

# Chapter 4

## Operational Requirement for a Sustainable RE Initiatives

September 2015

**This chapter should be cited as**

ERIA (2015), 'Operational Requirement for a Sustainable RE Initiatives', in Kudo, Y. and V. Anbumozhi (eds.), *Selecting the Best Mix of Renewable and Conventional Energy Sources for Asian Communities*. ERIA Research Project Report 2014-26, Jakarta: ERIA, pp.61-64.

## CHAPTER 4

### Operational Requirement for a Sustainable RE Initiatives

#### 4.1. Operation and Maintenance of the Initiatives

Most RE projects in the EAS region are more useful for isolated areas, yet the availability of expert human resources for their maintenance and operation may not be readily available. Hence, it is necessary that off-grid energy projects are backed up by an institutional mechanism that could result in capacity building. Also, community participation plays a vital role in the success of community-based power projects. A greater level of public acceptance of RE projects increases the chances of success of modern RE technologies.

Some of the steps that can increase public participation are (i) provision of potential employment opportunities and monetary reward for people living in project areas, (ii) increasing fuel security through the use of local energy resources, (iii) increasing financial benefits for community investing in RE projects, (iv) increasing the rate of RE generation for maximising social benefits, and (v) improving the overall living standard of the local people. One of the most attractive benefits for community members could be their share in an RE project that earns a good return on their investment. For example, a wind farm project in India could potentially yield a return on investment of about 10 percent per annum and may be an attractive energy option for the local community's use.

While at the initial stage of the project, experts and managers need to be arranged by the project proponent. In the long run, most off-grid community RE projects can already be sustained and operated with the help of local expertise, knowledge, experience, public relations, and financing skills. For example, the Bagepalli Biogas Project in Karnataka, India became a successful venture because each household used the dung of its cattle to feed the digester to produce biogas for cooking—with the aim of replacing inefficient wood-fired stoves. Similarly, a micro hydropower project in Udmaroo in Jammu and Kashmir State is an example of a sustainable community-based RE project, as reviewed in the 2013–2014 phase of this project. Every villager here is a member of an electricity management committee

although the social and technical governance of the system is the responsibility of the elected body of the six villages.

It is often observed that RE projects managed by private companies or cooperatives are more successful than projects handled by government organisations. The main reason for this could be that the private players recognise the role of local stakeholders in the operation of the project. For example, in wind energy project installations, stakeholders can be employed as staff—consisting of community members, local contractors, and others. It is very important to include community members as stakeholders because it creates a sense of ownership and assigns on them the responsibility to take care of their projects. The socioeconomic conditions and paying capacity of the local people also need to be assessed beforehand, and such capacity can be further enhanced if the project generates employment and income for the community. Increased awareness will increase the acceptability of the project and regular training of local people also creates local expertise to take care of the project without or a little help from the project proponents.

An energy mix can be called sustainable if it creates livelihood opportunities for the local community and, thus, help in reducing poverty within the community. Such projects raise the economic levels of households—through the delivery of energy services that meet their cooking and lighting needs, and for their commercial activities, thus, improving the quality of life of community members.

Some common concerns that need to be addressed in community-based projects are aesthetics, air pollution, and noise impacts. However, most of the community concerns can be tackled by organising face-to-face meetings to discuss energy problems and choices, provide them with information on benefits of RE, and extend available expertise and technology in the area. Negative impacts of RE project can be minimised by careful planning and use of modern technologies. Such steps will help in bringing a consensus on the RE projects and increase the possibility of their sustainability.

Thus, (i) increasing awareness, (ii) involvement of local stakeholders, (iii) creation of livelihood and employment for income generation, (iv) institutional and capacity building, and (v) improvement in living standards of the local people are some of the major criteria that can be kept in mind in selecting the best energy mix at the community level.

## 4.2. Key Social Factors to Ensure Sustainability

An enabling environment is required to ensure the success and sustainability of a rural energy project. Successful case studies identified some common denominators—highlighting the key social factors—to achieving the desired outcomes. The important prerequisites are as follows:

- Local community involvement
  - Engage the community members as early as possible and involve them in all stages of the project cycle.
  - Understand and respect cultural nuances.
  - Foster community ownership.
- Provision of capacity-building and training activities
  - Create awareness on the general aspects of the project such as policy, technology, financing, project impacts, costs and benefits, and others.
  - Provide targeted training for all stakeholders on their respective roles in the project.
  - Link up with local schools and other government agencies to sustain the training program.
- Job-creation opportunities
  - Job creation is not limited to those generated by the project but also includes new opportunities brought about by energy access.
  - Create awareness about new goods and services that can be developed and provided with energy access.
  - Provide trainings that develop skills to harness the opportunities brought about by energy access.
- Effective communication strategy
  - Customise communications for different levels and roles of stakeholders.
  - Messages should be in the language that stakeholders understand.
  - Utilise behaviour change communication<sup>1</sup>—material and process tools should be customised recognising literacy, knowledge, and attitude of segments of specific customers and/or stakeholders.

The ASEAN Centre for Energy and the GIZ's ASEAN Guideline on Off-Grid Rural Electrification Approaches (ASEAN, 2013) listed complementary and practical suggestions on six aspects, namely (i) policy framework, (ii) financing mechanism, (iii) business models, (iv) technology, (v) community involvement, and (vi) training and capacity building in the form of 'DOs' and 'DON'Ts'. The social factors that are covered in this section are related to community

---

<sup>1</sup> It is an approach that believes that through the strategic use of communication based on proven theories of behaviour change, individuals and communities can be convinced to adopt practices that will positively impact their lives.

involvement and training and capacity building, as summarised below:

#### **DOs**

- Involve the local community as much as possible in all stages of the project cycle.
- Use participatory approaches when working with the local community.
- Keep the community organisation small and functional during project implementation.
- Make sure that women are represented and involved in project planning.
- Give support to communities to develop a suitable management setup for the project.
- Establish a common guideline for monitoring and evaluating projects.
- Conduct an adequate capacity-building needs assessment at the beginning of the activity.
- Earmark sufficient resources for continuous capacity building and training measures during the whole project cycle.
- Carry out a comprehensive training on power plant operation, maintenance, and business management, as a standard.
- Utilise, whenever possible, local training institutions.
- Use the capacity building and training materials that have been specifically adapted to the project context and translated into the local language.
- Pay particular attention to capacity-building measures for the local community.
- Evaluate trainings.

#### **DON'Ts**

- Do not allow misunderstanding and mistrust amongst the villagers.
- Do not neglect the social safeguards and environmental impacts of a project.
- Do not rely on a single training course, especially at the start of the project.