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**United States Agency for International Development
Greenhouse Gas Pollution Prevention Project
Climate Change Supplement
(GEP-CCS)**

Institutional Strengthening of Financial Sector

Task 2C

**Report on Training Program for Banks and FIs on
Clean Energy Project Development and Structuring**



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***The Louis Berger Group, Inc.
Contract No. 386-C-00-00-00058-00
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TABLE OF CONTENTS

Executive Summary 2
Background 3
Needs Assessment for Training Task 4
Organizational Preparations for the Training 6
Training Team 6
Proceedings at the Training Program 8
Business Plan Group Case Studies 8
Outcomes of the Training Program 9
Next Steps / Action on Recommendations 10

Appendices



EXECUTIVE SUMMARY

The Louis Berger Group, Inc. (LBG) is implementing the Greenhouse Gas Pollution Prevention Project – Climate Change Supplement (GEP-CCS) for USAID-India. GEP-CCS is a four-year effort, begun in April 2000, to help create awareness of climate change issues among industry, government, financial institutions, project developers and research institutions. Contract line item (CLIN) 2 calls for “Institutional Strengthening of the Financial Sector”. Within that CLIN, task 2C requires training for “...banking professionals with certificates given.” Pursuant to this requirement, LBG conducted an extensive five-day training course to targeted Indian Financial Institutions (IFIs), held between April 16-20th, 2001, at the Dominion in Bangalore, India. This report relays some of the key outcomes and findings from the training, and provides a series of recommendations for the next round of training called for within the contract.

Twenty-one different organizations were represented at the training, including:

ICICI Limited	Bank of Baroda
ICICI Venture	UTI Bank
ICICI Bank	SICOM Ltd
Power Finance Corporation	Industrial and Technical Consultancy
Industrial Development Bank of India	Organization of Tamil Nadu Ltd
Small Industries Development Bank of India	Federation of Indian Chambers of Commerce
Indian Renewable Development Agency Ltd.	and Industry
Infrastructure Development and Finance	Industrial Development Services
Company Ltd	AJI Engineers
ICRA Advisory Services	Development Alternatives
Associated Chambers of Commerce & Industry	Karnataka Bank Ltd.
Infrastructure Leasing & Financial Services	Indian Bank Training College

BACKGROUND

The Greenhouse Gas Pollution Prevention Project - Climate Change Supplement (GEP-CCS) aims at encouraging initiatives, including development of clean energy technology projects, that will reduce the impacts of greenhouse gas (GHG) emissions on India's national, social and economic development. Creating models of financially sustainable clean energy technology projects that reduce GHG emissions and are structured to capitalize on the reduction has tremendous impact in motivating replication of such projects, a key goal of GEP-CCS. Financial institutions in India are a key stakeholder in creating model projects and replicating them over time. Their role in financing clean energy technology projects is obviously an underpinning needed to shift India towards a lower GHG emission development path.

As a component of its capacity building activities, LBG/GEP is required to train Indian Financial Institutions (IFIs) in state of the art structuring and financing of clean energy projects which mitigate GHG emissions to maximize opportunities for supporting and attracting investment in them, especially from investors interested in the value of carbon off-sets.

To meet this capacity building objective, LBG conducted the first of two training courses for officers of IFIs from April 16 - 20, 2001. The objective of the training program was to develop a cadre of informed IFI officers who can work to support financing of GHG mitigation projects. This was done by delivering a training that focused on: (1) international sources of debt/equity for clean energy projects, (2) fundamentals of certified emissions reductions validation and brokering and; (3) project baseline assessments, monitoring and verification, risk mitigation and other financial considerations within clean energy project development. The intent was to give participants as much practical information as possible to facilitate understanding of the fundamentals of structuring and financing GHG mitigation projects.

LBG/GEP utilized three U.S. based, but internationally recognized practitioners in the field of GHG mitigation project finance, structuring and development and carbon trading, to deliver the training. Their international hands on experience proved invaluable in maximizing the impact of the training.

NEEDS ASSESSMENT FOR TRAINING TASK

One of the preliminary tasks within CLIN 2 was to assess the existing in-country lending practices relating to GHG mitigation projects, and to gauge the knowledge among IFIs about the topic of certified emissions reduction trading. Therefore, a Training Needs Assessment (TNA) of IFIs was conducted by LBG from November 6-11, 2000, with support of financial experts from NATSOURCE LLC, New York City, and Global Financial Solutions, Germantown, Maryland. A final TNA report, with training recommendations and draft training curriculum was submitted to USAID-India on November 29, 2000.

LBG's approach to the TNA focused on identifying major gaps in IFI awareness of existing debt/equity sources of finance for GHG mitigation projects, as well as the opportunities from the newly emerging area of certified emissions reduction trading.

Three broad findings emerged through the meetings:

GHG emission mitigation is not presently addressed within banking lending criteria, and basic environmental risk is assessed on a preliminary level

The majority of IFIs indicated that their sole environmental criterion is whether the loan applicant is considered compliant by the relevant Government of India regulatory authority. As one interviewee described it, their environmental review procedures are "binary" at best, with firms receiving a "0" or "1" with respect to environmental compliance. Although environmental audits are performed, this information is not taken into account during the lending decisions.

Though IFIs expressed some cautious skepticism about the concept of GHG emissions trading, they were keenly interested in the concept and wanted to learn more about the process.

The majority of the IFIs were aware of the potential of trading certified GHG emissions reductions, but they had detailed questions about the process and likelihood of the market. There was special interest in the role of key actors in a transaction, such as auditors, engineering firms and brokers. A couple of institutions identified "east/west" concerns, in that developed countries would be allowed to continue emitting GHG, while the developing countries would be reducing their emissions.

The IFIs were very receptive to GHG training and had specific recommendations on the structure of the training and the most suitable timeframe for conducting training.

The IFIs were almost unanimous in recommending that the IFI training be provided on at different levels covering the project appraisal staff and CEO level representatives differently. These could be conducted at different times during the course of GEP-CCS. Additionally, the timeframe most often recommended was April-May, 2001, to coincide with the end of the fourth financial quarter.

ORGANIZATIONAL PREPARATIONS FOR THE TRAINING

Based on the recommendations from the TNA, and in consultation with USAID-India, it was decided to hold the program over a five-day period, at a campus training facility to encourage more interaction between the attendees. The city of Bangalore was selected as the venue partly due to the fact that many clean energy projects are coming from the region of Southern India. In view of the year ending business it was decided to hold the program during the April timeframe.

The LBG India office contacted over 80 IFIs covering commercial banks, development banks, venture capital funds, insurance companies, training institutions and industry associations involved in project identification and funding. LBG received 54 firm and 14 verbal confirmations from participants. The list of participants and confirmations etc is enclosed in **Appendix I**.

TRAINING TEAM

LBG tapped renowned experts from partner organizations to develop and present the three modules of traditional financing options for clean energy projects, project preparation and emissions trading. Two of the trainers, Mr. O'Connor and Mr. Varilek had attended the November 2000 TNA meetings in India. A third trainer was added, Mr. Moscarella, from Econergy International, to provide training from a project developer's perspective.

