COMMUNITY GOVERNANCE & ENERGY

FEATURES

Transformative Participation in Community Micro Hydro: Gram Vikas’ Micro Hydro Projects

Good Governance: Key to Sustainability of Community Managed Micro Hydro Power Plants in Nepal

An Analysis of the Renewable Energy Policy in Pakistan


South Asia Electronic Forum Discussion

COLUMNS

Editorial

Events

Call for Papers
In this January 2010 issue, the e-net magazine focuses on community governance issues relating to energy access for the poor. Although the energy needs in less urbanised communities are low, energy access mechanisms are complex and diverse as are the systems required to meet them. Local conditions sometimes suggest that the decentralised approach is preferred but success stories in the decentralised approach are few and far between due to the issues being more complex and not adequately understood by both policy makers and project implementers. Community governance has an important role to play in the sustainability and effectiveness of infrastructure and energy service delivery. Communities need to be involved in energy project planning, implementation and management and their inputs need to be considered during policy development. Community mobilisation, inclusion, capacity building, and conflict resolution are vital project processes especially in a region as diverse as South Asia and these must be built into project processes. There is also inadequate discussion and debate of aspects of community governance mechanisms. This issue of e-net thus addresses this neglected aspect of energy access.

The core principles of governance - participation, transparency and accountability - are often lacking both at the micro implementation level and at the macro policy making level. Articles featured in this issue look at community governance in energy from both these levels. Articles from India and Nepal look at the role of community governance in running micro hydro plants. From a macro perspective the magazine offers readers insights into the policies and perspectives regarding Sri Lanka and Pakistan’s energy policies and community participation in decision making.

A feature common across the South Asian region is the focus on large scale energy solutions. This could be because of inadequate information, knowledge and wisdom about community processes. There is an urgent need to invest time, effort and money in understanding community processes / governance systems and to thus create a level playing field for different energy access mechanisms for the marginalised. Communities need to have avenues to voice their opinion, share their experiences and make sure that their views and concerns influence decision makers and policy makers. This has been highlighted in the articles contained in this issue. So has the success on the ground of community run energy initiatives.

The South Asia Electronic forum held an e-discussion in October / November 2009 on Climate Change and Bioenergy as part of e-net’s initiative to promote collaboration and the sharing of experiences in the South Asian region. A summary of the discussion is featured in this issue.
Gram Vikas (GV) is a rural development organisation, working since 1979 with marginalised communities in Orissa, India towards making sustainable improvements in their quality of life. The organisation has implemented various interventions in over 800 villages throughout Orissa. With support from the Swiss Agency for Development and Cooperation (SDC) and the French Environment and Energy Management Agency (ADEME), Gram Vikas has implemented 4 micro hydro projects (10 - 30 kW using a Pelton or PAT\(^1\) system) in Kalahandi District, Orissa. This article summarises the challenges and solutions that have led Gram Vikas to its current approach to community based micro hydro. It highlights the community empowerment which goes hand in hand with increased community ownership, skills and leadership in such initiatives.

Since embarking on its first project 6 years ago, GV has learned invaluable lessons in implementing successful community based micro hydro projects. The organisation has seen first-hand how decentralised technology cannot be sustained in poor communities, unless the hardware and technical expertise is localised and community members are involved in all phases of implementation. With this independence comes new found confidence within the community to organise themselves, delegate responsibilities and tackle problems collectively. Having modified its original approach based on the analysis of its earlier projects, GV has proven to be remarkably self-critical and flexible, resulting in drastic improvements in the field. GV's more recent projects show how the process of anchoring the implementation locally can trigger transformative participation that lives far beyond one project.

### Challenge 1: Over-dependence on NGO Staff

Socio-technical challenges in GV's earliest micro hydro projects occurred due to over-dependence on GV staff. This prevented the community from establishing genuine leadership during project implementation. There was always a GV supervisor, project engineer, barefoot engineer, and mason living in the village in order to make certain that the project was being implemented properly. Although GV had given serious thought prior to implementation on how to facilitate community participation, in hindsight GV saw that the field staff's excessive presence undermined the role of the community. For instance, the community never held meetings on its own since it always anticipated that the GV supervisor would organise meetings. Collecting the monthly tariff and resolving disputes were also always processes led by GV staff. On the technical side, the designated village operators could not troubleshoot the system without the GV barefoot engineer. These gaps in community participation and capacity surfaced only after the projects were commissioned, when the staff left the village due to repeatedly acquiring Kalahandi's infamous malaria. The over-dependence on GV staff also meant that once staff left the organisation they took with them valuable technical experiences which could improve future projects. For example, the GV engineer in the first project did not remain for the next project. Therefore, the engineer in charge of the penstock work in the second project faced the same implementation obstacles as in the first project.

### Solution: Transformation of Community Youth

In hindsight, GV realised that staff-driven implementation had led to unsustained community participation and that the implementation needed to be anchored with those who would directly benefit from the micro hydro scheme and with those who were committed to staying in the village. Therefore, in its third project, GV gradually delegated all village level project construction coordination to the natural leaders.

---

\(^1\)PAT – pump-as-turbine
Local experts installing turbine housing with help from the youth group

of the community. With the help of Practical Action\textsuperscript{2} and the Renewable Energy Development Company (REDCO)\textsuperscript{3}, GV first taught technically inclined members of the community how to build transmission line poles and initiate brick-making for the powerhouse. These initial tasks served as warm-up exercises for the community to identify its natural project leaders. Much to GV's surprise, it was the community youth (15 - 30 years of age) who stood out as the natural leaders needed for successful implementation. As it saw the increasing interest of the youth, GV facilitated them to self-manage the field level implementation activities - corpus fund collection, labour contribution, procuring raw materials for civil works, fabricating poles, installing the transmission line, and wiring houses. GV coordinated tasks only when it was absolutely necessary, for example when making payments to masons and arranging vehicles. Now in the post-commissioned phase, the youth leaders are actively sustaining the project, which involves tariff collection, powerhouse operation and maintenance, planning livelihoods activities, and managing labour contributions for system maintenance. This type of community drive is strikingly different from that of the earlier projects, where the operation of the micro hydro plant was often stopped due to the lack of community participation in maintaining the system.

Challenge 2: Over-dependence on External Developers

Additional technical challenges in GV's first micro hydro project occurred primarily due to over-dependence on external developers based in far away cities. The first project was severely delayed due to the developer over-designing the system and repeatedly delaying the delivery of the hardware. Over time, the delays dampened the enthusiasm of the community and made it difficult for the village committee to lead the project. A few months after the system was commissioned, socio-technical issues resulted in the technical failure of the system. As GV hired another developer to repair the system, it became apparent that the system was poorly fabricated. In addition, the developers of GV's earlier projects paid little attention to items that were crucial to the life of the hardware: presence of thoroughly trained operators, availability of spare parts, practical documentation, and routine follow-up during the initial days of running the system. With their business heavy in various parts of India, the outside developers carried little commitment to return to rural Orissa in order to address the technical failures.

