Coordinator of Training Programme on Participatory Approaches and Management organized by IRADe at Bawal, Haryana from 27-29 November 2006 and also delivered a lecture on “Role of Biodiesel in Rural Development”
- Delivered a presentation on “Biodiesel Development in India: Appraisal and Tasks” in 6th Non-Fossil Fuel Conference organized by India Energy Forum, New Delhi, 16 September 2006
- Coordinator at Energy Conclave 2006 – “Implementing the Integrated Energy Policy: The Way Forward” organized by IRADe at New Delhi, 26-28 July 2006.
- Delivered a talk on “Issues Facing Development of Biodiesel in India” in a seminar on Energy from Waste and Biomass organized by PHD Chambers of Commerce and Industry, New Delhi, 23 May 2006.
- Participated in a workshop “Promotion of Biofuel in India: Issues and Prospects” organized by Society for Promotion of Wasteland Development, New Delhi, 29 August 2006.

Books/Articles/Publications

- Parikh J. (2007), “Mainstreaming Gender into Energy Policies in India”, Where Energy is Women's Business: National and Regional Reports from Africa, Asia, Latin America and the Pacific, edited by Gail Karlsson, ENERGIA-the International Network on Gender and Sustainable Energy.
- Parikh J. & Walia A. (2006), “Techno-economic Assessment of Bioenergy in India.
- Parikh J. & Walia A. (2006), “Integrated Analysis of Diesel Substitutes from Oil Seeds for India.
- Parikh J., Govil K.K., et. al (2007), “Evaluation of Franchisees System in the States of Assam, West Bengal and Rajasthan” Rural Electrification Corporation.
- Parikh J., Govil K.K., et. al (2007), “Evaluation of Franchisees System in the States of

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CONSOLIDATED LIST OF IRADe PROJECTS

Projects undertaken

Sr. No.	Title of Project	Status	Type	Funding Agency
1.	Model Bioenergy to complement development project consistent with the principles of ecology, equity and energy efficiency sustainability of programme	O	A	GEF UNDP Small Grants Program
2.	IV International Training Programme on "Role of Renewable Energy in Energy Planning and Expanding Livelihood Options" New Delhi, 15-22 March 2007	C	T	Ministry of New and Renewable Energy, Govt. of India
3.	Evaluation of Franchisees System in the states of Assam, West Bengal and Rajasthan	C	R	Rural Electrification Corporation
4.	Biodiesel Summit "A Discussion Forum For Biodiesel Stakeholders", New Delhi, 29-30 January 2007	C	P	Sponsorships/ Registration fees
5.	Developing CGE Model with Activity Analysis for Climate Policies in India	O	R	Ministry of Environment and Forests (MoEF), Govt. of India
6.	Demand for Natural gas in Indian fertilizer Sector	O	R	Stanford University, California
7.	Evaluation of Franchisees System in the states of Assam, West Bengal and Nagaland	C	R	Ministry of Power, Govt. of India
8.	The Third ENERGIA National Focal Points Meeting, New Delhi, 01-03, November 2006	C	P	ENERGIA International, Netherlands
9.	Energy Conclave 2006 "Implementing the Integrated Energy Policy-The way Forward New Delhi, 26-28 July 2006	C	P	Sponsorships/ Registration fees
10.	Extension of MSP: Fiscal and Welfare Implications	O	R	Planning Commission, Govt. of India
11.	Business Process Re-engineering of ENVISION Project of MoEF	C	R	PricewaterhouseCoopers (PwC)
12.	Rural Micro-enterprise Model for Bio-fuel Extraction in India	O	A	WISIONS, Wuppertal Institute for Climate, Environment and Energy, Germany
13.	Village Energy Security Project in Vavdi and Vaddithar hamlets, Patan District, Gujarat	O	A	Ministry of New and Renewable Energy, Govt. of India
14.	Review paper on Bio-energy for Energy Assessment	C	P	Technology Information, Forecasting and Assessment Council (TIFAC)
15.	Integrated Analysis of Diesel substitutes for Oil seeds in India	C	R	Petroleum Federation of India.
16.	Natural Resource Accounting (NRA) Goa Phase-II under SEEA Frame work	C	R	Central Statistical Organization, New Delhi

C = Completed O = Ongoing A = Action Oriented T = Training P = Policy R = Research