The modules and trainers were:

Module I: *Traditional Options for Clean Energy Finance*

Presenter: Mr. Craig O'Connor, Global Financial Solutions

Mr. O'Connor is Executive Director of Global Financial Solutions, a training firm in the area of export finance. He has worked as Director of Strategic Marketing at the US Export Import Bank and also is an adjunct professor on international business and banking at Georgetown University and American University in Washington, D.C. Mr. O'Connor holds a B.A. in Business Administration from University of Missouri and a Master's of Public Administration from American University.

Module II: *Clean Energy Project Development*

Presenter: Mr. John Paul Moscarella, Econergy International Corporation

Mr. Moscarella is co-founder and Executive Vice President of Business Development at Econergy International Corporation (EIC), Boulder, Colorado. EIC is a leading US project developer using carbon-offset types of non-recourse financing. Mr. Moscarella was the project manager in the design of the Prototype Carbon Fund (PCF) for the World Bank, and also participated in the design of the Renewable Energy Efficiency Fund (REEF) for the International Finance Corporation. He has also developed clean energy projects in Central America, Mexico and Brazil. Mr. Moscarella holds MBA from Yale

University School of Management and a BS in Agricultural Engineering from Cornell University.

Module III: *Emissions Trading and Brokering*

Presenter: Mr. Matthew Varilek, NATSOURCE, LLC

Mr. Varilek is employed by NATSOURCE, LLP, a leading institutional energy brokerage negotiating physical and derivatives transactions of electricity, natural gas, coal and emissions permits. He is an analyst within NATSOURCE's Advisory Services Unit, focusing on existing and emerging emissions permit markets. In that capacity, he served as lead author of a study for the Dutch Ministry of Economic Affairs on the design of emissions permits markets. Mr. Varilek holds a B.A in Philosophy and Environmental Technology Policy from Carleton College, Minnesota and a Master's in Economic Development from University of Glasgow, Scotland.

In addition to these experts, staff from LBG Washington, D.C. and New Delhi offices participated in the organization, development and editing of the training modules. These LBG staff included: *Ted Yoder (DC), Erik Brejla (DC), Ron Sisseem (India) and Vinay Deodhar (India)*. LBG staff designed the schedule of activities, moderated the proceedings and gathered the recommendations and findings from the Training Program. A brief coverage of training modules is enclosed in **Appendix II**. In consultation with the course providers, LBG/GEP prepared the training material, which included presentations, cases, articles etc. on the relevant subject. A copy of the course material is attached as **Appendix III**.

PROCEEDINGS AT THE TRAINING PROGRAM



The format for the training changed slightly from the proposed curriculum presented in the November 29, 2000 TNA Report. Due to space constraints at the Dominion Hotel, and because the number of trainees was more manageable, I.B.G determined to keep the trainees together in one room, rather than rotate groups through the 3 modules as initially proposed. This change of approach brought some unexpected benefits.

First, it allowed all of the trainers to be present during the training, thus providing them opportunities to respond to questions, and at times to prompt questions from the audience. Second, it ensured that the audience was fairly represented among development banks, power finance organizations and private banks. This allowed for increased interaction, and benefited the entire group of attendees.

BUSINESS PLAN GROUP CASE STUDIES

As a part of the training on Project Development, the participants were randomly divided into six groups for preparing a Business Plan case study. The purpose of this case study was to make the participants think in terms of a business manager so as to understand the nuances of clean energy development. The groups presented their business plan ideas in brief to the full class, which followed a debate. This enabled the groups in refining their Business Plan ideas. Based on these the groups developed their business plans keeping in mind the general parameters of a clean energy project and crucial techno-commercial issues in developing the project. The Groups selected the following project ideas.

- I. Sugar, power cogeneration, alcohol (for gasohol) Project in Karnataka
- II. Rice husk/biomass gasifier based power generation by an ESCO
- III. 10 MW mini hydroelectric power project in Karnataka
- IV. Power supply to export oriented industrial clusters by an ESCO
- V. Serial mini hydroelectric (5X20 MW) power project for tourist resort
- VI. 10 MW agricultural residue combustion based power plant

The groups made detailed presentations in the first session on the final day of training. These are enclosed in **Appendix IV**.



OUTCOMES OF THE TRAINING PROGRAM

Overall Observations of the Participants:

On the final day of the training, LBG circulated course and module evaluation forms to the participants. The training program was well received by the delegates with 49% of the participants rating the overall program excellent, 49% rated good and 2% fair. Attendees were particularly pleased with the Carbon Trading/Brokering module, with 77% of attendees rating that module as excellent

The majority of participants rated the overall program as good (49%) to excellent (49%)

A summary spreadsheet tabulating all of the participant comments is enclosed in Appendix V.

Specific Comments on Areas of Improvement

Participants recommended inclusion of more Indian cases studies

Participants felt that more Indian cases could have been used. Many of the examples presented by the trainers dealt with regions that have distinct differences from the Indian condition.

Participants also felt that a module on basics of GHG emissions, climate change impacts, UNFCCC, funding mechanisms etc. should have been covered in more detail. Some participants felt that financial analysis for calculating the carbon credits, baselines, and cash flows could have been included. Additionally, while risk analysis was dealt in greater detail, a case study on this could have helped.

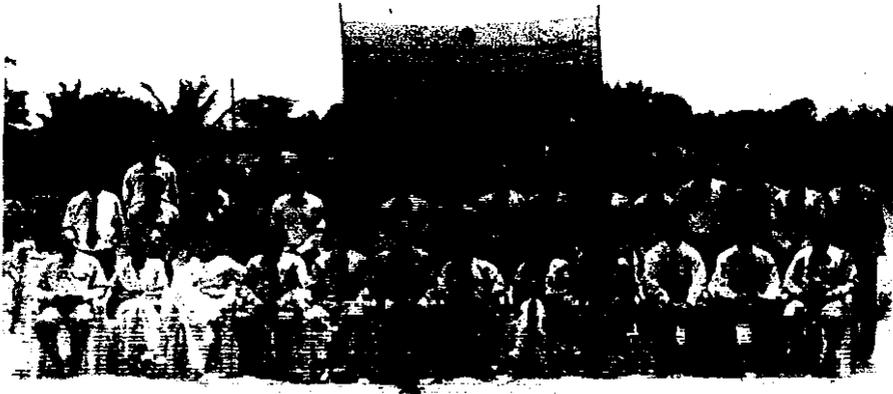
The traditional finance module was review for most and could be scaled back

It was also felt by many participants that less time could have been spent on traditional financing tools for the IFI audience was not required, hence that module could be shortened. It was also felt that a glossary of terms and acronyms could be included in the course material so that the beginners in the climate change topics could grasp the

subject well.

The participants expressed overall satisfaction and were able to discuss their real life experiences with projects that are in their portfolios. It was felt that the training program was conducted at the opportune moment when major developments on the funding mechanism were likely. One of the important outcomes of the training program was the increased capacity of the IFI officers to better capture the opportunities of carbon reduction projects. The training program would enable the IFI officers to add one more option for improving the project structure and viability, which would help both the IFI and the project developer in the longer run.

