

DRAFT 21 OCT 2004 - ENERGY REPORT FOR DAC NETWORK ON POVERTY REDUCTION
TASK TEAM ON INFRASTRUCTURE FOR POVERTY REDUCTION 2ND WORKSHOP

DAC Network on Poverty Reduction (POVNET)
Task Team on Infrastructure for Poverty Reduction (InfraPoor)
2nd Workshop, October 27-29 2004, Berlin

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STUDY FINANCED BY GTZ

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1. BACKGROUND AND INTRODUCTION

In November 2003, the DAC Network on Poverty Reduction (POVNET) established a task team to develop recommendations for strengthening the poverty reduction impact of economic infrastructure projects. The work of the DAC Task Team on Infrastructure for Poverty Reduction is steered by a core group with representatives from France (Afd), Germany (GTZ and KfW), Japan (JBIC), Switzerland (SECO), UK (DFID), and US (USAID). The team is presenting its findings in three iterative workshops on (1) the global picture, (2) infrastructure policies and programs which contributes to pro poor growth and (3) assistance strategy for infrastructure development enhancing coherence and cooperation between the donor programs. The first workshop on the Global Picture of Infrastructure and Poverty Reduction took place on 29-30 March 2004 in Paris. The second workshop is scheduled for 27-29 October 2004 in Berlin, and the third workshop is envisaged sometime in March 2005. This report is an input to the second workshop in Berlin. A summary report is also available.

The first workshop identified a number of issues which need to be addressed in order to make infrastructure interventions pro poor. Based on that result, the second workshop will discuss those specific technical and strategic issues of sustainable, pro-poor and pro growth infrastructure provision, in order to establish a common position among the task team members for addressing those issues.

The objective of the second workshop is to develop and discuss joint positions of the DAC members and reach a consensus on thematic and sector issues for infrastructure and poverty reduction. The topics to be discussed on the second workshop include:

- (a) cross cutting themes such as (i) Complementarity of infrastructure for achieving MDG (Poverty Reduction) , (ii) financing for infrastructure , (iii) rural and urban infrastructure needs; and (iv) gender dimensions for infrastructure.
- (b) More specific sectoral issues related to decentralization, service delivery (including private sector participation), and governance to be discussed in the (i) transport and ICT, (ii) energy, and (iii) water sectors.

The focus of this report is on Pro-Poor Infrastructure Issues in Energy.

1.1. Approach to the Work

The present report is based on the research and findings obtained through desk study making use of (a) donors' replies to a DAC questionnaire on Pro-poor infrastructure issues, (b) project experience as documented by donors and partner countries in selected appraisal reports; and (c) additional information through literature surveys, state of the art knowledge and other relevant information sources. This report is divided in three sections (1) Background and Introduction, (2) Energy and its role in achieving MDG's, Poverty Reduction and Growth, (3) Synthesis and analysis of main issues to make energy interventions pro-poor and DAC member replies to Questionnaire. A separate paper provides a summary of common positions and key issues for further strategic discussion.

Similar documents are being prepared by independent consultants on (i) Complementarity of infrastructure for achieving MDGs, (ii) financing for infrastructure, (iii) Pro-Poor Infrastructure Issues in Transport and ICT, and (iv) Pro-Poor Infrastructure Issues in Water (water supply/sanitation and irrigation). Each study will be used as the basis of discussion in the corresponding sessions of the workshop to be held on October 27 to 29 in Berlin. Each draft report will be finalized by reflecting the result of the workshop discussions.

2. ENERGY AND ITS ROLE IN ACHIEVING MDGS, POVERTY REDUCTION AND GROWTH

The generic characteristics of the energy sector

No human activity is possible without energy (both animate and inanimate). Indeed a major dimension of development could be said to be the shift from animate (largely human) energy to more efficient and convenient forms of inanimate energy. The history of development can be said to have been ‘facilitated’ if not actually driven by increasing access to improved energy services.

There is a very strong correlation between the use of modern sources of energy and any number of indices associated with development in all countries. The World Energy Council suggests that typically in “developing market economies” there is a one-to-one relationship between each additional percentage of GNP growth and the percent growth of primary energy demand (WEC 2000). These relationships have proven remarkably stable, showing only temporary “blips,” associated with the oil crises of 1973, 1974, and 1979. Even so these relationships are not fixed by natural laws: energy efficiency could in principle be increased to allow growth in production without necessarily increasing energy demands. However, this evidence leads to an unavoidable conclusion: reduction in poverty will require massive increase in use of modern energy services, both to enable poor people to be more productive, and to enable the economies in which they live to grow more quickly so that they can obtain a share of that growth in resources.

The modern energy sector has been characterised by very large economies of scale. This in turn has resulted in very large (often indivisible) investment requirements, particularly in fossil fuels and the electric power sector. Oil and gas, and to some extent coal have attracted large amounts of foreign private investment (even in countries with a very high country risk). This has not been the case with electric power, where revenue streams were denominated in local currency.

The problem of funding of these large lumpy investments has been a major element running through aid discussions. The “failure” of the private capital markets to meet the needs of developing countries for power sector investments was one of the reasons for the foundation of the Bretton Woods institutions in 1946. In the seventies, the dominant ideology, combined with a recognition of the huge capital requirements that the power sector of developing countries required, led the World Bank and others to believe that the power sectors needed to be reformed to attract large scale private capital.

The current renewed interest in energy and “infrastructure” stems in part from the recognition that this approach has largely failed: reforms are stalled, and the large scale private sector is uninterested or unwilling to invest in these projects, except in a very narrow range of countries¹ (World Bank 2003). But the renewed interest is also part of a recognition that development will not occur without modern energy services, and that not only must the world community try again, but that novel approaches must be sought and tested.

Recent estimates of the scale of the investment requirements have been put forward by the International Energy Agency. Their World Energy Investment Outlook 2003 (IEA 2003) estimates that US\$665 billion investment will be required to bring electricity to an additional 1.4 billion people in its universal electrification scenario. Another estimate puts the requirement for investment in electricity infrastructure in developing countries at about \$120 billion of new investment p.a. until 2010 i.e. between 2 and 3% of GDP (Saghir 2004).