Solution: Transformation of Local Workshops

In its third project, with support from Practical Action and REDCO, Gram Vikas was able to facilitate fabrication of the turbine assembly with local machinists in a town 40km away from the village. Similarly, the induction generator for the system was also prepared by a trained local motor expert. Since the commissioning of the project in November 2008, these local experts have provided prompt servicing and successful troubleshooting, not only for the third project but also for the earlier projects. In addition to valuing micro hydro for its business, the local experts have developed a special pride in learning the new skills required for turbine fabrication and using them to serve underprivileged communities in their own district. An added incentive for GV to fabricate locally has been cost savings of nearly 30%. GV's effort in training the local fabricators has indeed been a better investment than its previous efforts in pleading outside developers to remain committed to projects for the poor.

Results of the Modified Approach

At the core of GV's modified approach is the identification of the strengths of genuine stakeholders and empowering them to implement and sustain the project. GV learned that end-users have a greater stake than staff in sustaining community technology. Similarly, trained local fabricators have a greater stake in producing reliable technology than suppliers based in Delhi. The results of the new approach are promising. Socially, a team

\textsuperscript{2}Practical Action is an international NGO focused on community based technology (www.practicalaction.org).

\textsuperscript{3}REDCO is a private consultancy based in Sri Lanka (www.redcoenergy.com).
of youth is sustaining their own system and are also now training youth in other villages with micro hydro schemes. Economically, local fabrication has reduced hardware costs and increased hardware quality. Having experts nearby has also decreased the response time in troubleshooting minor issues. The overall effect has been that the systems work with significantly less social and technical interruptions than in the earlier projects.

**Stronger Community Voice**

From a broader perspective, the successfully running systems have become a bargaining tool for the community to speak for its own rights. Because the new system works without interruptions, the lights have attracted much attention, including that of high-level government officials. The District Collector (the highest ranking district officer) made a point to personally visit the new project. The visit gave the community an opportunity to share other rural issues with the Collector. Likewise, the successful system has motivated the village system to stand up against a wealthy landowner, who had contributed no labour or corpus towards the project. The youth leadership has maintained that until the landlord pays the equivalent of his share of labour he will not receive an electricity connection.

**Enhanced Approach of External Developers**

The transformation of the youth and the local technical experts have enhanced the views of prominent micro hydro developers in India who now believe (1) that some technology can be locally fabricated and (2) that it is worth establishing local experts. These developers are now continuing the training of the local machine shops, which had been started by Practical Action and REDCO. The developers, who because of their small number had inadvertently held a monopoly in quality micro hydro hardware in India, are now ironically engaged in mentoring the local youth and the local technical experts to form a social entrepreneurial group that professionally implements micro hydro and other rural energy applications. Hence, in addition to bringing light, micro hydro has created new value for undermined local workshops and dignity for unemployed rural youth.

**Next Step: Transformation of Government and Donor Agencies**

Having seen transformation at various levels - community, youth, GV, local technicians, and developers - my wish is now to see a transformation amongst the government and foreign aid agencies who are tasked with triggering renewable energy development in rural India. The success and experiences of community managed energy initiatives need to be taken into consideration when formulating policies. Government agencies, such as the Orissa Renewable Energy Development Agency (OREDA), need to review their policies in village selection and subsidy allocation for main grid connection versus decentralised renewable energy.

Foreign aid agencies are in the best position to influence their NGO partners to take on the primary role of facilitation rather than direct implementation. The aid agencies can also help NGOs look towards government resources for capital costs, so that private funds can be spent on scaling up innovative and practical training, in order for more communities to benefit from high quality, localised technology.

The ideal vision is to establish local implementing social entrepreneurs in various rural regions, and to finally form a support network - consisting of NGOs, government, aid agencies, local fabricators, community youth, and end-users - to make certain that all rural energy interventions are successful. Building the capacity of the communities to take-over and run the projects themselves should be part of all development initiatives. With this increased capacity comes an empowerment within the community to lead themselves, take on responsibilities and effectively communicate their needs to relevant authorities.

Dipti Vaghela is a practitioner of community based renewable energy in India.

E-mail: diptimv@gmail.com
Micro hydro technology has an enormous potential to meet the energy requirements of isolated settlements in the mountains and hills of Nepal while good governance in its management can ensure sustainability and increase energy access to the poor. This article attempts to highlight some findings of a study conducted by Practical Action in the year 2006 on governance aspects of 10 decentralised community based micro hydro power plants (MHPs) in Nepal. The study was aimed at identifying the critical factors that contribute to the sustainability of community managed MHPs and the areas of sustainability improvement in existing governance practices.

Introduction

Nepal has enormous potential for generating hydro-electricity due to its dense network of perennial rivers with variant gradients. Hydropower and the available technologies and capacities that can generate electricity have emerged as a powerful regime in promoting development processes in the country. However, the current discourse on hydropower technology development and water resource management in Nepal appear challenging as they have not really coherently addressed the community needs - the focus remains on ‘power from water’ rather than ‘power for the people’ (Regmi, 2004).

The scattered and isolated nature of settlements in the hills and mountains has promoted the concept of decentralised micro hydro electricity development - catering to local needs at relatively low costs. The ownership of MHPs in Nepal is classified into 2 categories - private and community owned. The share of community managed micro hydro power plants (CMMHPs) is around 30% of the total MHPs. So far, 1,885 mini and micro hydro power schemes (including peltric-sets) have been installed for rural electrification from 1962 to 2007 with a generated power capacity of 26,853 kW (ESAP/AEPC, 2007). Recently the installation of CMMHPs has been comparatively higher than that of private MHPs. Although, the rate of installation of such plants is inspiring, the functional status of such schemes remains questionable.

A study carried out by Hydro Consult Pvt. Ltd. (covering 64 MHPs in Nepal) indicated that technical failure due to poor design, sub-standard construction and improper operational and maintenance practices are the main contributing factors for a high rate of failure. These failures could be attributed to the inadequate understanding of the interface between the technology and the operating environment, including issues of good governance. Taking this into purview, Practical Action Nepal1 undertook a study in 2006 detailing the issues of sustainability of community owned micro hydro power plants.

Study Objectives and Methods

The objective of the study was to identify critical factors that contribute to the sustainability of MHPs and identify areas of improvement in existing governance practices in community managed MHPs for achieving sustainability. The specific objectives of this study included:

- Assessment of the governance system of the existing CMMHPs in the light of community participation, empowerment, gender and social inclusion, financial accountability and transparency, efficient and equitable distribution and productive utilisation of generated power;
- Identification of best practices and approaches of good community governance systems in CMMHPs for their sustainability;
- Study of impacts of MHPs in the livelihood of poor people in the community; and
- Understanding the role of CMMHPs in decentralised energy services promotion to increase access of the poor to clean energy services.

