

USAID, New Delhi

Water and Energy Nexus Project, Phase II: Quarterly Report March 2006

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1. Background

1.1 Summary

The Water and Energy Nexus Project (WENEXA) Project falls under the Indo-US Bilateral Agreement entitled Energy Conservation and Commercialization between the Governments of India and the United States. The Ministry of Power is the authorized nodal agency representing the Government of India within the context of this agreement. The agreement finances various energy conservation initiatives and also includes the USAID Distribution Reform Upgrade Management (DRUM) program that comprises: 1) DRUM technical assistance and demonstration projects; 2) Training Initiative; 3) Rural electrification technical assistance through an agreement with the US Department of Agriculture’s Rural Utility Service (RUS); and, 4) Water and Energy Nexus Activity. The two Governments have organized a DRUM Project Advisory Committee (PAC) to ensure joint coordination of this initiative.

The activities under this project support USAID’s Strategic Objective (SO) 16. Improved Access to Clean Energy and Water in Selected States. Performance indicators associated with this SO include:

1. Number of men and women that have access to improved power supply.
2. Number of men and women with access to sustainable water supply.
3. Number of tons of CO2 avoided.

WENEXA II responds to IR. 16.2

IR 16.2: Improved groundwater management in selected states:

Adoption of energy efficient pumps.

Number of hectares of cropland under improved irrigation techniques.

The WENEXA Project includes the following components and tasks.

Component A: Policy Dialogue

Task 1. Support Development of Energy and Water Co-Management Framework

Task 2. Provision of Central and State Level Programmatic and Institutional Support

Task 3 Support Institutional Arrangements and Capacity Building for Sustainable Water Resources Management in Target Areas

1 Improved power supply is defined by the number of new connections and the increase in hours of electricity supply per day within a defined geographic area.

2 Standard equations will be used to estimate the amount of CO2 avoided through adoption of energy efficient technologies and practices.

3 Use of energy efficient pumps is a key measure for the adoption of technology for improved water-energy management.

4 Adoption of improved irrigation techniques (such as drip or sprinkle) is a key measure for water end-use efficiency.

Component B: Sector Reforms—Site Based Activities

Task 4. Provide Site Based Activities to Enhance Commercial Power Distribution and Sustainable Water Management in Agriculture

Task 5. Support Basin Level Hydrological Information Collection and Analysis in Target Areas

Task 6. Provide Site Based Support to Improve Urban Energy/Water Accessibility, delivery, efficient use, and waste management

Task 7. Support to Improve Water Service Delivery, Reliability and Pollution Reduction in the Industrial Sector

Component C: Customer Service and User Group Participation

Task 8. Develop and Implement a Communication Strategy with the Engagement of Civil Society/Industrial groups to extend and promote water energy concepts and technologies

Task 9. Design of Participatory Models to Improve Local Ownership and Management of Rural Power Distribution

Task 10. Promote Sustainable Water Resources Management through Grass Roots Institutions

1.2 Performance Indicators for 2006

The WENEXA Project responds to the SO Framework, Intermediate Results and Targets and Indicators as provided in the tables below.

2. Task-Specific Activity Highlights

During the January-March 06 Quarter, the Water and Energy Nexus Project focused on the following activity areas:

2.3 Site Based Activity for Groundwater Irrigated Agriculture

- Reconciliation of data from the pumpset inventory, on farm survey, and water and energy user survey
- Development of Project Site area mapping
- Development of implementation approaches for Detail Project Reports for improved irrigation and energy efficiency
- Ascertaining results and lessons learned from pumpset replacement pilot
- Hosted a meeting with USAID, NABARD, and BESCOM
- Hosted a field trip to the WENEXA Pilot site in Doddaballapur for Mr. Arvind Jadav
-

2.4 Site Based Activity for Water Reuse in the Municipal Sector

- Completion of draft Detailed Project Report for Nadi Pila Sewerage Treatment Plant to be financed by Maharashtra Generation Company (MAHAGENCO).
- A membrane treatment demonstration pilot was placed at Nagpur for one month during January.

2.5 Andhra Pradesh Policy Activities

- This activity has been placed on hold due to reduced funding levels for FY 06.

2.6 Task 1. Support Development of Energy and Water Co-Management Framework

- To be based on results of site based initiatives.