¹ World Bank: An Infrastructure Action Plan, presented to the Informal Board Meeting on July 8th 2003: This stated that “there is increase consensus on the part of clients, the Board, and Management that the Bank group needs to increase its engagement in infrastructure in the light of growing investment needs, withdrawal of private investors, and growing recognition that the MDG can only be met in a multi sectoral way.”

But the seriousness of problems faced with modern energy services is matched by the seriousness of the problems presented by the energy services used by poor people. This sector is characterised by the use and drudgery associated with huge quantities of human and animal energy, and of woody biomass – which constitutes by far the largest source of inanimate energy used by poor people. Much of the woody biomass fuels are outside the monetized economy, are sometimes from renewable sources, but often “mined” causing substantial environmental damage. The burden of the collection and use of these traditional biomass fuels falls mainly on women and girls. It is massively time consuming, sometimes accounting for 40% or more of poor women’s time and is deeply damaging to their health. It is estimated for instance that the inefficient burning of biomass fuels, and the resulting indoor air pollution, is the third largest cause of death and ill health among poor women, and a far greater risk than current levels of out door air pollution² (Smith 1999; Smith 2000). Energy Poverty is therefore certainly gendered, and recent research shows that the energy needs of poor women may vary considerably from those of men.

An important characteristic of “energy sector ” when considering poverty reduction is that people do not want energy for its own sake (as they do with water or food), but for the services that energy can provide. Increasingly this has meant a policy shift from the provision of energy supplies to the provision of modern energy services. The policy response and investments need to focus both on the supply of primary energy supplies and the “end-use technologies” that convert primary energy into useful energy (electricity plus a light bulb provides the energy service of lighting). The energy service approach also leads to the insight that the poverty impact of energy interventions is largely determined by the choice of end-use technology that is employed and who chooses it (men or women).

The focus on energy end-uses, provides two further insights. First, it shifts the focus from energy supply, to understanding the energy needs of the end users. Rural health services, information and telecommunication, agriculture, income generating small and micro enterprises can all function more cost-effectively if they can utilise appropriate modern energy services.

But second, it is now clear that if the major constraint to poor people gaining access to energy services is their inherent poverty, then it will be essential to improve people’s ability to pay for improved energy services by linking the energy intervention to income generating end use technology. The lack of such “*complementary inputs*” explains the great variability in the impact of earlier phases of rural electrification, and other pro-poor energy schemes. Rural electrification, for instance has a greater impact if the complementary inputs of pumps, irrigation systems and effective transport to market are also available.

Centralised vs. decentralised approaches to modern energy services and poverty reduction

The difficulties experienced by centralised electricity supply systems in recent years have resulted in spontaneous and sometimes illegal decentralised systems. During this time, small-scale technologies have increased in efficiency and reduced in cost, opening up a wide number of options for profitable small-scale, decentralized energy supply. This is most apparent in improvements to diesel and small petrol engines, but there have also been promising developments with photovoltaic cells (where prices have fallen dramatically), wind generators, micro-hydro or charging stations.

Another major driver of decentralised options has been the realisation that many rural people, and the urban poor, already pay significant amounts of cash to meet their energy requirements. This means that in principle it may be possible to meet their needs with market-based solutions. There is a new optimism that modest profits can be earned from such businesses. The quest is now on to develop and validate financially sustainable business models. It seems likely that some form of subsidy will still be required for decentralised systems, to reduce the transaction costs of new ventures and to increase access to poor people, sometimes with untried technology. But the key is to provide subsidies that build rather than undermine markets, and which encourage rather than undermine local private capital, particularly for small-scale investments.

² Acute respiratory infections in children under five years of age are the largest single category of deaths [and disease] from indoor air pollution, apparently being responsible for about 1.2 million premature deaths annually in the early 1990s.

Urbanisation

Most parts of the world are exhibiting very rapid urbanisation. This has substantial impact for the provision of energy infrastructure. At one level, poor migrants are increasing the demand for wood fuels in urban areas, particularly charcoal. This can be done on a financially and environmentally sustainable basis but if unsupported, it is likely that rural to urban biomass fuel markets are very environmentally damaging.

Urbanisation does, however, offer the possibility of a density of demand for energy services that is attractive both to centralised and decentralised energy service supply. Sector reform and grid improvement (extension and strengthening) together with more efficient generation cannot therefore be avoided.

MDG's and pro-poor growth

The MDGs target a number of dimensions of poverty reduction but do not specifically mention the role of the necessary infrastructure, including energy. A number of agencies have mapped the energy implications of the MDG, most notably in DFID's report on "*Energy for the Poor*"³ (DFID 2002). This demonstrates that the analysis can be complex, and that energy is a necessary but not sufficient condition for the attainment of almost all MDGs. In order to have an impact, increasing the use of modern energy services has to be combined with an appropriate energy conversion technology (and appliance), and an appropriate organisational structure.

A consequence of this particular formulation of the MDGs, which excludes infrastructure, has been that the associated Poverty Reduction Strategy Process (PRSP) and Donor Country Assistance Strategies (CAS) also "give very limited attention to energy...Energy access issues are conspicuously absent, leaving important linkages with productivity and cross-sectoral applications unaddressed; similarly traditional biomass also receives very little attention, particularly considering its central role in most IDA countries..." (Kennedy and Zhang 2004).

Energy Poverty and the Environment

A major characteristic of the energy sector in the past few years is that it appears on many policy agendas as a cause of environmental damage rather than as input to poverty reduction and improved well being. There is no longer much doubt that global warming is likely to exacerbate the problems of those parts of the world that are already deeply stressed, economically and environmentally.

But the fact remains that in the medium term, and under current prices and other incentives, the energy options that best meet the needs of poor people (and will most help to reduce poverty) are likely to involve fossil fuels, and they can have a negative effect on the global environment. This is recognised in the recent Political Declaration arising from the Renewables 2004 meeting in Berlin. There are very few alternatives to fossil fuels for transport, and the cheapest electricity for many people will come from large power stations fuelled by gas, coal, or even oil. Even in remote rural areas, diesel engines are likely to provide the best solution for providing both shaft power and electrical energy for many years to come. This trade-off between energy, poverty and the environment is also experienced dramatically in relation to coal, particularly for countries such as China and India, where future reductions in poverty are likely to depend on extensive further exploitation of these resources (albeit using cleaner and more efficient technology).