Attendees increased their capacity to capture carbon reduction benefits



NEXT STEPS / ACTION ON RECOMMENDATIONS

Issue 1: *Reducing the Length of Training*

LBG received substantial comments from attendees and trainers about the length of the training. Five days was deemed too much time for mid and high-level officers to be away from their workplace. This may have played a role in the cancellations of some confirmed attendees.

Recommendation: Compact modules to allow for training within 3 full working days. A tool to gain time within the training might be to schedule a Sunday night orientation, which will permit the trainers to "hit the ground running" on the Monday morning. Another way to address this would be to provide case study material to the participants overnight on the first two days. All of the trainers felt they could cut back their presentations without hurting the scope and quality of the training.

Issue 2: *Editing Back the Traditional Lending Module (I)*

Comments from attendees indicated that they were already well acquainted with topics covered in Module I.

Recommendation: Significantly cut back on background slides in Module I and concentrate more on case study examples of leveraging debt/equity for international energy projects.

Issue 3: *Re-ordering the Sequence of Modules*

The trainers and LBG staff came to a mutual conclusion to re-order the sequence of modules, moving the Carbon Trading/Brokering into the second position and Project Development Finance as a wrap-up. The justification being that the Project Development piece essentially ties together all of the issues of debt/equity sources and carbon trading.

Recommendation: Re-structure the training by moving Carbon Trading/Brokering to the second position and Project Development Finance into the final slot.

Issue 4: *Overlap Between Modules II and III*

The LBG team determined that there appeared to be too much overlap between the Emissions Trading/Brokering Module and Project Development Module.

Recommendation: Concentrate the discussions on the market for emissions, UNFCCC negotiations, baseline assessments etc. within the Emissions Trading Module. This should allow the Project Development Module to concentrate on what potential investors look for in clean energy business plans.

Issue 5: *No Project Developer Case Studies Involving Successful Sales of GHG reductions.*

Attendees wanted to see more case studies of successful project development where a buyer of reductions was identified, and where a transaction occurred. Cases were presented where reductions had been quantified, but the developers are still holding the credits – leading to some skepticism about the viability of ever selling emissions reductions.

Recommendation: Identify and present case studies where emissions were successfully sold to an equity fund buyer or to a private commercial buyer involved in risk management.

Issue 6: *Additional Interactive Exercises*

The mock “business plan” interactive exercise was well received by the attendees, and they developed some thought provoking examples that elicited good back-and-forth between them and the trainers. Additionally, an exercise during Module I to create a “green” fund was also fruitful.

Recommendation: As the exercises proved quite useful interactive learning tools, it would benefit the next training to investigate what other types of exercises could be introduced to encourage discussions.

Issue 7: *More Central Location for Training*

Some attendees felt that the Bangalore training location created an additional logistical burden. With only limited flights servicing Bangalore, the options for reaching the training, or making itinerary changes, were substantially reduced.

Recommendation: Consider placing the next training in a more accessible location, such as New Delhi or Mumbai.

Issue 8: *Inclusion of More Background Material on Greenhouse Gas Mitigation*

Some attendees indicated that additional time on some of the basics of greenhouse mitigation and the types of projects that result in reductions of greenhouse gases would be valuable.

Recommendation: Begin the next training with more framing discussions on the problem of greenhouse gas emissions, the industries most affected, and the current technologies to address emissions.

Issue 9: *More Indian Case Studies Included in Modules*

The attendees were interested in seeing more examples of Indian case studies.

Recommendation: While some Indian examples were included in the Modules, especially Module 1, the training could benefit from focusing more on the Indian condition. Therefore, LBG should work with IFIs and Project Developers to identify relevant and appropriate case studies that could be included in the next training.

Issue 10: Computer Lab Infrastructure Was Inadequate

The attendees found the computer facilities at the training site insufficient to adequately prepare for the business plan presentation.

Recommendation: The next training facility must have at least 3-4 computers available to attendees during the training to allow for preparation of case studies, power point presentations, etc.

Issue 11: Both Mid-week Field Trip and Social Event Were Well Received

Both trainers and trainees found the mid-week field trip to the Reva Electric Car facility to be interesting and relevant. Also, the evening social event, an outdoor barbeque, helped foster camaraderie amongst the trainees.

Recommendation: Continue to include interactive exercises, social events and/or off-site activities in subsequent trainings.

Issue 12: Participation by Large Banks Participants

It was observed in some cases that the intimation about the training program did not reach the decision makers in this regard, especially in case of large size banks in spite of an elaborate effort by LBG/GEP.

Recommendation: Continue contacting with these banks through the staff training colleges of the banks so as to have the desired level of participation.

LBG/GEP could establish such contact with the State Bank of India Staff College, who had not received the intimation from the HRD through their internal channel. LBG/GEP conducted a half-day orientation program for senior officers and faculty at the State Bank of India Staff College in Gurgaon on April 26, 2001. This was facilitated with the help of one of the trainers Mr. Moscarella. The participants at this session were interested in knowing more about the Clean Energy Project Development and the applicability/relevance to their activities.

INVITED ORGANIZATIONS, PARTICIPANTS

CLIN 2: Institutional Strengthening of the Financial Sector
Task 2.C: Report on Training Program for Banks and FIs on
Clean Energy Project Development & Structuring

Appendix I

Organizations Invited for the training program (April 16 – 20, 2001, Bangalore)

	Bank/ Organization	Location
1	Allahabad Bank	Calcutta
2	Andhra Bank	Hyderabad
3	ASSOCHAM	New Delhi
4	Bank of Baroda	Baroda
5	Bank of India	Mumbai
6	Bank of Maharashtra	Pune
7	Bank of Rajasthan Ltd.	Jaipur
8	Bharat Overseas Bank	Chennai
9	Canara Bank	Bangalore
10	Canbank Venture Capital Fund Ltd.	Bangalore
11	Central Bank of India	Mumbai
12	CII	New Delhi
13	Corporation Bank	Mangalore
14	Dena Bank	Mumbai
15	Development Alternatives	New Delhi
16	Exp. Credit & Guarantee Corp. Ltd	Mumbai
17	Export Import Bank of India	Mumbai
18	FICCI	New Delhi
19	General Insurance Corporation of India Ltd.	Mumbai
20	Global Trust Bank	Mumbai
21	HDFC Bank	Mumbai
22	Housing & Urban Develop. Corp. Ltd.	New Delhi
23	ICICI Bank Ltd.	Mumbai
24	ICICI Ltd	Mumbai
25	ICICI Venture Funds Management Co. Ltd.	Bangalore
26	ICRA Advisory Services	Chennai
27	IL & FS Ltd.	Mumbai
28	Indian Bank	Chennai
29	Indian Bank Management Academy	Bangalore
30	Indian Banks Association	Mumbai
31	Indian Banks Association	Mumbai
32	Indian Institute of Management	Bangalore
33	Indian Overseas Bank	Chennai
34	Industrial Development Services	New Delhi
35	Industrial Financial Corporation of India Ltd.	New Delhi
36	Industrial Investment Bank of India Ltd.	Calcutta
37	Infrastructure Development Finance Co. Ltd.	Chennai
38	IREDA Ltd.	New Delhi
39	Jammu & Kashmir Bank Ltd.	Srinagar
40	Karnataka Bank Ltd.	Mangalore
41	Karur Vysya Bank Ltd.	Karur
42	Karnataka Renewable Energy Development Ltd	Bangalore