2.7 Task 2. Provision of Central and State Level Programmatic and Institutional Support

2.7.1 Joint Meeting of USAID, NABARD and BESCOM in Bangalore February 16, 2006

On February 16, 2006, a joint meeting between USAID, NABARD and BESCOM was hosted in Bangalore. The agricultural and pumpset detailed project reports were presented. Financing option was discussed. BESCOM agreed in principal to financing pumpset replacement through a third party performance contract. It also agreed to finance HVDS upgrades along the two feeder lines of the WENEXA pilot area.

2.7.2 Ministry of Power Joint Secretary Field Visit to WENEXA Field Implementation Site in Doddaballapur

On March 6, 2006, the WENEXA Project arranged a field visit for the Joint Secretary, Ministry of Power, Mr. Arvind Jadav, to visit its site in Doddaballapur. He visited two of the pilot pumpset replacement farms and held discussions with the farmers. He received positive feedback from the farmers on the success with drip irrigation and the amount of water, energy and time savings from this technology and the improved yield increases that result. They also mentioned problems with network voltages that cause difficulties with operations of the energy efficient pumpsets.

2.8 Task 3. Support Institutional Arrangements and Capacity Building for sustainable Water Resources Management in Target Areas

Nothing to report

2.9 Task 4. Provide Site Based Activities to Enhance Commercial Power Distribution and Sustainable Water Management in Agriculture

2.9.1 Baseline Data Reconciliation

In December 2006, the Project began the process of reconciling data collected from IYD on users, IIEC on pumpsets, and UASB on farm practices. During the first quarter of 2006, tied the IIEC pumpsets inventoried with the farmers that were interviewed in the IYD household survey. During this process, IYD linked 653 farm households with the roughly 950 irrigation pumpsets IIEC identified. Survey numbers were collected for each farm plot which was then used as the basis for development of a baseline area project map.

During the course of reconciliation, IYD and IIEC identified roughly 60 farms included in the original IYD household survey that were not connected to Feeders DF 12 and 13 according to IIEC's inventory. Furthermore, the reconciliation identified approximately 185 farm households that were included in the IIEC pumpset inventory and not surveyed by IYD. During this period, IYD conducted on farm surveys of these households to ensure 100% coverage in the user survey of the farm households using the IP sets IIEC's inventory identified. Data in all three surveys was crossed – referenced through the plot survey numbers, linking all three project databases.

2.9.2 Data on Pumpset Replacement Pilot Program

Monitoring and evaluation of the pilot farms that have participated in the pumpset replacement is showing positive results. As of March 31, 2006, these farms had shifted 65 acres, out of a total area under cultivation of 71.5 acres, into drip irrigation. The agreement that the pilot farmers made with WENEXA was to move 50.5 acres into drip irrigation in exchange for the 15 energy efficient pumpsets. The increase in the additional 15 acres represents a 28% increase above and beyond their initial commitment, and that they have moved 90% of their total area under cultivation into drip irrigation.\

The pumpset vendor measured power consumption and water discharge at de-installation and monitored the same from each of the new pumpsets on March 16 2006. The data indicate that, overall, the power consumption for the new pumpsets is 23% less than the power consumption on a wattage basis than the old pumpsets. The discharge rate for the new pumpsets is approximately 2.3% higher overall than the old pumpsets.

2.9.3 Performance Data on Area Shifted to Improved Irrigation Techniques

New of the success of the pumpset pilot is spreading throughout the farming community in the Project area. Hearing about the yield increases that the pilot farmers are experiencing as

2.9.4 Progress towards Performance Targets

As of March 31, 2006, the total area that had shifted into improved irrigation practices at the Doddaballapur site is 82 acres, or 33 hectares. Thus far, 66% of the irrigation practices performance target has been met. IYD has not noticed a trend toward installation of energy efficient pumpset. To date, the performance target for this indicator is nil.

2.10 Task 5. Support Basin Level Hydrological Information Collection and Analysis in Target Areas

The Project obtained baseline watershed maps from the Watershed Department to begin the mapping exercise to support the water balance analysis. A draft scope of work for the activity was completed under contract to IIEC.

2.11 Task 6. Provide Site Based Support To Improve Urban Energy/Water Accessibility, delivery, efficient use, and waste management

Work continues on this task to develop a DPR for the sewerage treatment plant at Nadi Pila and to obtain cost sharing arrangements between MAHAGENCO and Nagpur Municipal Corporation for its construction.

2.12 Task 7. Support to Improve Water Service Delivery, Reliability and Pollution Reduction in the Industrial Sector

This activity has been placed on hold due to a reduced level of funding for FY 2006. A stop work order was issued to CII/GBC and only the updated water consumer survey is to be finalized.