This not to argue against "renewable energy". Clearly renewable energy will be the "best solution" for some people, at some locations, at some times. But it does suggest that it will be important for policy makers to keep separate the goal of reducing global pollution and the goal of reducing poverty. Moreover is likely to be achieved by focussing on those options that best increase energy access and, separately, using different policy instruments on those options that best reduce the environmental costs of energy conversion and use.

³ Energy for the Poor provides a listing of the energy inputs necessary to the attainment of the MDGs.

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People who currently do not have access to modern forms of energy cannot be expected to restrict their energy options just to renewable sources (either “old” renewables such as biomass, or “new renewables” such as photovoltaics). They must be empowered to **make informed choices between “the full menu” of energy options that best meets their needs.** They certainly cannot be expected to restrict their options willingly, while northern industrialised countries are not doing enough to reduce the pollution burden of their current and past energy consumption.

3. SYNTHESIS AND ANALYSIS OF MAIN ISSUES TO MAKE ENERGY INTERVENTIONS PRO-POOR AND DAC MEMBER REPLIES TO QUESTIONNAIRE

3.1. General Analysis of DAC Member Responses

Most members provided broadly generic responses about infrastructure to the questionnaire for the 2nd workshop. However only three provided detailed responses relating to the energy sector. One or two respondents did not refer to the energy sector at all in their replies. The generic nature of responses has made it difficult to discern issues of major difference on policy positions between the DAC members responding to the questionnaire.

While there clearly are similarities between energy and other types of infrastructure, the previous section suggests that there are also substantial differences. A major conclusion from the questionnaire might therefore be that a number of donors do not currently have experience of energy related infrastructure, and that if they were to increase their assistance in this area, they would benefit from guidance from other DAC member and from elsewhere as to the current view of “best practice”.

3.2. Decentralization

Decentralisation⁴ has been advocated by donors and development agencies for many reasons: it is an important factor in broadening citizen participation in decision making, in improving local governance, in improving feedback about project outcomes to authorities (with related penalization/gratification through local elections) and therefore (in general but not always) in enhancing ownership, and promoting poverty reduction from the bottom up (GOVNET 2004). However, while there is a much economic research on decentralisation in general, there is little in terms of its implications for infrastructure and poverty reduction. The results of a comprehensive review of 19 country case studies documented in the literature “find that an unambiguous link between decentralisation and poverty reduction cannot be established” (GOVNET 2004).

This general message holds true for the energy sector too, and is reflected in DAC member replies, with the majority stating or implying that generic conclusions are hard to draw given the range of conditions in developing countries and different approaches applied. However there are similar experiences and problems encountered with decentralization across the range of infrastructure sectors.

Overall, the message of the DAC member replies, and the literature reviewed (GOVNET 2004), is that the sustainability of decentralization and of community-based initiatives are highly variable. Sustainability depends crucially on an **enabling institutional environment**, with genuine **government commitment**, and significantly more **accountability of leaders** external to the local communities than is available in many developing countries. It also requires better training of the key facilitators. Australia states explicitly that decentralisation should be an outcome of the promotion of good governance. Japan’s policy towards decentralization is set out in their ODA Medium-term Policy: “Japan will emphasize support for policy and institutional development, including the development of legal frameworks” such as “The development of appropriate fiscal, financial, and other economic systems” and “The enhancement of policy formulation and the implementation capacities of developing

⁴ Decentralisation is understood in a wide sense, i.e. the transfer of power and responsibility (political, economic, fiscal, and social) from the central to the local level. (from introduction to A workshop jointly organised by the Development Centre and the Development Assistance Committee (DAC) – Network on Governance (GOVNET) 29-30 September 2004)

countries.”; “Japan will provide intellectual support for institutional development, promoting the distribution of the benefits of economic growth to impoverished populations.”⁵.

Where the operating environment is characterised by weak institutions and political conflicts, decentralisation could actually make matters worse for those in poverty. GOVNET (2004) draws two important policy lessons: “First, in an environment where the central state is not fulfilling its basic functions, decentralisation could be counterproductive and therefore should not be a donor priority. Secondly, in countries that are fulfilling their functions, decentralisation could be a powerful tool for poverty reduction, improving representation of the poor and better targeting of service delivery. To fully reap the potential benefits of decentralisation, donors’ interventions in these countries should focus on providing technical support and improving the co-ordination of their aid policies at both the local and national level.”

Technology choices in the decentralisation context.

An important distinction made in several DAC member responses is between the centralised/decentralised environment in general, and **centralised/decentralised provision of energy services**. That is between centralised electricity grids vs. decentralised mini-grids or stand-alone systems such as those to provide improved cooking technologies. Several responses state that centralised structures can be efficient and pro-poor. Similarly, decentralised provision of energy services also generally requires some level of support from centralised structures, in terms of regulation, legal structure or financing for example. Hence a focus on **framework conditions** is necessary irrespective of the delivery model applied.

It is widely acknowledged that the **full menu of technical options** should be considered in deciding how best to provide energy services to the poor. Adequate appraisal methodologies are required to make appropriate options assessment.

However two major changes have occurred which means that **decentralised energy options** are now far more viable than a decade ago. First there have been massive technical changes in what is technically possible in the conversion of primary energy into useful energy, particularly at the small scale. Second, it is now known that poor people already spend a significant part of their cash income in meeting their need for energy services. Decentralised energy service options potentially mean that the benefits can be delivered more directly to poor people and such schemes can tap more effectively into local private capital.

Advances in small-scale technology have increased efficiency and reduced costs, opening up a wide number of options for profitable small-scale, decentralized energy supply. This was most apparent in improvements to diesel and small petrol engines, but there have also been promising developments with photovoltaic cells (where prices have fallen dramatically), wind generators, micro-hydro (particularly with the introduction of electronic load controllers), biogas, and gasification.

Evidence of the high proportions of income poor consumers are paying for energy is coming from a wide range of countries across the globe. One type of evidence is provided by data on the widespread use of 12-volt (car) batteries for lighting, radio and TV where alternative sources of electricity are unavailable. Recent survey data from Uganda, for instance, show that in 1996, 94 percent of households not connected to the grid used dry cell batteries and were thought to spend about US\$6 per household per month on them (World Bank 1997).