The study was based on both qualitative and quantitative assessments of the key issues of good governance among the representative 10 community managed MHPs samples in 5 districts (one each in 5 Development Regions). Primary information was collected from stakeholders of the community owned MHPs. The
Increased Access to Information
With the installation of Dhuwa Khola MHP in Ilam, the access to television has increased significantly. All the 30 user households own their own TV sets and radios and they feel they are connected with the outside world through news and other programmes on TV. “Our horizon of knowledge has been greatly widened and this is very visible amongst our children. The community has now become more conscious on matters of health, environment conservation and education for the girls”, said Krishna Khanal, Secretary of the MHP Management Committee.

Income group representation in the Management Committees (MCs) was fairly distributed with higher representation from poor families and lesser from the middle and higher income groups. Regarding gender distribution, the men significantly outnumbered women with a ratio of 8:1, with some MCs without any female representation. With the use of power generated from the MHPs, users’ expenditure on kerosene and pinewood for lighting reduced from an average of NRs. 168 per month to NRs. 81 per month.

The socio-economic composition of MHP users and committees was observed as consisting of different castes and ethnicity. In terms of economic status, 44% of the users were from poor income groups, 45% from medium income and 11% from better-off income groups based on the local criteria.

Methodology
The practices of governance among the sampled MHPs were appraised on the basis of indicators corresponding to characteristic features of good governance: participation, rule of law, transparency, responsiveness, consensus oriented, equality and inclusiveness, effectiveness and efficiency, and accountability.

Focus Group Discussions (FGD) - consisting of executive members and general members of sampled MHP user committees - were familiarised with the governance indicators. They were asked to score each of the 113 households own their own TV sets and radios and they feel they are connected with the outside world through news and other programmes on TV. “Our horizon of knowledge has been greatly widened and this is very visible amongst our children. The community has now become more conscious on matters of health, environment conservation and education for the girls”, said Krishna Khanal, Secretary of the MHP Management Committee.

<table>
<thead>
<tr>
<th>Development Region</th>
<th>District</th>
<th>Name of the MHP</th>
<th>Village Development Committee</th>
<th>No. of Sampled Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central Development Region</td>
<td>Kavre</td>
<td>Daune Khola</td>
<td>Pinthali</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Kavre</td>
<td>Cha Khola</td>
<td>Nayagaun</td>
<td>14</td>
</tr>
<tr>
<td>Eastern Development Region</td>
<td>Ilam</td>
<td>Dhuwa Khola</td>
<td>Jamuna</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Ilam</td>
<td>Triveni</td>
<td>Mabu</td>
<td>26</td>
</tr>
<tr>
<td>Western Development Region</td>
<td>Kaski</td>
<td>Sabet Tikhe Dhunga</td>
<td>Dansingh</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Parbat</td>
<td>Thadokhola</td>
<td>Jiliberang</td>
<td>13</td>
</tr>
<tr>
<td>Mid-Western Development Region</td>
<td>Jumala</td>
<td>Kotila</td>
<td>Talim</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Jumala</td>
<td>Urthu Chang Khola</td>
<td>Patmara</td>
<td>10</td>
</tr>
<tr>
<td>Far Western Development Region</td>
<td>Dadeldhura</td>
<td>San Khola</td>
<td>Jogbudha</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Dadeldhura</td>
<td>Gairi Gaun</td>
<td>Jogbudha</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>113</td>
</tr>
</tbody>
</table>

Table 1: Distribution of Sampled MHPs by Development Regions and the Number of User Households Sampled for Household Survey in each MHPs (Source: Practical Action Nepal, 2006)

Note: Local criteria - land holding, employment status, and annual food sufficiency on their own production/earnings.
Table 2: Criteria for Scoring of Governance Indicators in MHP Management Committees
(Source: Practical Action Nepal, 2006)

<table>
<thead>
<tr>
<th>Score</th>
<th>Meaning</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Below Average</td>
<td>Either functioning with major problems or closed</td>
</tr>
<tr>
<td>2</td>
<td>Average</td>
<td>Functioning under precarious existence which needs improvement in both technical and managerial components</td>
</tr>
<tr>
<td>3</td>
<td>Good</td>
<td>Functioning satisfactorily with reasonable technical and managerial performance</td>
</tr>
<tr>
<td>4</td>
<td>Very Good/Excellent</td>
<td>Functioning excellently with perfect technical and managerial performance</td>
</tr>
</tbody>
</table>

Participation and Consensus Building
The study measured the participatory features of the MHPs in terms of their structural composition and member participation in activities. Related to this feature were the questions of who represents the group, who makes the decisions, who performs its activities, etc. The result was a score of 2.37 which appeared to be moderate as they intended to serve all households within their areas fairly, with the poor and medium income households making up 90% of the beneficiaries, representing all caste/ethnic groups. While there was a reasonable representation of the disadvantaged in MCs, women lacked proportionate representation. In addition, meaningful participation of the disadvantaged group in the overall project cycle was still invisible with a visible dominance of local elites in all levels of decision makings.

On consensus building, the committees appeared to be fairly good with an average score of 3.0. Their mediation of conflicting views and difference of interests was strong. After majority decisions are made a consensus is reached through dialogue, following by mediation if required, in the best interest of the whole community. This is largely because of an understanding of the historical, cultural and social contexts of a given society or community.

Rule of Law and Accountability
FGDs were held around the major features of the constitution, whether it protects the rights of beneficiaries and whether these rights are exercised adequately under the MHP constitution. This aspect was the weakest with a low average score of 1.5. Not only were committee members not aware of the MHP constitution but they had not registered or renewed their registration with the concerned government authority. Neither were they following a standard financial system although most of them were collecting tariffs from electricity users. Concerning accountability, the average score was less than 2.0. MC members and users were not fully aware of their roles and responsibilities, and were less responsive towards their institutional stakeholders.

Transparency
The level of transparency was studied in terms of clarity in action, systems of record keeping and sharing of information regarding MHPs installation, operation and management. In this aspect, the score ranged from 1.0 to 2.75 with a low average score of 2.0. Only 3 out of the 10 community MHPs had meeting minutes, financials and stock records of their organisations. The major reason behind weak documentation and recording practices was the lack of skill and training and not realising the importance of records.

Responsiveness
Responsiveness in this context was assessed in terms of the MHPs having effective operational procedures, having regular services, how the breakdowns are being maintained, etc. With an average score of 2.5, the study found that committees were mobilising their resources effectively for emergency repairs work and to provide timely electricity services to all the users.