43	Lal Bahadur Shastri National Academy of Administration	Mussorie
44	Ministry of Environment & Forests	New Delhi
45	Ministry of Power	New Delhi
46	National Housing Bank	New Delhi
47	National Institute of Bank Management	Pune
48	National Insurance Academy	Pune
49	National Stock Exchange Limited	Mumbai
50	Oriental Bank of Commerce	New Delhi
51	PNB Asset Management	New Delhi
52	Power Finance Corporation Ltd.	New Delhi
53	Punjab National Bank	New Delhi
54	Reserve Bank of India	Mumbai
55	Sangli Bank Ltd	Sangli
56	Saraswat Co-op. Bank Ltd	Mumbai
57	SBI Capital Markets Pvt. Ltd.	Mumbai
58	SICOM Limited	Mumbai
59	Small Industries Development Bank of India	New Delhi
60	South Indian Bank Ltd	Trichur
61	Standard Chartered Grindlays Bank Ltd	Mumbai
62	State Bank of Bikaner & Jaipur	Jaipur
63	State Bank of Hyderabad	Hyderabad
64	State Bank of India	Mumbai
65	State Bank of Indore	Indore
66	State Bank of Mysore	Bangalore
67	State Bank of Patiala	Patiala
68	State Bank of Saurashtra	Bhavnagar
69	State Bank of Travancore	Thiruvanthapuram
70	Syndicate Bank	Manipal
71	Tata Finance Ltd.	Mumbai
72	The Stock Exchange, Mumbai	Mumbai
73	UCO Bank	Calcutta
74	Union Bank of India	Mumbai
75	Unit Trust of India	Mumbai
76	United Bank of India	Calcutta
77	UTI Bank Ltd	Mumbai
78	Vijaya Bank	Bangalore
79	Vysya Bank Ltd.	Bangalore

List of persons who attended the program (April 16 – 20, 2001)

Sr. No.	Name
1	Deepak Sharma, ICRA Advisory Services
2	Manish Aggarwal, ICRA Advisory Services
3	S. M. Siddesh, IREDA
4	R. Ganesh, ICICI Bank

5	Bharti Solanky, IDFC
6	Atiyah Curmally, IDFC
7	Rita Chaudhury, FICCI
8	Jaisingh Dhumal, ICICI
9	K. S. Govardhana Rao, Karnataka Bank
10	R. K. Gupta, IDS
11	S. Baskaran, IREDA
12	Manoj K. Sharma, SIDBI
13	Rajesh Shah, UTI Bank
14	S. Siva Kumar, IDBI
15	Tushar Pandey, IL&FS
16	Vijay Joshi, IL&FS
17	Arup Ganguly, ICICI
18	P. Suresh Kumar, Bank of Baroda
19	S. S. Khanolkar, Bank of Baroda
20	D. S. Kenkre, ICICI
21	S. Chandrasekaran, ICICI
22	Avik Mitra, ASSOCHAM
23	Rajiv Saksena, ICICI
24	V. A. Abraham, DA
25	R. S. Johri, PFC
26	Mahesh Motani, PFC
27	M. A. J Jeyaseelan, FICCI
28	Abhijit Rao, ICICI
29	Aji R. Venkatesh
30	D. Naga Raju, Indian Bank Training
31	Faisal Aftab, ICICI Venture
32	Manish Chowdhary, ICICI Venture
33	M. Rajkumar, IREDA
34	Vinayak Mhetras, SICOM
35	R. Gurunath, ITCOT
36	Vamsi R Ravuri, ICICI
37	Abhijit Chatterjee, DA
38	Kuheli Dutt, DA

List of Confirmed Participants who could not attend the program

39	N. Venkateshan, IDBI
40	C. Manohar, ASSOCHAM(KCCI)
41	R. Vishwanathan ASSOCHAM (GMCI)
42	S. Sadgopan, Indian Bank
43	D. L. Subramanian, Indian Bank
44	Vikas Shukla, NIA
45	Narendra Nath, Vyasa Bank

CLIN 2: Institutional Strengthening of the Financial Sector
Task 2.C: Report on Training Program for Banks and FIs on
Clean Energy Project Development & Structuring

A13

46	D. K. Dogra, PTC
47	Khwar Iqbal, CRISIL
48	Madhukar Prabhu, ICICI Bank
49	D. Chattanathan, ICICI Bank
50	CII Representative (T)
51	HUDCO Bangalore representative (T)
52	HUDCO Hyderabad representative (T)
53	HDFC Bank (T)
54	Santosh Kamath, Tata Finance (EM)

Participants at the Training Program at the SBI Staff College, Gurgaon on April 26, 2001

1	Mr. Farooqui, Chief General Manager Principal*
2	R. Sampath Kumar, General Manager, Vice Principal
3	Mahesh Mittal
4	Rajnish Kumar
5	V. Sridharan
6	Ravindra Singh Suri
7	Deepak Chatterjee
8	Prashant Kumar
9	P. K. Malhotra,
10	Ochla Sethi
11	Archana Chaturvedi
12	Sanjiv Chadha
13	J. K. Mathur
14	Vijay Garg

* Confirmed but could not attend due to health reasons

TRAINING MODULES

**CLIN 2: Institutional Strengthening of the Financial Sector
Task 2.C: Report on Training Program for Banks and FIs on
Clean Energy Project Development & Structuring**



Appendix II

**Training Program on Clean Energy Project Development & Structuring
Bangalore (April 16 – 20, 2001)**

Schedule

Monday:

Inaugural Session: Introduction to frame Clean Energy Issues and educate trainees on Role of USAID India GEP-CCS
Introduction by the Instructors, and Participants
Post Lunch: Module I

Tuesday:

Pre Lunch: Module I
Post Lunch: Module II

Wednesday:

Pre Lunch: Module II
Post Lunch: Visit to the Reva Car Company, A clean energy project case study

Thursday:

Whole Day: Module III

Friday: *Common Session*

Presentations by Groups on their Business Plans
Wrap-up of the Training, Conclusions/Lessons Learned
Certificates Award Ceremony

Description of Modules

Module I: Framing the GHG issue within the India context and educating trainees on the role of the USAID India GEP – Climate Change Supplement

Synopsis: This module will help frame the issue by providing a brief background on the global GHG issues, and then more specifically on the planned activities within the US-AID India GEP project.

Topics to be covered:

- 1) Overview of GHG issue and international trends
 - a) India GHG situation
 - b) UNFCCC activities
 - c) Private sector activities on GHG mitigation
- 2) International funds
 - a) Private Sector drivers
- 3) US-AID India activities
 - a) CT/ECO financial services training
 - b) Previous GEP activities
 - c) GEP-CCS Supplement
- 4) Climate Change Centers
 - a) Financial Institution capacity building
 - b) Project Development capacity building
 - c) Goal of financial closure

Module II: Traditional GHG Borrowing/Lending Considerations

Synopsis: GHG project developers and financiers must not rely on carbon reduction markets as their sole financial justification. Rather, GHG projects should first be scrutinized for their fundamental commercial and economic viability on their own. This module will assist FIs and Project Developers with understanding on how to establish the commercial and economic viability for a GHG project, thus laying the groundwork for realizing potential additional revenue from carbon reductions trading.