This discovery of significant cash payments for improved energy services, even among relatively poor people, means that in principle it may be possible to meet their needs with **market-based solutions using decentralised technologies**. Un-served people do not necessarily have to wait for the state, aid agencies, or NGOs to extend energy services to them as they can acquire modern energy services themselves. Although the supply of improved energy services to poor people is by definition unlikely to be the most profitable area for private sector investment,

⁵ Mid-Term Policy on ODA, II. Priority Issues and Sectors.

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there is a new optimism that modest profits can be earned from such businesses, particularly if the state is able to provide the relevant social, legal, and physical infrastructures. Many agencies are now testing out the financial viability of these new decentralised models for the delivery of modern energy services

Examples of innovative decentralised provision of modern energy services

The French-funded rural electrification program established in Morocco in 2001 innovatively combined the provision of electricity and water through the installation of Photovoltaic systems and solar pumps. It ensured the success of the project through the public-private co-investment and co-administration of the decentralized equipment.

3.2.1. Roles of central and local governments (including other stakeholders) in terms of planning and coordination of energy infrastructure development, project implementation and operation and maintenance

The Japanese response captures the essence of most other DAC respondees concerning the roles of central and local governments. They stress the distinction between centralised (network) energy interventions and 'local-type' decentralised delivery of energy services. The Japanese see the responsibility for project implementation and maintenance works in decentralised systems shifting towards local government, with central government providing a more regulatory and supervisory role. However, in some network infrastructure projects such as the trunk transmission networks, which must be developed in accordance with national policy, the central government continues to implement the project and maintains control over the assets. In the case of decentralised 'local-type' energy infrastructure development, it can be easier to involve beneficiary groups with projects at all stages, from the design to implementation, as well as giving responsibility for carrying out operation and maintenance. The roles of central and local government with respect to energy programmes thus needs to be considered in the context of the particular characteristics of the programme in question.

While several respondees refer to the role of NGOs in the provision of infrastructural services, the role of the private sector received less attention, except in the specific case of the electricity sector. This is discussed below.

Problems encountered in policy and planning and designing and implementing energy aid programmes in the decentralization context?

Responses to the problems encountered in designing and implementing energy aid programmes in the decentralization context highlighted a large degree of consensus among DAC members:

Lack of clarity of roles between the central and provincial/municipal government was highlighted by Japan, UK and others. In spite of administrative decentralization, it is often not clear which entity among the central government or state, provincial or local governments has responsibility for the planning, implementation and operation and maintenance phases of infrastructure projects. Moreover, even in cases of 'local-type' infrastructure projects, current practices do not adequately transfer planning and implementation responsibility to the local governments. According to Germany, while this situation varies widely between countries, it is often the case that even where competences and responsibility have officially been decentralized, financial decision-making remains with Central Government. These problems are exacerbated by the failure of central Ministries responsible for energy-using sectors (such as agriculture, small enterprise, transport, health and education) to coordinate their national plans (Ireland).

The German response highlights that as well as poorly defined competences, there are also cases where **interests conflict** between different levels of administration. Since energy is generally centrally planned, rural energy needs are frequently neglected, as the resources are captured by urban elites. The UK provides the example of Nepal where there is general resistance to decentralisation with a 'Kathmandu bias' and specifically, in a donor-project-dominated landscape, a huge resistance in line Ministries where projects provide numerous incentives both in monetary and career progression terms. The Swiss response describes the practical difficulty of

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donors working in a decentralised context given the addition of **multiple levels of interaction** and counterparts, with central authorities still having a say in the project's framework resulting in competence and other conflicts.

Legal system problems are highlighted by Japan as one of the causes of the lack of clarity on the division of responsibility in administrative decentralization. The US specifically highlights problems associated with ways and means of resolving issues relating to interpretation of contract clauses under decentralisation, while France mentions inconsistencies between the law and policies of decentralization.

Lack of capacity in local government is specified as a key constraint by all DAC members. Frequently decentralisation of decision making and budgets is not accompanied by a transfer of experienced engineers and other key personnel to local government. The resulting lack of technical capacity within local governments, means that they are unable to cope adequately with the planning, implementation and maintenance of projects. The UK cites experience, mainly in Africa, where despite local government theoretically holding the mandate for many aspects of local/community infrastructure delivery, the technical capacity to build and maintain infrastructure remains very limited, and there is reliance on higher levels of sub-national government for the expertise and resources required. These experiences imply a strong need for creating (or strengthening) **decentralised structures and institutions for energy service delivery before decision making and budgets are decentralised.**

One aspect of this lack of capacity and experience of local authorities is that they have little or no exposure to external donors and international project development practices, a situation made worse by language problems. Switzerland reports that projects are therefore frequently developed along "trial and error" lines, with many decisions being made in practice by the donors or their consultants.

Accompanying and associated with the lack of clear roles and capacity is **a problem of accountability** of local elected bodies. The lack of exposure to international procurement practices frequently results in local patronage and nepotism, thus endangering projects due to "poor governance" (Switzerland). The UK describes a lack of systems, incentives and willingness to make financial transfers from central to local government leaving local bodies without sufficient cash, so that contributions have to be provided through alternative means.

Key questions:

- (1) What is the appropriate sequence for building local capacity in the decentralisation process: before, during or after?
- (2) How can donors best reduce the burden of transaction costs when providing aid to decentralised energy infrastructure?

Approaches adopted in economic infrastructure aid program and/or project in decentralization context

The approaches outlined by DAC members are designed to overcome the problems described both at the **systematic and project/programme levels**. At the systematic level Ireland, Australia and others describe how they are increasingly working with the relevant central government Ministries and National Planning/Finance Ministries to address the issues effecting local government. Ireland specifically highlights the development of Sector Wide Assistance Programmes (**SWAP's**)⁶ as a key instrument in advancing dialogue on these issues, although does not specifically mention energy. Many other donors have moved away from supporting projects to supporting sector reform, but interestingly the development of SWAPs in the energy sector were not a major feature of DAC member responses. . A number of donors highlight their support for **local government reform programmes** in boosting the capacity of local government to absorb national and international funds.

⁶ The "...defining characteristics of a SWAP are that all significant funding for the sector supports a single sector policy and expenditure programme, under Government leadership, adopting common approaches across the sector, and progressing towards relying on Government procedures to disburse and account for all funds." www.odi.org.uk

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The UK stresses the need to focus more on economic growth rather than just service delivery (ie. create wider, higher level links).