Equity and Inclusiveness
All caste/ethnic and economic groups were found to be involved in the MHPs with a reasonable level of participation in various activities (the average score was above 2.0). As a result, the feeling of ownership among the MHP users was reasonable. There were however issues of equality approach rather than the equity approach as some households are enjoying comparatively larger quantities of electricity with the same amount of equity contribution during installation.

Effectiveness and Efficiency
Effectiveness and efficiency in the context of MHP governance covers the sustainable use of natural resources, protection of the environment, capacities of operators to manage the MHP, and their linkages with the service providers to maintain a sustainable and efficient
level of operations. The average score obtained was 2.25 which would mean that the average MHPs were operating at minimum working level. 8 out of 10 plants had not been able to produce enough power to fulfil local demands for end use applications. This demonstrates that the MHP technology was introduced based on technological precepts with an insufficient consultative process to analyse the communities’ need and capacity, build their capacity to effectively operate and finance the running of the plant, and to educate consumers. Similarly, the functional linkages and networks with service providers, organisations of civil society and even local line agencies were not strong enough.

MHPs depends largely on the underlying economic and social conditions of each community MHP with no single prescribed approach to governance. The study findings revealed that inclusive decision making, equitable access to energy resources, energy utilisation, knowledge of technical functioning of the plant, effective and efficient operation and building financial and managerial capacities must be built into the conceptual design of the MHPs.

Whilst MHPs are being considered as an important option for decentralised energy service delivery, it is crucial that the institutional capacity - technical, financial, and managerial capacities - of the MC of the MHP is recognised as the underlying factor for sustainability. High illiteracy levels in rural villages, and the low awareness level of rights and responsibilities of energy consumers means that adequate emphasis needs to be placed on human resource development in the form of consumer education. In addition, it is important to focus on diversifying the use of electricity to wider applications for increased livelihoods security. The consumers should be using electricity for many end use applications which help them diversify their incomes and later pay-off the electricity utility charge to the MHP MC to run the system healthily. This may require appropriate and timely revision of user fees and other prices of services. The networking with local authorities, private sector and funding organisations by the MHP committees is also vital to tap resources, information and opportunities available at the local/ district and regional levels for their benefit. The MC must work as a private business entity to operate and manage the system with governance structures and capacities in place.

The justification for increased subsidy and investment from public and donor agencies on community MHPs will remain questionable and the MCs must be informed of the same. Therefore, these aspects need a clear focus and enough time and resources need to be equally invested to build the capacities of Management Committees while channelling resources to hardware infrastructure.

References


Earth Consult Pvt. Ltd (2003) for ITDG Nepal, Study of Community MHPs in Nepal (with special focus on the End Use Aspect)

Jun Hada is the former Team Leader of the Access to Infrastructure Programme at Practical Action, Nepal. She is now a National Programme Officer at Swiss Development Corporation Nepal. E-mail: Jun.hada@sdc.org.np
The following article briefly outlines the most recent energy policy measures taken in Pakistan and tries to identify the involvement of provincial governments and communities in shaping and meeting their energy needs. Under analysis is the Renewable Energy Policy of 2006 and the Road Map 2006 for renewable energy (RE) development in Pakistan.

Policy makers in Pakistan have given prominence to the importance of renewable energy development in Pakistan, highlighting the distinct advantages of renewable energy over fossil fuel. The policy document – Renewable Energy Policy 2006 - maps out the burning issues related to energy. The Road Map which was drawn up in 2006 maps out the means by which the aforementioned 2006 policy will be implemented.

**The Road Map and Its Strategies**

Figure 1 highlights the key components of the RE Development Road Map. Under the ‘Power sector’ heading the road map identifies the current issues facing the Pakistan power sector and the main needs that should be addressed. The 4 main strategies identified to address these needs are as follows: (i) supply to be based on an optimum energy mix, (ii) maximum utilisation of the indigenous resources, (iii) getting the private sector to invest in the sector and (iv) develop human resources and capacity. Renewable energy (RE) is a key component of this strategic vision. The road map then goes on to further illustrate the gaps existing in the RE sector and maps them against the proposed RE sector specific strategies.

One of the strategies is to have an optimum energy mix for the country. Under this category the policy developers have identified that the RE sector should make up 3% of the entire energy mix in Pakistan by 2030. In order to achieve this target, the RE Development Road Map has identified the current issues faced in the RE sector and has also combined it with the other integrated issues.
in the country such as poverty reduction and addressing regional issues such as climate change.

It is important to know how well the 4 strategies will be able to involve the communities in making the appropriate decisions and how well the policies facilitate in maintaining a balance between community objectives and the objectives of the government and the private sector. The strategies outlined do not reflect the needs of the energy poor communities. Policies which do not emphasise energy poverty could neglect the energy poor and lead to imbalances in the benefits received between private sector participants and communities.

For instance, in the policy, although under the third energy sector strategy it mentions enhancing participation, when the strategy is detailed out it refers mainly to private sector investors. The public sector and provincial governments are only mentioned in one paragraph and given a broad description. The provincial councils work at the ground level and have the most contact with the local communities. Their lack of involvement will give rise to questions of equitability when distributing the benefits due to local communities via carbon credits and clean development mechanisms.

**The RE Policy 2006 & Provincial Councils**

The RE Development Road Map is based on the RE Policy 2006. The following modifications are suggested in the RE Policy 2006 with regard to off-grid stand alone systems.

"Off-grid power generation wholly for captive or dedicated use, or for supply to a local community through small, isolated distribution lines not connected to the utility grid shall be greatly deregulated and simplified. For this purpose, new procedural arrangements shall be developed by the relevant AEDB[1]/ Provincial/AJK[1] Agency, and these shall be reviewed and further refined for the medium term based on initial implementation results. Small hydropower projects and associated distribution grids (of up to 11 kv) that are not connected to national or regional utility grids may be developed by private corporate entities, public agencies, NGOs and CBOs[1], or individuals at any suitable location, subject to prior approval by the local authority. For such projects, AEDB/Provincial/AJK Agency approval, or Environmental Protection Agency (EPA) NOCs[1] shall not be required, provided minimum permitting requirements, as defined, are met.” (Renewable Energy Policy 2006, Chapter 8.5 - Facilities for Off-grid and Dispersed RE Power Generation)

The above chapter further explains the types of financial and non-financial benefits given for such small scale[2] power generation initiatives and stand alone RE generation plants. This includes grants, tax benefits, profit transfer mechanisms, and technical training. The developers, regional authority and communities are given the independence to determine the tariffs and other contributions made towards project development and maintenance.

In addition, the tariffs, fees charged and the process to obtain licenses are clearly mentioned in the policy which satisfy a major requirement in good governance - ‘integrity’. This clarity in the policy document with regard to the type of certifications required, the fee structure, etc. enables small communities to organise themselves within a short period and obtain approval for their energy generation projects without hassle. The period 2006 – 2008 was identified as the ideal testing period for the RE policy and it is time that Pakistan RE stakeholders conduct an evaluation and analysis on the policy implementations.