Topics to be covered:

- 1) Economic rationale for undertaking GHG projects
 - a) Improved power supply
 - b) Reductions in operation costs
 - c) Revenue generation from additional power
 - d) Choice of GHG projects over competing projects
 - e) Collateral required for a GHG project

- 2) International sources of financing GHG projects
 - a) Export Credit Agencies
 - b) Multilateral Development Banks
 - i) Global Environmental Facility
 - c) Environmental equity funds
 - d) Strategic Investors interested in "buying" carbon credits
- 3) Lending criteria and standards for International sources
- 4) Case studies of GHG projects in India
 - a) Solar energy investment (IREDA)
 - b) Super-critical boiler scheme (PFC)
 - c) Co-generation by bagasse (IL&FS)
- 5) Case studies of GHG projects worldwide
 - a) Wind Turbine project (Mexico)
 - b) Energy Efficiency project (Eastern Europe)
 - c) Co-generation project
- 6) Creating Environmental Funds: A role for government
 - a) Poland's system for Environmental Protection
 - b) Colombia's Regional Environmental Fund
 - c) Thailand's EGAT

Module III: GHG Emissions Trading and Markets

Synopsis: Once commercial and economic viability of GHG projects are established, then FIs and project developers can factor in the additional potential values from trading the carbon reductions. Not all GHG projects are alike, however, and certain types of GHG projects will earn government recognition and command market value more easily than others. Therefore, capacity building is necessary to understand how GHG emissions reductions are verified, certified and monetized.

Topics to be covered:

- 1) The concept of environmental commodity trading
 - a) Emissions trading of SO₂ and NO_x
- 2) Global trends in the development of GHG markets
 - a) Status of international negotiations
 - b) National and sub-national legislation
- 3) GHG markets from the India perspective
 - a) No national targets
 - b) Opportunities as sellers of reductions
- 4) Potential seller benefits
 - a) Revenue generation
 - b) Technology transfer
- 5) Case-study project economics scenarios
- 6) Process for securitization and certification of carbon credits

- a) No rules yet but we can project what those might be
 - b) Probable steps for certification
 - i) Project design
 - ii) Validation
 - iii) Registration with host country
 - iv) Implementation/monitoring
 - v) Verification
 - vi) Certification
 - vii) Receipt of credits
 - 7) Monetization Considerations
 - a) Buyer motivations
 - i) Hedge future compliance costs
 - ii) Positive public image (e.g. Shell, BP)
 - b) Marketability considerations for sellers
 - i) Project types vary in carbon reduction justification
 - ii) Projects need credible project baseline
 - iii) Accurate independent monitoring required
 - iv) Seller creditworthiness
 - v) Clear ownership of credits must be determined
 - c) Example of how monetization has occurred
 - i) Transalta-HEW, Fortum-Epcor
 - d) Role of individual market participants
 - i) Project developers
 - ii) Engineers, Accountants
 - iii) Brokers, other intermediaries
 - iv) Government regulators
 - v) Auditors
 - 8) Market Trends
 - a) Liability provisions
 - b) Offer structures
 - i) Immediate
 - ii) Forwards
 - iii) Call options
 - c) Price scenarios
 - 9) Potential Roles for FIs
 - a) Financial backing
 - b) Train/advise project developers
 - c) Aggregate or bundle small scale projects
 - d) Navigate interaction with government
- Integrate potential GHG revenues into project appraisal

COURSE MATERIAL
(Attached Separately)

CLIN 2: Institutional Strengthening of the Financial Sector
Task 2.C: Report on Training Program for Banks and FIs on
Clean Energy Project Development & Structuring



**PRESENTATIONS ON BUSINESS PLANS BY
GROUPS**

**CLIN 2: Institutional Strengthening of the Financial Sector
Task 2.C: Report on Training Program for Banks and FIs on
Clean Energy Project Development & Structuring**



Synergy Sugar and Power Limited

Business Plan

Sponsors

Management Team

- **CEO : Abhijit Rao**
- **Highly experienced team in all functional areas**
- **Key Personnel**
 - M.A.J.Jeyaseelan
 - S.Chandrasekaran
 - R.S.Johri
 - Deepak Kenkre
 - D.Naaga Raju

Sponsors

Existing Operations

- Own a 2,500 tcd sugar mill at Mandya, Karnataka with a distillery of 15 klpd and a 5 MW co-generation facility
- 15 years of operation
- Strong financials
- Performance awards from industry forum

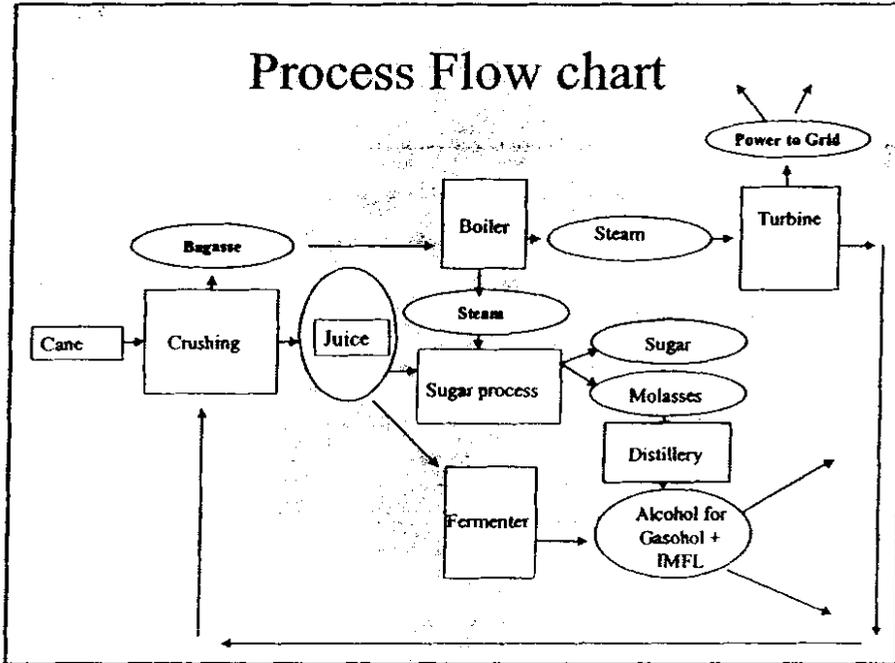
Business Plan

- Expansion of
 - crushing capacity to 5,000 tcd
 - Distillery to 30 klpd
- Setting up of 20 MW co-generation using high pressure boilers and condensing turbines
- Facility for direct alcohol manufacture for blending with petrol (ethanol)
- All facilities at existing location

CLIN 2: Institutional Strengthening of the Financial Sector

Task 2.C: Report on Training Program for Banks and FIs on
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APN Group 1.2



Risk Mitigation

Risk Factors	Assessment (H/M/L)	Mitigation
Sponsor risk	L	Experienced in industry with strong financial resources
Construction risk	L	Experience in sugar and distillery projects for Co-gen Manufacturing for gasohol project
Technology risk	L/M	Proven technology in India for sugar, Co-gen (Low risk) Commercially successful in projects done in India. Support from a Brazilian supplier (Medium risk) Multiple suppliers