At the project/programme level DAC responses stress the need to define competences, milestones and deliverables for each phase of a project clearly in project documents. While Switzerland specifically highlights the need for ensuring clarity with local partners, from the earliest stages of a project. In order to engender ownership there is a need for agreement with beneficiaries not only on issues reflected in the project agreement about donor practices and conditions, but also on the selection of international consultants entrusted with accompanying the project. The US also characterises their approach as generally attempting to foster communication among the parties, with regular meetings or other contact to air issues and discuss roles and responsibilities in their resolution. Training and coaching of representatives of the local beneficiary are also viewed as key to success.

There is often a problem arising from inadequate **energy strategy at the regional/district level**. In Nepal DFID operates in line with the existing Local Infrastructure Development Policy & Strategy, while at the same time trying to improve it. NGOs supported by DFID are also required to work in line with the Local Self Governance Act and District Planning processes. Germany and UK both stress that a solution to the problems of implementing decentralised energy projects is to make local communities responsible, but to link them to local government structures to ensure sustainability. Germany cites a hydropower project in Tibet (see annex 2) as an example where implementation at local level is the responsibility of the local government.

The case of the electricity sector

Japan highlighted the special issues relating to the electricity sector. They refer to the processes of sector reform in many countries, in which there is a 'horizontal' separation or 'un-bundling' of power generation, transmission and distribution. Such reforms are often associated with the promotion of private participation or privatization of state-owned enterprises. Japan notes that since the areas covered by the separated utility operators do not normally coincide with the administrative areas of local governments, the division of roles between central and local governments is not usually an issue. However for decentralised power generation, in rural areas for example, beneficiaries can sometimes take responsibility for implementation and maintenance of the system in order to better reflect their needs.

In order to secure the efficient and fair supply of services while this 'unbundling' is taking place, it is necessary for the central government to take the initiative in ensuring **equitable planning, policy and regulation** of the sector. In particular, Japan suggests that the following are important issues for central government:

- Decisions about the provision and regulation of cross subsidies in order to ensure that adequate services will be provided in poor rural areas;
- Elaboration of long-term plans and regulation;
- Decision on the location of distribution centres in order to achieve a balanced, equitable supply of services to each area, in the context of elaborating of long-term plans.

3.2.2. Local resources for investment and maintenance in decentralised systems

All DAC member responses recognise that the most significant problem is the lack of adequate financing at the local level to cover construction and recurrent costs. Lack of funding for maintenance is universally recognised to be a major and long-term issue. Approaches described can be broadly categorised in two groups: 1) location specific solutions for increasing available financial resources; 2) Systematic approaches to improve public expenditure management, including broader governance issues.

Experiences and problems encountered in designing and implementing energy aid project/program in terms of counterpart funding

Unlike other infrastructural investments, energy services are usually provided for a fee or tariff paid by the user. The Japanese again specifically highlight the electricity sector. Here, low tariff levels and poor collection rates make

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it extremely difficult for implementing agencies to secure adequate counterpart funds to cover such activities as operation and maintenance costs, and to provide an adequate return to private investors. In order to improve tariff collection rates Japan suggests consideration of **rural electrification cooperatives**.

The Japanese note the gap in practice between administrative decentralization and fiscal decentralization. Even though authority and responsibility for decision-making are transferred to local governments as a result of administrative decentralization, local governments often do not have access to the necessary financial resources from central government to finance these new tasks. The situation is exacerbated, as local governments are generally not empowered to raise their own fiscal resources. Australia outlines how improved local resources in the energy sector will result from decentralization as part of public sector reform and improved fiscal management in developing countries. With a strengthened 'whole of government approach', Australia is working with partner governments in developing Public Expenditure Review mechanisms through placement of Australian personnel in key treasury and finance positions in the Solomon Islands and Papua New Guinea to deal with economic reform in government owned utilities and resource ministries involved in delivery of essential service such as power.

France states that apart from exceptional situations of urgent need, the methods of financing for maintenance are considered as an integral part of project and programme definition. Without adequate assurance of maintenance funds at this stage, either from national budgets (or external sources), or local financing, grant support will not be provided. Sweden views the lack of counterpart funding not as a problem that donors need to resolve in order to have *their* projects implemented, but rather that the lack of proper local governance structures and financing mechanisms are the focal problem, justifying specific interventions aimed at capacity building of local government.

The UK mentions that counterpart funding can be highly political and donors need to be more consistent in their approach. They make reference to counterpart funding in Nepal, which, while present in principle, is often subject to delayed or non-existent budget releases in practice, a situation made worse by the diversion of resources away from development to tackle the current conflict in the country. The US characterises the problem as being to identify the source of local funding, identify the local authority with decision power, and then actually have the funds mobilized in a timely way. Administrative bottlenecks often cause significant delays.

Innovative approaches and examples of how to resolve the problem of lack of funds of local governments on energy infrastructure investment and maintenance

Switzerland characterises the general approach on this issue as the guaranteeing of the availability of the necessary local resources through requiring specific budgetary allocations in local budgets. If and when the covering of local costs cannot be granted by local budgets, solutions have to be found with the central budget, through the counterpart Ministry involved in the project, through the frame agreement on bilateral cooperation. However Switzerland points out that the division of accountabilities between central and local governments in the construction/rehabilitation of infrastructure or its maintenance is not sufficiently clear.

On a more macro level, the UK points to the importance of the wider enabling environment. Sector wide assistance (eg SWAPs) and sector reform in general provide an opportunity to make these linkages. Switzerland and others point to the need for examination and discussion of sector policies (in a "policy dialog") with the authorities – in cooperation with other donors – to require, inter alia, that local authorities (partially owning the infrastructure assets) have the ability to take independent decisions about raising tariffs and/or taxes. Germany too highlights the "taboo of mentioning and enforcing taxes", which form the basis of any state and specifically the basis of most infrastructure. The UK points to the need to address the linkages between energy and other sectors, for example the links between electricity tariffs and water tariffs in Maharashtra, India. France mentions that sub-sovereign loans are generally not possible due to the financial weakness of the local communities, although grants can be provided directly to decentralized structures.