A drawback identified in the RE policy 2006, which is common in all South Asian RE policies, is the lack of support given to community based stand alone energy development projects. Although the policy document mentions that in areas such as mini hydro, solar panels and biogas, community based projects are preferred, no clear strategy has been set out to make sure that there will be enough effort to serve the underprivileged communities.

While the policy has recognised the lack of energy access to rural communities (energy equity) as a major issue this has not been reflected in the strategies and action plans adopted. The strategies are more focused on cost recovery - the potential for recovering the

---

2. In Pakistan small scale is referred to as less than 50 MW.
investment cost from the direct consumers. This is unfavourable to the poor communities as the investment cost is high in rural areas and the energy services will be very expensive for them. Therefore, it is recommended that the policy should have a different approach for implementation. It should identify the energy poor communities (those communities who cannot afford the services) identify viable levels of tariffs, and give concessions or partial cost recovery mechanisms for communities accordingly. In other words, decisions on essential service provision should not focus mainly on the potential for recovering investment cost but on the need for the energy service in the area.

All in all the RE policy in Pakistan has got the foundation right but it needs to place more focus on identifying the energy poor communities and providing energy to them through the provincial mechanism if Pakistan is to achieve its target of universal access to energy.

References

Damitha Samarakoon is the Project Manager of the South Asia Energy Network (e-net) and works in the area of pro-poor policies.

E-mail: Damitha.Samarakoon@practicalaction.org.lk

---

**EVENTS**

**Green Conclave**
**Date:** 7th to 9th April 2010  
**Venue:** New Delhi, India  
**Organised by:** Planet Earth, Gateway Media Pvt. Ltd., Ministry of Earth Sciences

The Green Conclave will include sessions on policy, water management, energy, sustainability, and the role of technology. The focus will be on how the decision makers and the industry can come together for the cause of protecting our environment, utilising the available scientific and technological know how. The objective of the Green Conclave is to provide a forum for the individuals and organisations working in the Asian region, to share information and build relationships in an informal working environment. The two-day conference is structured into opening ceremony, plenary session and keynote sessions.

Further details can be obtained from the website www.greenconclave.in or e-mail padmapriya@gatewaymedia.in

**The 2010 International Conference on Environmental Science and Development (CESD 2010)**
**Date:** 26th to 28th February 2010  
**Venue:** Nanyang Technological University: Nanyang Executive Centre, Singapore  
**Organised by:** IASCIT Environmental Science Society

The CESD 2010 is an international forum for the presentation of technological advances and research results in the fields of Environmental Science and Development. It will bring together leading researchers, engineers and scientists in the domain of interest from around the world. This conference provides opportunities for the delegates to exchange new ideas and application experiences face to face, to establish business or research relations and to find global partners for future collaboration.

Further details are available at the website www.iacsit.org/cesd/index.htm or e-mail cesd@vip.163.com.

**Renewtech India 2010**
**Date:** 9th to 11th March 2010  
**Venue:** Auto Cluster Exhibition Centre, Pune, India  
**Organised by:** MCO-Winmark Services Pvt. Ltd.

Renewtech India 2010 is the premium annual event in the world of renewable energy and emerging technologies. With a booming economy, the Indian market represents a huge opportunity waiting to be grabbed. Renewtech India 2010 is the perfect venue to exhibit your products and technology solutions, build brand awareness, and network with the Indian Renewable Energy industry players to build long term relationships. The theme for this times international conference is ‘Cutting edge technology for the development of Renewable sector in India’ which will take place concurrently with the exhibition.

Further details are available at the website www.renewtechindia.com or e-mail delegate@renewtechindia.com.

All event details have been extracted from the respective websites
Good governance is only effective to the extent to which it reaches out to all stakeholders and explores all technical and implementation options available. This article outlines the policies, practices and perceptions of politicians and communities regarding energy needs and usage, and their corresponding implications on the development of the energy sector in Sri Lanka based on a recent study. It highlights the narrow outlook in development policies and practices at all levels within the energy sector which impacts energy security at a local level and the need for adequate awareness and broadening of the perceptions of stakeholders in this regard.

A study was conducted by Practical Action - Sri Lanka in 2009, to ascertain the perceptions and politics of energy use in Sri Lanka. This was accomplished through a desk study of key energy policy documents related to Sri Lanka's energy sector, an analysis of field observations (of the community governance project team) of common political practice regarding energy in rural areas and urban slums, and community level needs assessments in 4 Divisional Secretariat (DS) Divisions of Sri Lanka. The analysis aimed at identifying the energy consumption patterns, sources of energy, common practices in meeting energy needs, and key strategies, trends and perceptions of energy sector development. From these outcomes it attempted to identify the implications of the policies, practices and perceptions on future energy sector development in Sri Lanka.

Sri Lanka Energy Policy 2006
The Sri Lanka Energy Policy formulated by the Ministry of Power and Energy in October 2006, is the current document which guides the development of the energy sector in Sri Lanka. This policy consists of 3 main components; Policy Elements, Implementing Strategies, and Specific Targets and Milestones. In its introduction the policy states that the bulk of the overall energy production in Sri Lanka, as at 2004, is generated from biomass – 4513 KTOE, followed by imported petroleum products – 4131.9 KTOE, hydro electricity – 710.7 KTOE and Non Conventional Renewable Energy (NCRE) – 3.6 KTOE (mainly generated from wind power). It also states that with the current annual growth rate of population and respective demand, energy consumption would reach 15,000 KTOE by 2020.

The document's policy elements consist of 9 main areas to be improved: energy needs, energy security, energy efficiency and conservation, use of indigenous resources, pricing policy, energy sector management capacities and consumer protection, ensuring a level playing field, quality service, and environmental protection. These policy elements contain broad clauses which do not specifically refer to any type of energy usage or source except electricity and petroleum. Key points mentioned in the implementing strategy which do not relate to electricity include the management of existing biomass resources and technology improvement for the provision of basic energy needs, i.e. promoting biomass as a modern and convenient energy use, the promotion of energy saving cook stoves, etc. Moreover, on closer examination it shows that the implementing strategies have a greater focus on electricity generation and distribution.

The section on specific targets, milestones and institutional responsibilities is totally focussed on electricity generation and distribution. The targets include the extension of the national grid (85% household coverage by 2015), off-grid expansion (8% by 2015), as well as fuel diversification and energy security targets for at least 80% of the national grid to be non oil based by 2015 (targets - hydro - 28%, coal - 54% and NCRE - 10% by 2015). It is planned that only 8% of the grid will be fuelled by oil/petroleum. Also included are targets and mechanisms for improving supply side and demand side efficiency, pricing, and rural electrification. The only clauses referring to non-electrical energy include petroleum sub-sector pricing, bunkering, oil and gas exploration and national energy planning and database. This section does not spell out any mechanism to put into operation the strategies for the non-electricity energy sources and uses described in the policy.

