

**Policy Elements / Next Steps
for Successful and Scaled
Community Pico/Micro Hydro in Northeast India**

*Based on discussions at "Community Micro Hydro in Northeast India: Challenges and Opportunities"
Workshop in Dimapur, Nagaland on May 8-9, 2014*

A. Robust Implementation: Innovative Technology and Extensive Capacity Building

1. Technical **development and standards**, especially for components with frequent failures:
 - a. Electronic load controller - affordable, reliable, and locally serviceable.
 - b. Electro-mechanical system, e.g. turbine selection, design, quality, and servicing.
 - c. Civil structures design to endure floods and landslides.
2. Development of **technology to enable better governance and ensure longer-life** of projects:
 - a. Technical demo of cost-effective grid-connected projects to ensure continuity after national grid extension of 100kW or less.
 - b. Technical demo of interconnected mini-grid projects that share resources, increasing load diversity.
 - c. R&D for information-based technical solutions for community-based load management.
3. **Stage-wise, technical capacity building** at all levels, integrated with project implementation in the Northeast, in order to build an eco-system for pico and micro hydro work in the northeast.
 - a. Identify and/or establish 20-25 local practitioner teams within Northeast India (from government, private, academic, or community institutions) with appropriate skill sets and technical background to serve as *local project developers, post-commission service teams, and trainers of local operators*.
 - b. Identify 2-3 well-experienced micro hydro developers who have excelled in *local capacity building for hilly regions*, within India or from neighboring countries,
 - c. Train the practitioner teams to conduct accurate regional feasibility studies, documenting each northeastern state's viable pico and micro hydro sites.
 - d. Through the reliable feasibility studies, identify 100 projects feasible for pico and micro hydro.
 - e. Train the practitioner teams to develop DPRs for each of the 100 projects, including the study of crucial social and watershed aspects to design for long-term sustainability.
 - f. Identify and/or establish 10 regional fabrication centers that can be trained to fabricate the hardware for the 100 projects.
 - g. Develop training modules and personnel to train the practitioner teams, fabrication centers, local operators, village electricity committees, and end-users.

B. Sustainable Integration: Community , Environment, and Productive Use

1. Community
 - a. Develop a "lessons-learned " **document** on **what community factors have impacted** (and have been impacted by) the sustainability of pico and micro hydro projects in the Northeast.

- b. In all capacity building and implementation efforts, include a focus on understanding **how to strengthen the "community"** in these projects: social structure, culture, development needs, history of community and place, baseline socioeconomic surveys, and land tenure.
 - c. Convene community, ecological, technical, and policy experts of the Northeast to **develop an agreed upon community governance process and sensitizing training modules** for hydro developers.
2. Environment
- a. Develop a "lessons-learned " document on what **environmental factors** have impacted (and have been impacted by) the sustainability of pico and micro hydro projects in the Northeast.
 - b. In all capacity building and implementation efforts, include a focus on **strengthening the watershed / catchment area** for each pico and micro hydro project.
 - c. Convene community, ecological, technical, and policy experts of the Northeast to **develop an agreed upon EIA process** for pico and micro hydro.
3. Productive Use / Income Generation
- a. **Integration with existing government program** for livelihoods and communitization.
 - b. Innovation in developing **appropriate productive use applications** for the rural poor, e.g. mini rice huller and oil mill.
 - c. **Seed funding, exposure visits, and training** for electricity-based, agro-processing and other income generating local livelihoods activities.

C. Planning for Success and Scalability: Financing, Advocacy, Human Resources

1. Policy and funding mechanisms for above listed suggestions.
2. Develop **least time-consuming yet high-accountability processes** to award project funds, within existing policy supporting pico and micro hydro work.
 - a. Understand what current processes are currently stalling project development.
 - b. Understand what gaps in the current processes are leading to low quality and failure-prone projects.
3. Understand obstacles to finding and **retaining skilled human resource** rural pico/micro hydro work and develop policy mechanisms to alleviate the issues.
 - a. Resources for appropriate salary increase and desired training programs for high performance staff.
 - b. Develop skills of minimally-educated youth workforce already living near micro hydro sites.
4. Conduct **a series of dialogues** with state government energy development agencies (EDAs), community groups, and private developer to understand financial constraints for policy modifications. Obstacles identified thus far are:
 - a. Per kW funding policy requires a need for "gap funding".
 - b. Community and private developers are not able to access projects funds.