All respondees stress the importance of **building capacity** at various levels. Japan considers that to secure the **beneficiary-pays principle**, it is important to build capacity on the side of utility operators and to provide incentives to beneficiaries for their payment of tariff. Specifically, the key is to raise the willingness to pay of the

beneficiaries by improving tariff collection systems and making beneficiaries aware of the importance of the utility of power. The UK emphasise their efforts to build local capacity in order to help districts to be able to maintain their assets. Switzerland raises the use of consultants involved in auditing and counselling in order to enable the beneficiaries to optimize efficiency in the use of their local funding and through this make the projects sustainable over the long run. The UK, US and Ireland point out that local **“in kind” contributions** can be effective, with the US pointing out that they should be defined clearly at project initiation stages.

Case studies

As an example of a systematic approach **AusAID** are supporting **public expenditure management in the Pacific and East Asia** as part of a commitment to improve Governance in partner countries both in central and provincial governments. Australia’s Regional Assistance Mission to Solomon Islands RAMSI in the Solomon Islands is assisting with the stabilisation of electricity supplies in Honiara, Solomon Islands while the economic reform units within government will consider the longer term economic issues including private sector participation in harmonisation with other donors, World Bank and ADB.

Sweden highlights their support to the **Rural Energy Agency in Uganda** as an example of an initiative aimed at financing of local infrastructure.

The World Bank is also testing an innovative model in Uganda with its **Energy for Rural Transformation programme** which links energy interventions with activities in agriculture, health and information and communication technologies.

France highlight the case of **street lighting in Gabon**, where, due to the irregularity of resources from the local communities, a specific fund was developed through a levy on subscribers to electricity, making it possible to finance the consumption and maintenance of public lighting. This fund is managed by a new company.

An example of a **rural electrification cooperative in Bangladesh** is provided by **Japan**. A contract was made with the government, functioning as a power distributor, while the rural electrification cooperatives received initial investment funds from the Rural Electrification Board, repaying this from collected tariffs, which are also used to cover maintenance costs. Electrification cooperatives, which are organized by the beneficiaries themselves, have ownership over the facility and have achieved high tariff collection rates through the incentives for improving operations under the contract with the Rural Electrification Board.

As an example of innovative approaches to infrastructure the **UK** presented the **C3 programme** in Zambia and Uganda where local/community infrastructure planned, built and maintained through community-municipal partnership. This was successful in Zambia in providing linkages from compounds to main urban infrastructure networks. The C3 funds are held by the local government and run as a challenge fund to which community groups (often residents committees) can submit proposals. A number of transparency and accountability measures put in place by C3 have also supported improvements in the local governance of infrastructure investments. DFID also highlighted their support to **CLIFF** which provides a guarantee to local financial institutions to enable communities to access credit for infrastructure investment and maintenance.

The Shell Foundation is also testing market based approaches to decentralised energy service provision by providing funds to existing banking operations to encourage them to support small scale energy investments, some of which are likely to help poor people. <http://www.shellfoundation.org/sf/approach/index.html>

3.3. Sustainable energy service delivery to the poor and the role of the private sector

As explained by DFID (2002), energy demand is a “derived demand”: people do not want energy, but they want the services that it can provide. These services include cooking, water heating, lighting, refrigeration, water pumping, transport, communications and so on.

This wide range of energy services can be provided by a variety of fossil fuels – such as coal, gas, diesel and kerosene, and renewable energy resources – such as solar, wind, hydro and biomass. But in order to obtain the desired service, energy and fuels have to be converted through end-use technologies – such as traditional stoves and fires to light, bulbs, motors, and telecommunication equipment. The impact of improved services, therefore, is determined in large part by the end-use technologies, their accessibility and cost, and by their efficiency. Cheap fuels such as wood, can cost more to cook a meal than expensive fuels, because of the relative efficiency with which they are converted in the stove. However, poor people often have limited access both to energy sources and conversion technology. Given the breadth of services and conversion technologies available, it might prove useful to **disaggregate energy services** (and technologies) into different groups depending on their influence on poverty alleviation. Depending on the particular needs of the developing country, energy projects can aid in the provision of: a) Subsistence services, such as cooking, b) Productive or income generating services, such as water pumps for irrigation, or c) Education and Medical services, such as school lighting and vaccine refrigeration.

A general position is that poor people do not have access to modern energy services primarily because they are poor – they do not have the ability to pay. In the past this problem of access was addressed by state subsidies to reduce the cost, and or to extend the service beyond financially viable limits. Many of the donors' problems with subsidies are discussed further below. More recently it appears that a more promising approach is to combine the provision of modern energy services with the means to increase the ability to pay – some form of income generating end use.

3.3.1. Targeting the poor

Approaches to targeting the poor with energy services

A common way of targeting the poor shared by Germany, UK, Switzerland, France and Australia is to **target poor communities on a geographical basis** – such as rural zones or underprivileged districts – taking into account the levels of income –or other poverty indicator. France states that it uses socio-economic investigations carried out in the framework of Poverty Reduction Strategies (PRSP). It is presumed that most other donors also plan their aid through the PRSP process, though this was not stated in the questionnaires, and the review by the World Bank mentioned in section 2 suggests that energy is rarely included in the PRSP process, not because it is not important, but because of flaws in the way that PRSPs are conducted.

Japan underlined the importance of targeting beneficiaries based on income level of the individual household, but stated that the **lack of data** forces the JBIC to base its decisions on more general Country profiles. DFID uses the PRSP approach, but includes a number of other factors in its targeting decisions, including level of conflict in the area, and a measure of the lack of existing infrastructure. Germany often bases its projects on commercial actors; the poor are targeted through special low-cost, and efficient products.

In terms of the problems encountered, most countries highlight that it is desirable to base targeting decisions on objective and direct data such as income of individual households, although most note that **data describing the precise status of the poverty is generally not available**. The JBIC circumvents this issue by creating country-wise poverty profiles based on indirect data pertaining to economic and social conditions of the poor population as proxy variables. They complement these profiles with official and unofficial dialogue with governments of the partner countries, interviews with the poor population itself during surveys for individual projects, and information exchange with other aid agencies and NGOs.

Japan also notes the difficulty of targeting service delivery for the poor in sectors such as energy where the contribution to poverty reduction is indirect. Furthermore they consider that the segment of the poor population having high economic potential would take maximum advantage of the opportunities available through the development of the sector, making targeting for the most needy more difficult. Direct targeting and measuring of impacts for network-type infrastructure, is not easy, as most of the benefits are indirect.