Government Road Map for Development – Mahinda Chinthanaya
The Mahinda Chinthanaya spells out the current government’s general development strategy. The document contains a section on power and energy which forms the basis for this review. It spells out the development strategies for the government for a 10 year period ending in 2016. This document closely follows the implementing strategies, targets and milestones of the Sri Lanka Energy Policy. It starts off by identifying the problems in the power and energy
sector - which is solely focussed on electricity generation and distribution - from which issues to be addressed are derived. The strategies to address these issues and justification of the strategies are then put forward. Mahinda Chinthanaya sets a target of electrifying 95% of the households (87% from the national grid and 8% off-grid) by 2016. There is no mention of any other energy source or usage under the section of power and energy. When comparing this policy with the Sri Lanka Energy Policy of 2006 the Mahinda Chinthanaya seems to have omitted the non-electricity related content found in the energy policy.

Sri Lanka Energy Balance 2003 report
The ‘Sri Lanka Energy Balance 2003 - An Analysis of Energy Sector Performance’ report, produced by the Energy Conservation Fund, provides a more holistic picture of energy needs and usage in Sri Lanka. It starts off with the energy sources used in the sector, looks at energy conversion of these sources and provides an overview of the organisations playing a key role in the energy sector. It also looks at energy demand in different sectors by source and usage. It analyses the electricity industry performance in terms of electricity generation, distribution / grid expansion and sales, and also analyses the performance of biomass and petroleum for power generation. This report contains the trends in energy supply and demand and a chapter on the future of the energy sector in Sri Lanka. Although the document as a whole provides a balanced view across all sources and uses of energy in Sri Lanka, the future strategies focus mainly on how to produce electricity and minimise the dependency on petroleum.

Common Political Practice
Common political practice from national level to grassroots level in the energy sector has been mainly focussed on electricity. At national level the focus has been on expanding the national grid and ensuring an adequate and uninterrupted supply of electricity to consumers. Expansion of the national grid is popular as it provides good visibility and builds favourable opinion for governments and politicians. One such example is the expansion of the national grid north of Batticaloa to Vakarai and Verugal soon after these areas were resettled after the recent conflict, even prior to the provision of housing for the returning Internally Displaced Persons (IDPs). The only other energy related intervention that has some influence on the vote base of governments and politicians is fuel and transport costs.

At a local level Members of Parliament and Local Government politicians in rural areas focus their energy interventions on the expansion of the national grid, facilitation of connections to the national grid and rural electrification schemes. The funds for these interventions are usually provided by the decentralised budget allocations to these politicians. Most local politicians help slum dwellers to get utility connections (such as water and electricity) by providing recommendations to the utility provider in order to win votes and gain valuable campaign support from the urban slums. Local politicians rarely get involved in any other energy interventions with the electorate.

Community Perceptions
The common man equates electricity with energy. This common perception was very visible when the implementing partners of Practical Action’s Community Governance in Infrastructure Services Project conducted community level needs assessments for infrastructure in 4 DS Divisions in the Ampara and Kurunegala District. The needs assessments were carried out in 40 GN (Grama Niladhari) Divisions in the Navithanveli and Thirukkuvil DS Divisions in Ampara District, and 47 GN Divisions in Nikaweratiya and Kotawhera DS Divisions in Kurunegala District. Needs assessments were carried out with community leaders and representatives of other groups such as youth and marginalised sections of the community for 5 sectors: irrigation, transport infrastructure, water and sanitation, waste management and energy. The only need identified by the community in the energy sector was electrification. This was despite the fact that they had to travel far to collect fuel wood as their primary source of cooking fuel, which was time consuming and sometimes dangerous as some areas were exposed to the human elephant conflict. Many communities had enough natural resources such as agricultural residues and animal waste which could be used to generate biogas. However, unless prompted they did not express an interest in using these energy resources for cooking and lighting.

Findings
According to the data in the documents reviewed the largest consumers of energy are the domestic and commercial sectors which consume 51.06% of the total energy consumption in Sri Lanka. This is made up of 81.43% biomass, 10.01% petroleum and 8.56% electricity. The transport sector is the next largest consumer with 24.80% energy consumption – energy derived totally from petroleum products. This is closely followed by the industrial sector (24.14%) of which electricity accounts for 11.35%. This shows that electricity is not the main source of energy in any of the sectors. It is the 3rd largest source of energy for the domestic- commercial and industry sectors (Energy Conservation Fund, 2003), as show in Figure 2.

Figure 2: Final Energy Delivered to End-Users
(Source: Energy Conservation Fund, 2003 - Figure 25)
This differs considerably with the emphasis placed on electricity in policies, politics, practices and perceptions. The Sri Lanka Energy policy implementation solely focuses on electricity as does the government’s development roadmap. There is little or no mention about the other sources and usage of energy except for the limitations imposed on oil based power generating plants in the future, and the increased usage of coal power plants and NCRE. This may be due to the fact that electricity and transport are the only formalised sectors of energy in Sri Lanka.

On the other hand, electrification of areas previously not connected to the grid provides good visibility for politicians and is an easy way of winning votes. Electricity primarily used for lighting and entertainment in the majority of both rural and urban households provides many opportunities to communities (increasing the number of light hours and access to media). Electricity, particularly street lighting, provides communities with a certain degree of safety and security. This may be the reason that communities consider electricity as their primary energy need, although in real consumption terms this is not so.

Implications
This misconception of electricity as the primary energy need from national policies to the grassroots level has many implications on the development of the energy sector in Sri Lanka. Improving the contribution of other energy sources to the total energy supply, and increasing their efficiency and use is ignored. This happens both at the national level and the grassroots level. Communities themselves are not conscious of the potentials of the resources around them which could provide them with a clean, cheap and more convenient source of energy. Similarly, there is little research on improving the efficiency of technologies such as the Lanka Shakthi gassifier type stove, or promoting the use of cleaner bio-energy (biogas) by government agencies. Wind energy for water pumping in the agriculture sector has suffered the same fate. While it was initiated a few decades ago, this energy option was not adequately explored or promoted except in the northern peninsula. Despite favourable weather patterns in many areas for this technology’s use, at present petroleum based products are used for industrial water pumps in the agricultural sector. This is mainly due to the promotion of petroleum based products by commercial entities and poor promotion by government and research entities of the energy alternatives. The above examples illustrate the potential for the development of cleaner and cost-effective energy options from primary, indigenous resources for a wide range of applications, which would save valuable foreign exchange spent on petroleum products.