CLIN 2: Institutional Strengthening of the Financial Sector

Task 2.C: Report on Training Program for Banks and FIs on Clean Energy Project Development & Structuring

Risk Mitigation

Risk Factors	Assessment (H/M/L)	Mitigation
Operational risk	L/M	Existing business experience (Low) O & M contract for co-gen (Low) Performance warranties for fermentation unit by supplier (Medium)
Fuel Supply risk	L	Abundant availability of sugar cane in command area
Environmental risk	L	Environmental clearances/approvals expected shortly
Policy risk	H	Mandatory gasohol use expected shortly

Risk Mitigation

Risk Factors		(H/M/L)	Mitigation
Market Risk	Sugar	L	Stable market
	Distillery	L	Existing contract with IMFL manufacturers
	Power	L	Sale of credit worthy third party firm PPA
	Fermentation unit	M	Entered into with Petrol distribution companies
Overall Project Risk			

CLIN 2: Institutional Strengthening of the Financial Sector

Task 2 C: Report on Training Program for Banks and FIs on Clean Energy Project Development & Structuring

Value Proposition

- First fully integrated sugar plant in India
- Diversified revenue model
 - Sugar
 - Power
 - Alcohol
 - IMFL
 - Gasohol
- Potential upside – carbon credit
- Project Lock Box : Power and alcohol

Climate Change Initiative

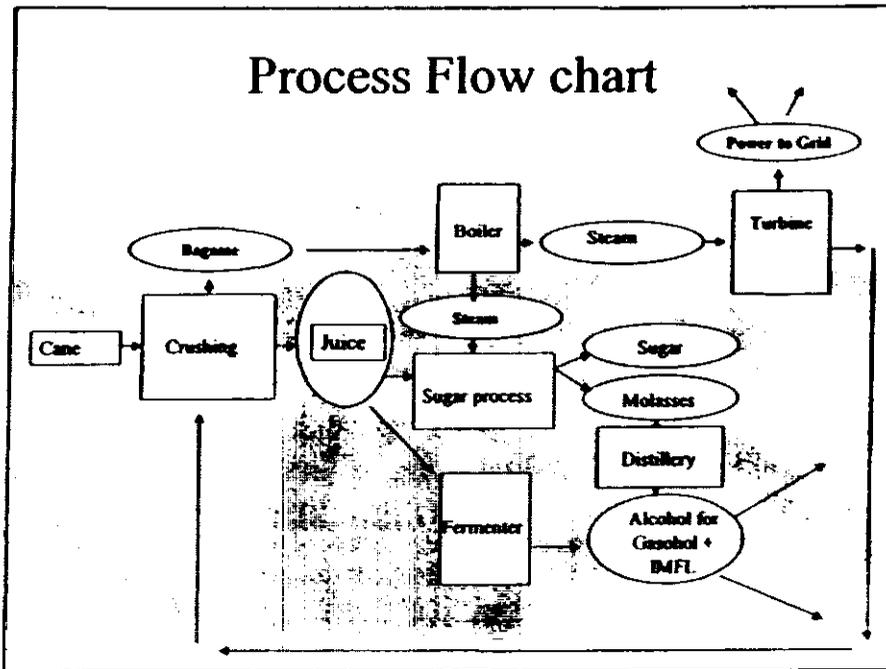
- Co-generation
 - Increased cycle efficiency
 - Carbon sequestration
 - Replace grid power
- Gasohol
 - Replace petrol by 10% blending
 - Less vehicular emission

CLIN 2: Institutional Strengthening of the Financial Sector

Task 2.C: Report on Training Program for Banks and FIs on
Clean Energy Project Development & Structuring

AVG 01

Thank You



CLIN 2: Institutional Strengthening of the Financial Sector

Task 2.C: Report on Training Program for Banks and FIs on Clean Energy Project Development & Structuring

AFS Group 1.4

INESCO Limited

Hyderabad
Presentation on the Business Plan
Group II

Project

- Energy Services Company to supply cooling and power to cold storages and Ice Units
- Power generation with 0.5 MW Biomass Gasifier based power plants using rice husk, bagasse and other available agro-residues
- Cooling system based on Aqua ammonia based absorption chilling system

Technology

- Ankur, Baroda for BG and Thermax for Chilling systems
- BOOT basis projects
- Target Regions: Andhra Pradesh, Tamil Nadu, Karnataka
- Price per plant Rs. 3 million

Project plan

- Equity Capital: 9 Million
 - Debt : 15 Million
 - Carbon Offsets:
 - To be banked in Inesco for trading later
 - Considered Additional
 - Yr 1 2 3 4 5
 - Systems 6 8 11 15 20
 - Turnover 18 24 33 45 60 (Rs. Million)
 - Revenue 8:2 7:3 6:4 5:5 5:5
- Share

Project Risks & Mitigation

- Technology Risks: Both technologies adequately demonstrated in India
- Agro residues Price & Availability: Multi fuel capability and contracts proposed
- Govt Policies: Concept not dependent on grid sale of power
- Host Company policies: To be covered by water tight agreements
- Availability of cheap power: No likelihood

Sharavati Hydro-Electric Power Company Limited

Karnataka
Group III

April 20, 2001

The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development

Sharavati Hydroelectric Power Company Limited

- Project: 10 MW Mini-Hydel power project
- PLF - 35%
- Cost per MW - Rs. 3.5 Crore [Rs. 35 Crore]

April 20, 2001

The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development



SHPCL- Cost of Project (Rs. Cr.)

Land & Bldg.	10.00
Plant & Machinery	15.00
Preliminary & Pre-op	4.50
IDC	3.50
Contingencies	2.00
Total	35.00

April 20, 2001

The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development

SHPCL- Means of Finance (Rs. Cr.)

Equity- Promoters	1.00
- Angel Investor	5.00
- Industrial Consumers	2.00
- Venture Funds	2.50
Loans from FIs	24.50
Total	35.00

April 20, 2001

The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development

SHPCL- Risk Assessment

- **Rehabilitation and Resettlement of local population**
- **Environmental Impact**
- **Market Risk**
- **Fuel Risk (adequacy of water in the catchment area)**
- **Inflation/Exchange rate Risk**

April 20, 2001

The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development

SHPCL- Salient Features

- **Short gestation period - 18 months**
- **Low operating and running costs**
- **PPA with Consumers/SEB finalised and signed**
- **Turbine imported**
- **Grid based transmission to industrial consumers and balance to the grid**

April 20, 2001

The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development



SHPCL- Assumptions

- PLF- 35%; will generate approx. 30 million units
- Selling price assumed @ Rs. 3 per unit and tariff would be governed by IREDA formula
- Interest on loans from FIs has been assumed @ 12% p.a. with 1+5 repayment period