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DFID argues that issues with direct and indirect targeting have to be seen in a broad context but can usually be treated as a Value for Money issues, though it is not clear what this might mean in practice.

In terms of gender, it is now widely recognized that women and children constitute a majority of most poor communities, and bear most of the burden of using traditional fuel systems. They not only spend a large proportion of time collecting firewood, and using it to cook, but they also suffer extensively from the health effects of the resulting smoke pollution. It now appears likely that the energy services that women want are different from those that men want, and thus gender issues have attained increased prominence in the debate on sustainable energy development (Ceceleski, 2003). If this is so, and the poverty impacts of energy interventions are mediated by the end-use technologies that are chosen and used, then it will be important to determine what women want if their poverty – and that of their families - is to be reduced.

However, the **gender mainstreaming agenda** of most donors and national policy makers **requires further practical implementation** to bring an appropriate gender perspective to energy policy analysis and design (and targeting of the poor).

Role of different technologies including renewable energies, use of isolated grids etc in targeting the poor.

It has been suggested earlier that there is emerging evidence that decentralised energy systems, including renewables, offer new opportunities both for meeting the needs of poor people and for attracting local private capital. However this is not reflected in the answers to this question in the DAC responses.

In part it seems likely that most donors have not yet developed instruments that can effectively support the provision of decentralised infrastructural services including energy. The transaction costs tend to be high, and successful schemes depend on detailed local knowledge. It may also be because the question is itself misconceived. In terms of policy intervention the important distinction appears to be between centralised and de-centralised systems, rather than between renewable and non-renewable energy systems. Clearly renewable systems can be large and connected to centralised systems (such as with hydro, geothermal, and much modern biomass), while non-renewables can also be of any scale from the largest to the smallest.

Certainly, renewable sources of energy are characterised by relatively high capital costs, and relatively low recurrent cost. While fossil fuels exhibit the opposite characteristics (see Policy Recommendations for Renewable Energies, Renewables 2004, Berlin, at section II.2 page 7). This means that renewables are likely to find a niche where fuel supplies are expensive or non-existent as in remote locations, but they pose a problem for poor people who are by definition limited in their ability to raise capital. Similarly technologies such as modular photovoltaics are likely to be attractive in supplying electricity when the density of demand does not justify electricity grids, but provide mainly increased social welfare through improved lighting, rather than the power necessary for most income generating applications, and hence pro-poor growth.

Key questions: (1) What is the DAC position on renewable energy, with respect to providing modern energy services that best meet the needs of poor people?

(2) what aid instruments best support the provision of decentralised energy services too poor people?

Measures to associate an energy/ power project with both income generating and non income generating activities as well as improving living conditions of the poor

Section 2 suggests that at the macro economic level there is a strong correlation between income per capita and the use of modern energy services per capita. However at the micro level the empirical evidence has been more variable. Many studies of rural electrification did not show the expected high impact on poverty reduction. For instance the World Bank Operations Evaluation Department said in 1995 that “All the evidence to date, including that from Bank-financed RE [rural electrification] projects in Asia, shows that RE does not directly reduce poverty by helping the poorest rural people” (World Bank 1995). However it is now clear that the impact of such schemes

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is determined by the existence or absence of the “complementary inputs” necessary to utilize the energy supplied, and whether indeed the introduction of the electricity results in an increased ability to pay for it.

It is then thought that successful poverty-reducing energy interventions need to be associated with complementary activities in other areas, including institution building, training and other support (eg credit) for enterprise development.

Critical success factors for rural electrification include stable system operation and maintenance over time (with the institutions and expertise to ensure this), strong sense of ownership, a cost recovering tariff scheme or stable cross-subsidy, equitable access and encouragement of productive activities.

Roles of NGOs, local governments, user groups, and the private sector in targeting the poor, and targeting mechanisms through prices.

Though responses to this question were again limited, most countries agree that **these groups have important yet differentiated roles to play**. In cases where social and formal institutions are developing, most NGOs, local governments and private sector enterprises can perform the role of facilitators and can provide technical support, financing, maintenance and operation of modern energy services that meet the needs of poor people. In more under developed systems, NGOs and other grant aided actors will be required to support communities, act as social mobilizers, and to design and promote particular schemes. However, in most cases the provision of modern energy services by the small-scale private sector or local government are likely to be the most appropriate.

Switzerland highlights that the international private sector can have a strong role in improving the efficiency and effectiveness and cost of energy services. This is particularly so in the provision of liquid and gaseous fossil fuels. However, as noted in section 2, the foreign private sector has been unable or unwilling to invest extensively in the electricity sector of developing countries.

Germany cites the example of the Ghazi-Barotha hydropower plant (1,450 MW and an average energy output of 6,600 GWh) funded by the German government in Pakistan. The continuous dialogue with NGOs and community members ensured that social and environmental considerations were integrated into the project. As a result, the required resettlement of 900 people was achieved taking into consideration the interests of the community, and has led to the implementation of an integrated regional development plan involving all stakeholders.

To ensure the poor actually benefit from the private sector involvement, **clear rules, incentives and targets need to be set in advance by the government**. This assumes the existence of a strong regulator and other administrative skills that are often lacking.

The position on private sector involvement is gradually changing towards a pragmatic view that it is not a question of private sector or not but rather an openness and flexibility to engage anywhere on the public/private spectrum depending where most appropriate to meet development objectives.

Experiences with (ex-ante) poverty impact assessments in energy projects, and links between these and broader sector and national impact analysis

It seems that there is limited experience on the subject. In the case of the UK, DFID is currently introducing a CAP-wide Livelihoods and Social inclusion Monitoring system to address this weakness in their programme. This responds to the fact that links are often not well made, as well as the concern that as they focus more on policy level initiatives, they will lose some of the practical assessment issues that should inform longer-term planning.