Recommendations
A significant change in policies, political will, practices and perceptions is required for multi-sector development. Given below are a few recommendations which may result in the holistic development of the energy sector in Sri Lanka:

- Wider dissemination of information on energy usage patterns and availability of resources for developing and promoting alternative energy options among all stakeholders including policy makers, politicians, and consumers.
- Advocacy and awareness campaigns to include improvement of alternative indigenous energy sources for uses other than cooking in policies, implementation strategies and targets/ milestones for strategy implementation.
- Advocacy and awareness campaigns to include the improvement of the fuel efficiency of non-electrical appliances and processes in domestic, commercial and industrial applications in policies, implementation strategies and targets/ milestones for strategy implementation.
- Provision of funding for non-electricity based research to explore and develop alternative energy technologies/options from indigenous resources and the improvement of efficiency of non-electrical appliances and processes in the domestic and industrial sectors.
- Intensive public awareness campaigns on alternative sources of energy, their potential and technological options for the use of these sources.

References

Aziza Usoof is the project manager of the Community Governance in Infrastructure Services Project of Practical Action, Sri Lanka.
E-mail: Aziza.Usoof@practicalaction.org.lk
Local Government is perhaps one of the most important instruments of governance in Sri Lanka, having effects on the day-to-day activities of people. Sri Lanka has a long history of local government which is believed to date back to the 4th century AD. However, various issues in terms of inadequate power delegated to these authorities, overlapping areas of responsibility, and insufficient avenues for stakeholder participation/feedback have meant that the Local Government is not as effective as it could be. This article takes a look at the possible future policies and practices which may help increase the effectiveness of local governments in energy service delivery.

There are mainly 3 tiers in the governance structure of Sri Lanka – Central Government, Provincial Councils and Local Government (LG). Central Government is responsible for matters of national interest. Provincial Councils are responsible for the 9 provinces in Sri Lanka and their purviews are spelt out in the 13th Amendment made in 1987 to the country’s constitution. The LG is closer to civil society than the Central Government and Provincial Councils. The LG consists of 3 types of institutions; municipalities, urban councils and Pradeshiya Sabhas (PSs). They are governed by the Municipal Council Ordinance, Urban Council Ordinance and Pradeshiya Sabhas Act respectively. Currently, nearly 70% of the country’s population lives within the PS areas. Accordingly, PSs are important institutions of decentralised governance in Sri Lanka.

The National Declaration for Local Government
One of the pieces of legislature which attempts to empower the LG and make it more effective is The National Declaration for Local Government (2007). This endeavours to narrow the urban-rural development gap, removing imbalances in regional growth and to develop and implement area based plans with an emphasis for poverty reduction. Towards this end, the LG planning process is intended to be refined with appropriate guidelines that will provide for and encourage ward-based, community level area planning and participatory budgeting which will engage ward level stakeholders. This policy encourages and ensures that large PSs install and continually update the required knowledge sharing, generating and promoting facilities to operate geographic and environmental management information systems. These systems will be used in order to collate and store data for easy retrieval, effective planning and indicator based performance review.

The National Declaration for Local Government declared by the Ministry of Local Government and Provincial Councils, has recognised that there is an inadequacy of by-laws to deal with the new and emerging functions and subjects concerning the LG. It endeavours to address these matters as an urgent responsibility and simplify the procedures of enacting statues and by-laws by Provincial Councils and LG authorities. The policy will effectively enable LG authorities to act independently through the introduction of institutional mechanisms, legislative enactments and the implementation of existing statutory safeguards. This in turn will strengthen the image of the government authorities and safeguard their powers.

This policy also seeks to remove the conventional centralised or provincialised planning and delivery that often bypass the LG authorities. With the anticipated energy crisis and environmental concerns, energy is an area that would need clear implementation of by-laws by the local government and call for additional powers to be conferred to the respective Provincial Councils as required.

### Figure 1: PSs functions linked to energy conservation

- **Issue of certificates of conformance to building structures**
  - Promote energy efficient buildings
  - Promote energy efficient stoves (also reduces indoor air pollution)
  - Increase natural ventilation and lighting

- **Managing waste from abattoirs**
  - Process waste using biogas systems

- **Emptying of latrines and disposal of night soil**
  - Process waste using biogas systems

- **Street and house waste management (collection and disposal)**
  - Process organic waste at centrally located biogas systems in waste disposal yards
  - Provide street lighting using biogas

- **Running markets and village fairs**
  - Have centrally located biogas systems to process organic waste from markets and fairs
  - Process at points of waste generation, reducing energy for transportation

---

**PROSPECTS FOR LOCAL GOVERNMENT ENERGY POLICIES & PRACTICES IN SRI LANKA**

By: Namiz Musafer
The Pradeshiya Sabhas

As per clause 93 of the Pradeshiya Sabhas Act, it shall be the duty of the PS, so far as is reasonably practicable, to take all necessary measures within its limits for collection, removal and proper disposal of all street and house refuse, the due cleaning and emptying at proper periods of all latrines and cesspits and the proper disposal of all human excrement. This Act further states that all such refuse collected by any PS shall be its property and it shall have full power to sell or dispose of such matter.

The PSs have powers and functions, that in many respects have direct relevance to the energy sector. These include the issue of certificates of conformance to building structures, waste management (collection and disposal), running markets and village fairs, latrines, licensing of slaughter houses and public health.

Given below are various ways in which PSs can encourage and implement energy efficiency and energy conservation initiatives within these functions.

When certificates of conformity are issued, building owners can be encouraged to develop plans to ensure that energy efficient houses are built which have sufficient ventilation and lighting. Organic waste disposal and latrines can be linked to a biogas system, which in turn can provide some energy solutions; energy for smoke-less kitchens helping to reduce indoor pollution and related health hazards. These can be directly linked with the building codes, and promoted by obtaining the cooperation of architects and draftsmen involved in building design and architecture. The organic waste collected from the streets and houses / other institutions such as hospitals, hostels, large canteens, restaurants, or prisons can be processed through a biogas system at a centrally located facility such as waste disposal yards or within the respective institution itself. The same can be applied to market or village fairs, where the biogas systems can be installed at the respective premises so that there would be no waste-transportation costs involved. There are a few cases where biogas systems have already been set up to process waste from abattoirs.

Within the current governance system of Sri Lanka, the national policies are declared by the parliament, statutes by the Provincial Councils and by-laws by the LG authorities. Accordingly, the Ministry of Power & Energy declared national energy policy and strategies. In addition, the ministry responsible for alternate energy of the Southern Province declared a statute related to alternate energy for the Southern Province. Both were gazetted in 2008. A few other provinces are also likely to declare their own statutes related to alternative or renewable energy in the near future. The Ministry of Power & Energy has already commenced working on a national renewable energy policy.