April 20, 2001

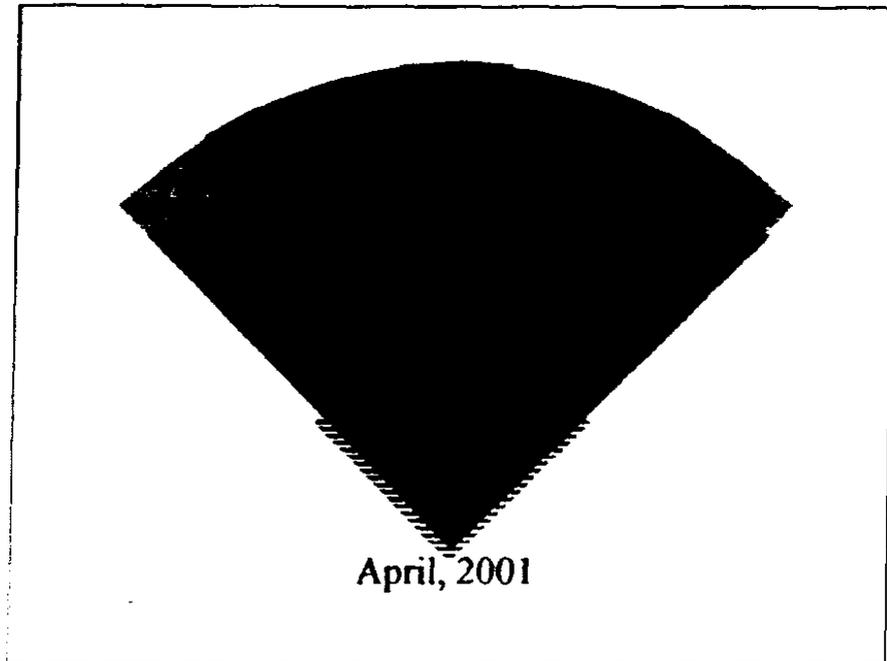
The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development

SHPCL

- Additional benefits of the Carbon Credits @ 1.3 Kg/kWh for small hydel-
For 30 million units, the amount works out to about Rs. 18.8 lakh per annum.

April 20, 2001

The Louis Berger Group, Inc.
Training Program on Clean Energy Project
Development



Our team

- Abhijit Chatterjee, CEO
- Vamsi R Ravuri, Chief Operations
- Vijay Joshi, Chief Policy
- R K Gupta, Chief Technical
- P Suresh Kumar, Chief Technical
- Govardhan Rao , Chief Financial
- Deepak Sharma, Chief Project development



**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

• **Salient Features**

- Newly formed state.
- Tourism likely to be main source of revenue
- Power deficient
- Dependent on national grid for power needs.
- Potential to develop tourism facilities comparable to the best in the world.

**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

• **Usage Industries**

- Aerial Ropeways
 - Ski-Resorts/ Peaks
 - Point to Point linkages along scenic spots
 - Bulk Movement of goods along route
- Power Supply to small and medium scale industries coming up in the vicinity
 - Fruit Processing/ Hotel Industry
 - Education Centres/R&D Institutes
- Any Surplus Power to be delivered to the State Grid

**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

- **Financing Plan**
- **Promoter Base (Equity = 30%)**
 - Mandal Vikas Nigam - 100% subsidiary set up to develop State tourism industry in the state
 - Private Sector International Mass Transit Company
 - Strategic Financial Investors.
- **Debt Sources (70%)**
 - Indian Financial Institutions partly backed by International EXIM Bank (from the country supplying turbines/ropeway technology.

**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

- **Development Pattern**
 - High Income Group People to use the Ropeway/Other Systems hence they have propensity to pay high tariffs
 - Process Industry and R&D centres also need UPS on a critical basis hence can pay high tariffs for reliable UPS system.
 - Financial guarantee from state government since the project is of prime importance.
 - Project IRR for 20 years is 20%.

**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

• **Risk Profile**

- **Environment Risk**

- Mini Hydel Scheme- Prefeasibility studies shows no ecological imbalance.
- No submergance/rehabilitation issues.
- Biological sequestration to be carried out in catchment areas of turbine to prevent occurrence of any landslides.

- **Technology Risk**

- Technology for Turbine and Ropeway Systems from reputed contractor.

**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

• **Risk Profile (Cont'd)**

- **Payment Risk**

- Low since majority supply through direct third party sales- earning high revenues.
- Some end users are part of promoter group.
- Government participation - comfort

- **Performance Risk**

- Technology with performance guarantees.
- Himalayas Tourism is all weather industry.
- Any surplus power bought by the state grid.

**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

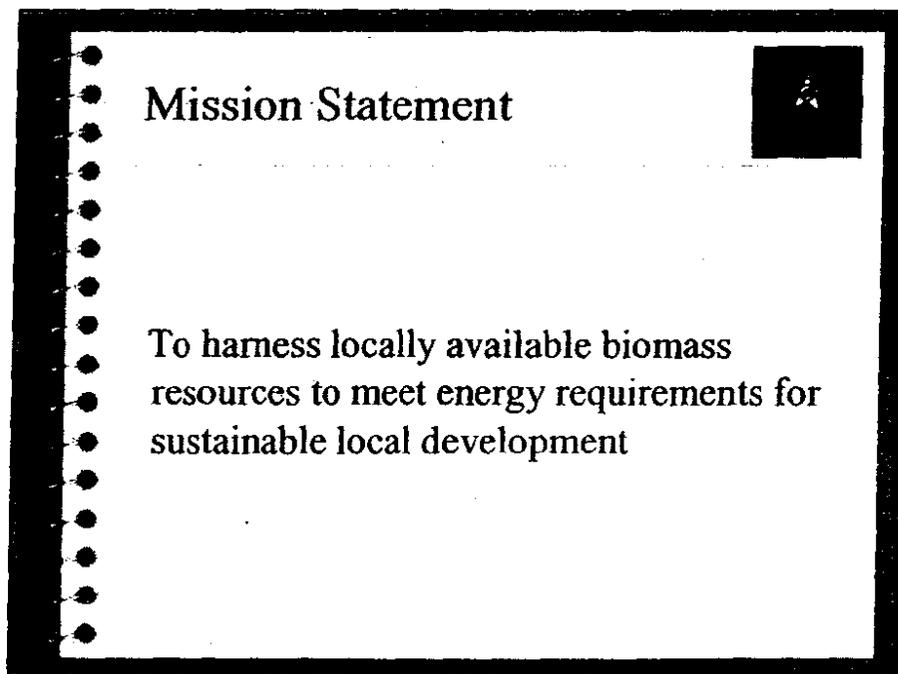
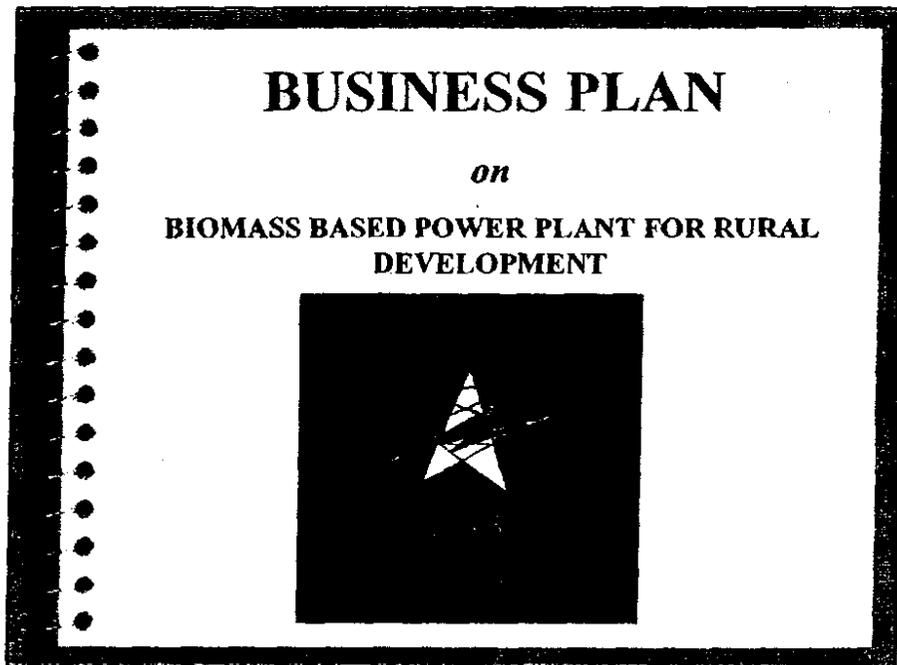
**• Icing on the Cake - Carbon
Credit**