2.13 Task 8. Develop and Implement a Communication Strategy with the Engagement of Civil Society/Industrial groups to extend and promote water energy concepts and technologies

Activities to be initiated post DPR stage.

2.14 Task 9. Design of Participatory Models to Improve Local Ownership and Management of Rural Power Distribution

Activities to be initiated post DPR stage.

2.15 Task 10. Promote Sustainable Water Resources Management through Grass Roots Institutions

Nothing to report

3. Program Plans for Upcoming Quarter Agricultural Site Based Activity

- Financing mechanism for pumpset efficiency DPR
- Financing mechanism for irrigation efficiency DPR

- Initiate water balance analysis
- Design watershed planning approach
- Initiate design of communication and outreach strategy
-

Municipal Site Based Activity

- Finalize DPR

APPENDIX A: MEETINGS, AGENDAS AND PRESENTATIONS

AGENDA

**USAID's Water and Energy Nexus Project
Overview of Investment Projects and Options for Site Based Activities In Doddaballapur Taluk**

Goldfinch Hotel, Senate Hall, 32/3 Crescent Road, High Grounds
Bangalore 560 001
Ph. 080-5129-1300
February 16, 2006

10:00	Coffee/Tea
10:30	Welcome and Opening Remarks - Mr. Chinmaya Acharya, USAID - Mr. S. Padmanaban, USAID - Dr. K. G. Karmakar, Executive Director, National Bank for Agriculture and Rural Development (NABARD) - Mr G Kumar Naik MD, Managing Director, Bangalore Electricity Supply Company Ltd. (BESCOM)
11:00	Introduction of WENEXA Agricultural Site Based Activities and Overview of Agricultural Detail Project Report Results (Barbara Britton, WENEXA/PA Consulting)
11:20	Financing Issues for Energy Efficiency Improvements (Mr. Sanjay Dube, WENEXA/IIEC)
12:00	Discussion
12:30	Lunch
13:00	Depart for Doddaballapur
14:30	Farm Site Visit: Overview of Pumpset Replacement Pilot Results and Findings to Date (Sanjay Dube IIEC) Overview of NGO presence in Project Site Area (Mr. Shamsuddeen, IYD)/Visit to One Farm Site
15:30	Depart for Bangalore

LISTS OF INVITEES

USAID's Water and Energy Nexus Project
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Doddaballapur Taluk, Bangalore Rural District, Karnataka
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February 16, 2006
10:30-1700

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AGENDA

USAID's Water and Energy Nexus Project
Field Visit: Site Based Activity in Groundwater Irrigation Agriculture
Doddaballapur Taluk, Bangalore Rural District, Karnataka

March 6, 2006

14:00-16:45

14:00 Depart for Doddaballapur: Meeting Point BESCOM Office

15:30 Arrive at WENEXA's Doddaballapur Field Office

15:45 Depart for Farm Site # 1, Basav Raj, Chikarayappanahalli, DF-13: Briefing on field implementation, Barbara Britton (PA) and Sanjay Dube (IIEC)

16:15 Depart for Farm Site #2, Kempanna, Melkote, DF-13

17:00 Depart for Bangalore

ATTENDEES

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PA CONSULTING GROUP

WENEXA TECHNICAL REVIEW MEETING NO. 2

TASK 6. SITE BASED SUPPORT TO IMPROVE URBAN ENERGY/WATER

ACCESSIBILITY, DELIVERY, EFFICIENT USE, AND WASTE MANAGEMENT

**Location: Pride Hotel, Meeting Room, Nagpur
Friday, February 10, 2005
DRAFT AGENDA**

WENEXA Team Technical Review Meeting

10:00 - 10:10	WENEXA Overall Introduction, Barbara Britton, PA Consulting
10:10 - 10:20	Task 6 overview and status, Amit Dalal, PA Consulting
10:20 - 11:00	Overall Project/Process Flow Diagram and summary costing, Dinesh Rathi, DRA
11:00 - 12:15	Open discussion on Policy draft, proposed standard and project report issues, All participants
12:15 - 12:30	Next Steps and wrap up
12:30 - 1:30	Lunch (at Pride Hotel)

Participants

- I. WENEXA Technical Review Meeting (8 persons)
 1. Chinmaya Acharya, USAID/New Delhi
 2. Barbara Britton, WENEXA Project
 3. Amit Dalal, PA Consulting
 4. Arun Kumar, PA Consulting
 5. Dinesh Rathi, DRA
 6. Prakash Urade, Executive Engineer, NMC (invited)
 7. Pampanwar, MahaGenco (invited)- Tentative