The Sri Lanka Sustainable Energy Authority (SLSEA) was established in accordance with the Sri Lanka Sustainable Energy Authority Act No. 35 of 2007. Its objectives include identifying and assisting in the development of renewable energy resources, as well as energy efficiency and energy conservation, with a view to enhancing energy security. The SLSEA’s responsibilities include the setting up and maintenance of inventories on renewable energy sources and technologies (indicating their level of maturity for commercial development and containing typical performance data), appropriate conversion technologies, and conversion and utilisation norms and practices in Sri Lanka.

The SLSEA along with Practical Action Consulting implements the Policy Innovation Systems for Clean Energy Security Project (PISCES) in Sri Lanka. This project (funded by the DFID UK) is implemented in Asia and Africa as an international research consortium. It aims to help introduce research and research models to assist decision makers in making informed decisions on the energy sector and other related sectors. In addition, the Energy Consortium, which comprises of the national focal points of the international / 1
South Asian energy related networks are in the process of studying the possibilities of reflecting energy related policies and practices at the grass roots level. This study focuses particularly on the use of locally available renewable energy resources to meet local energy needs.

Co-operation and improved governance

The SLSEA and collaborative initiatives like PISCES have the potential to link LGs, Provincial Councils and communities. From the local resource perspective, the PSs have a strong ability to assist the SLSEA in the identification of locally available renewable energy resources in return for assistance with technologies and other facilities. The local population can be made aware of renewable energy use at the grass roots level by using the wide outreach the PSs have with the communities. National and provincial energy bodies can in turn assist with relevant capacity building and resource allocation for the PSs.

It is time that the PSs adopt by-laws related to locally available resources to meet local energy needs and put them into practice so that the quality of life of the citizens could be improved. Research initiatives should be part of the framework to ensure continuous improvement in energy service delivery to the people and to assess how effectively their needs are being voiced and addressed. LG policies and processes which maximise stakeholder involvement are required to meet these objectives. They should do this by thinking and acting locally and using local resources to meet local needs. The national and provincial government energy policies, strategies and statutes could facilitate this process in an integrative manner so that Sri Lanka could look forward to energy security in the foreseeable future, which is affordable, environmentally friendly and meets society's aspirations.

References

Ministry of Local Government and Provincial Councils (2007), National Policy Declaration for Local Government


Namiz Musafer is an Engineer and the Country Manager of Practical Action Consulting, Sri Lanka. He manages the Sri Lanka component of the international project Policy Innovation Systems for Clean Energy Security. He has nearly a decade of renewable energy related experience, particularly at the community level.

E-mail: Namiz.musafer@practicalaction.org.lk

e-papers

e-net welcomes articles for the next issue which will focus on Gender and Energy.

Articles should ideally be based on actual case studies and look at the implementation/ potential implementation of a specific technology using community participation.

The length of the article can range from 1500-2000 words (inclusive of footnotes and references). Illustration, graphs, tables, and photographs are welcome (with sources acknowledged). Please include a brief description of the author and the organisation s/he represents.

Articles chosen for publication in the e-net magazine will be subject to editing. Contributors should make themselves available for any clarifications that may be necessary up to the point of publication.

Please e-mail all articles to e-net@sa-energy.net by 15th April 2010.
Climate Change and Bioenergy

The most recent e-forum discussion focused on the consequences of bioenergy usage in rural livelihoods as well as its link to climate change. Held in association with Practical Action and Practical Action Consulting the discussion was moderated by Dr. A. Arivudai Nambi of the M. S. Swaminathan Research Foundation (MSSRF), India. The discussion was open on the South Asian Electronic Network from the 9th to 20th November 2009.

Energy is a critical underpinning issue in the sustainable development agenda of developing countries. The way in which energy is harnessed, processed, transmitted and consumed will largely determine the rate of future emissions. Currently, 1.6 billion people in the world lack access to electricity and over 2.5 billion people depend on biomass fuels for cooking and heating. The impact of climate change on the livelihood of these sections of community would be devastating in the long run. Ecosystem goods and services are increasingly under threat from climate change and the energy security of rural poor people across the world is also at stake. Thus, ensuring energy security by maintaining ecosystem integrity and fostering rural development in the face of anticipated climate change must be the top priority.

The discussion concerning bioenergy and climate change brought about comments regarding a range of related issue/solutions – from dedicated bioenergy plantations, the use of waste biomass to generate bioenergy, to policy and technology improvements. As pointed out by a forum member the demands on land (for food, fodder and energy security) are great as are the technical challenges.

Dedicated bioenergy plantations, proposed by one forum member as a possible means of minimising the negative effects of energy generation on climate change stimulated a lot of responses. While some members agreed that it was a solution (while not the sole solution) and not an impossibility in the light of existing small scale models in the form of firewood collected from home gardens, others viewed mixed cropping as a more traditional and non invasive form of energy cropping.

Members also pointed out that there is great potential in harnessing energy from waste biomass which currently remains untapped. General waste biomass such as rice husk, paddy straw and other agro waste remain unutilised. Investors would be attracted to this sector if there were appropriate economically viable technologies to utilise this waste biomass energy. Other members also cited studies which showed a potential, yet untapped, source of bioenergy fuel from waste biomass in landfills. ‘The amount of cellulosic ethanol that could be produced from the world’s landfills is estimated at 82.93 billion litres. The substitution of gasoline with this biofuel would mean that global carbon emissions would be cut by 29.2% to 86.1% for every unit of energy.’ The possibility of utilising unused lands as well as using large tea and coconut land for additional energy generation was also mentioned.

Also discussed was the issue of bioenergy and transport. It was stated that biofuels give a poor return (in terms of km driven per year per ha of land) compared with biomass combustion and consequent generation of electricity for use in transport liquids.

Several areas for improvement at policy development, research and implementation levels were suggested. Suggestions included subsidy shifts from petroleum fuels to renewable energy fuels, creating a market for biomass and bioenergy production and sale, the financing of renewable energy sector development (through a Special Fund for alternative energy source provision to communities, a CDM mechanism focused more on energy efficient and renewable energy projects), and government policies to promote renewable energy development.

With COP15 around the corner it came up in the forum discussion. As mentioned by Professor Dr. Geetha Reddy, ‘As against the concerns that are spreading world wide, the willingness to contribute to the mitigation of emissions on expedited bases is extremely feeble... How many Kyotos and Copenhagens do we need to discuss and initiate the necessary strategies? Have we the time to do more ‘onus throwing’ and shutting our minds and eyes to the possibility of greater havoc wreaked by more frequent and devastating natural calamities on the one hand and insidious agricultural destabilising weather unpredictability on the other?’ Further research and pilot implementation are required to prove the viability of socio-technical approaches to harness bioenergy and positively impact climate change. The time is now and we need to step up to the challenge.

We thank all those who participated in the above e-discussions. e-net looks forward to hosting further discussions on energy related issues which affect the poor.

e-net team
www.sa-energy.com