- Project is a clean energy system.
- Replacement of Grid Power that is largely dependent on Inefficient Thermal System.
- High Probability that the project will qualify for carbon credits.
- However, carbon credit is a bonus and not the base salary.

**Sampoorna Swachcha Urja avam
Paryatan Vikas Nigam Ltd.**

(Complete Clean Energy and Tourism Development
Corporation Limited)

Thank You



Project Description

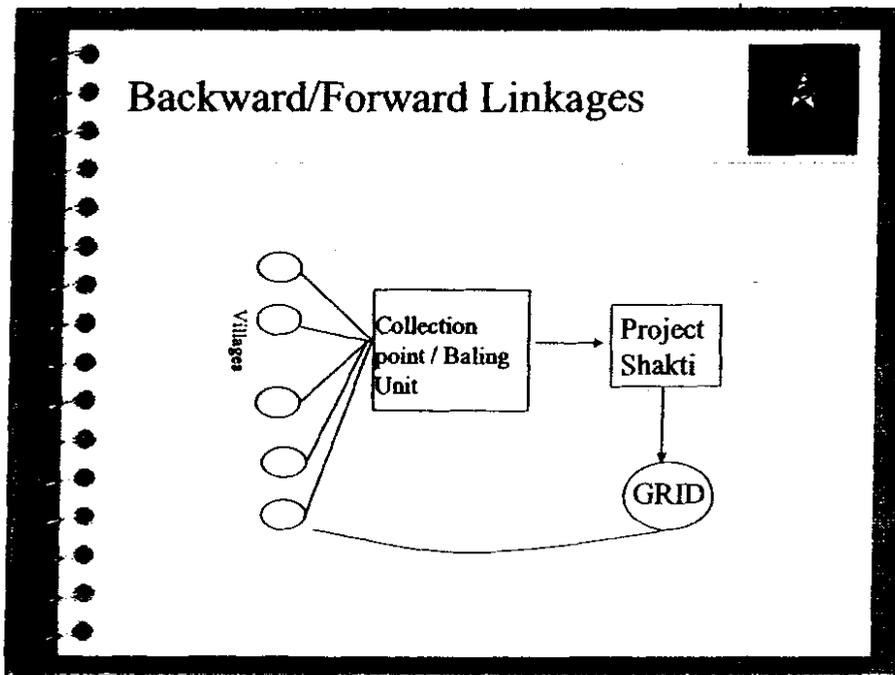
- ↑Size: 10 MW Power Plant
- ↑Coverage: 4 Talukas in Tirunelveli district in Tamil Nadu (400 villages)
- ↑Project Cost: Rs. 24 Crores
- ↑Technology: Direct Combustion

Project Description (contd.)

- ↑Debt-Equity Ratio: 2:1
- ↑Fuel Type: Rice husk, paddy straw, groundnut shells, wood chips, saw dust, etc.
- ↑End-use: Electricity for lighting and irrigation

Rationale

- ↑ Demand-supply gap of electricity
- ↑ Surplus biomass availability
- ↑ Land and Water availability
- ↑ State support



Promoters/Directors

- R Gurunath - CEO & Energy Expert
- R Ganesh - Chief Financial Officer
- Bharti Solanky - Director
- Kuheli Dutt - Director
- Rita Chaudhury - Director

Financing Plan

Equity (Rs. Crore)		Debt (Rs. Crore)	
Farmers' Cooperative	2.0	IREDA	8.0
Village Panchayat	2.0	REC	4.0
Promoter/Director	1.5	ICICI Bank	4.0
Untied	2.5		
Total	8.0		16.0



Risk Perception & Mitigation

Risk	Mitigation
Seasonality	Compatibility of Boiler
Diversion of Biomass for alternate use	Active involvement of village panchayat

Project Summary

☐ Cost Per M.W.	Rs.2.40 crores
☐ Production cost per unit	Rs. 2.25
☐ Sale Price per unit	Rs. 2.50
☐ Pay back period	12 years
☐ Cash Profit	3rd year of operation
☐ Dividend Payment	4th year of operation

SUMMARY OF EVALUATIONS

**CLIN 2: Institutional Strengthening of the Financial Sector
Task 2.C: Report on Training Program for Banks and FIs on
Clean Energy Project Development & Structuring**



APPENDIX V

Training Program for Financial Institutions on Clean Energy Project Development and Structuring

Bangalore, India April 16 - 20, 2001

Summary of evaluations

		Craig	%	JP	%	Matt	%		LBG	%	
Module Content	Excellent	16	52%	12	39%	24	77%	Course Content	Excellent	14	45%
	Good	13	42%	18	58%	7	23%		Good	17	55%
	Fair	2	6%	1	3%		0%		Fair		0%
Material-Content	Excellent	12	39%	13	42%	21	68%	Course Organization	Excellent	16	52%
	Good	20	65%	18	58%	10	32%		Good	15	48%
	Fair		0%		0%		0%		Fair		0%
Material-Cases	Excellent	10	32%	8	26%	12	39%	Course Material-Content	Excellent	16	52%
	Good	20	65%	22	71%	18	58%		Good	15	48%
	Fair	1	3%	1	3%	1	3%		Fair		0%
Overall Rating	Excellent	17	55%	15	48%	24	77%	Course Material-Cases	Excellent	12	39%
	Good	13	42%	15	48%	7	23%		Good	19	61%
	Fair	1	3%	1	3%		0%		Fair		0%
Total evaluations received		31									

Major comments

Most Useful aspects

- 1 Good coverage of funding sources
- 2 Good coverage of Risk Management
- 3 Project Lock box was covered well
- 4 Excellent coverage of Emission Trading market, carbon credit business

Suggested Improvements

- 1 Basics of Climate Change needs to be covered in the beginning
- 2 Glossary/Acronyms need to be spelt out
- 3 More Cases that too from India needed, especially a case on Risk Assessment
- 4 More Group exercises could be added
- 5 Reduce coverage of traditional financing tools for a FI audience
- 6 Quantitive aspects e.g. Financial analysis, cash flow workouts, Monetizing & Securitizing should be in detail
- 7 Prerequisites for setting up ET market should be covered