Although none of the responders addressed this question directly, a group of stakeholders, led by Global Village Energy Partnership and the EU Energy Initiative are currently engaged in a Monitoring and Evaluation task group to improve practice in this area of energy impact assessment. Foster (2000) has suggested that **impact indicators for energy projects should be built in at the design phase**—and doing so consistently and systematically, across

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countries and over time. In order to develop suitable indicators, there must also be explicit hypotheses on how specific elements of energy projects, individually or together, affect the poor. Such hypotheses have been developed but they are complex (see for instance, World Bank's "Energy Poverty and Gender report", <http://www.worldbank.org/astae/enpogen/>)

3.3.2. Energy subsidies and tariff structure - striking a balance between affordability and financial sustainability

Experiences with, and views on tariff structures, subsidies (including smart subsidies), connection costs and methods of payment (including pre-payment services and micro finance schemes) to enhance pro poor energy services (eg rural electrification)

Though the political acceptability of subsidies has been subject to wild fluctuations in recent years, most countries (Germany, UK and Switzerland) agree that **the use of subsidies is justified in some cases**. Subsidies are usually justified to improve energy access, to introduce new approaches, where initial costs are high but expected to fall, or to bring market prices in line with real resource economic values (including positive and negative ‘externalities’).

The UK points out that subsidies need to be managed very carefully so as not to be “captured” by the not-so-poor. Subsidies should be tailored to favour the poorer strata, while **avoiding general consumption oriented subsidies**. Moreover, the UK argues that subsidies are better if provided as a target (ie. output based) rather as a fairly blunt incentive (ie. input based). Further, careful monitoring and flexibility to change approach is critical.

For Japan, subsidies should be supplied directly to the poor population, as opposed to organizations executing projects, in order to expand the access by the poor without interfering with the efficiency and sustainability of public utility services. Though it is problematic to identify the poor for supplying subsidies, in cases where the urban poor population is already identified in social welfare programs by the local government, it is possible to target such group to be subsidized by applying the same criteria as the social welfare programs.

Estache (2004) confirms that **good tariff design requires good targeting** (consistent with the monitoring and enforcement ability of the authorities) which in turns requires good data on the users. Similarly, the minimization of the fiscal costs of the targeted direct or cross subsidies requires good data on cost and good targeting as well. This data could easily be financed by loan preparation or technical assistance.

Concern about the misuse of subsidies has led to the idea of “**smart subsidies**”⁷. In essence, the World Bank suggests that smart subsidies should:

- Follow pre-established rules that are clear and transparent to all parties.
- Focus on increasing access by lowering the initial costs (technical advice, capital investment) rather than lowering the operating costs.
- Provide strong cost minimization incentives, such as retaining the commercial orientation to reduce costs.
- Remain technologically neutral.
- Cover all aspects of the project including end-use investments, particularly to encourage pro-poor end uses.
- Use cross-subsidies within the project to pay for life line charges, tariffs, and other pro-poor, recurrent cost subsidies (for example, enable transfer from richer sections of the community, and commercial users to marginal connections).

This view of subsidies is backed up by new database studies that point out that subsidies can be an efficient way of achieving social objectives, as there are many instances in which the costs of these measures are rather modest. Moreover, these results seem to hold for both transient and chronic poverty (Estache 2004). Further, given that servicing the poor can require a significant amount of overhead investment – as it often requires training, technical

⁷ The term *smart subsidies* was first coined by Charles Feinstein at the World Bank. The current text draws on Floor, Massé, and Girdis 2001 and discussions with Arun Sanghvi and Subodh Mathur

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assistance, and capacity building within communities, while also facing issues such as low density of demand and remoteness of location

With specific reference to electricity, donors agree that subsidies can be targeted to enable poor people to use modern energy services – through subsidized tariffs - or subsidized connection costs (or both). Importantly, it is broadly accepted that the **major barrier to affordable consumption is connection fee levels** rather than consumption tariffs. The poor can often cover operation and maintenance as they spend proportionately much more than richer households on energy services. In fact, the literature shows that under fairly mild assumptions, decentralized energy services financed by user fees (subsidized or not) rather than local taxes or intergovernmental grants is advisable, except when a large share of the local users are poor (Estache 2004). Subsidization of connection fees tends to be more acceptable since it has no distortion effect on consumption, i.e. does not induce inefficiencies in the use of resources. This is exemplified by the efforts made by Switzerland to implement “smart subsidies” in El Alto, Bolivia, where by reducing connection costs, a revolving fund was set up from which poor customers could obtain interest-free loans for the connection. Importantly, such subsidies should be designed so as to be temporary and be gradually removed.

In many countries there are minimum levels of consumption agreed by international organizations (eg. 10kWh/household/day), and some degree of cross subsidy is often utilized to cover the costs by charging high electricity users a premium price in order to cover the cost of delivering service to poorer people. For example, Switzerland is contributing to the financing of a minimum consumption lifeline through the Pamir power project. This will enable the Tajik Government to service all households in this region (80% of which are poor, eliminating the need for targeting) during 10 years.

In terms of setting tariffs, the UK suggests that tariffs should take account of different types of service provision and in cases where small towns and rural communities have discrete systems, they suggest separate tariffs for those communities. Germany highlights that in urban areas, progressive electricity tariffs are promising, however there is an issue of poor collection rates. Germany also raises the value of using private sector and NGOs as a driving force, while training for small (family size) entrepreneurs in technical and business matters is key. Germany gives the example of an Energy Photovoltaic Program in South Africa – in this example a concessionaire will permanently own the PV-systems, while users will pay through a “fee for service” model.

Germany notes that in the cases where cross-subsidies are not viable, a reliable government commitment to paying the needed subsidies is required. However, in many countries it is clear that political decisions to provide a particular group of voters (often richer farmers with pump sets connected to the electricity grid) with cheap or even free electricity can have a devastating effect on the financial and technical viability of the utility, and indeed on local government finances. This situation in India is graphically described by Madhav Godbole in *Power Sector Reforms: No Takers*, Economic and Political Weekly, India September 11 2004).

Separately, Switzerland has suggested other options to increase access to infrastructure services for the poor, only some of which may require subsidies. These include: a) adapting service levels (therefore price) to the needs and payment capacity of consumers (e.g. low cost networks with a lower quality of service); b) the provision of Technical Assistance, and/or access to credit lines for the construction of infrastructure; c) Provision of education about energy saving possibilities (including demand-side management); d) Support to temporary lifeline tariff subsidies.

Problems encountered in designing and implementing energy aid projects/programs in terms of energy access vs. affordability, and how these problems are addressed

There seems to be a consensus that public services should be made accessible and affordable for poor beneficiaries. There is also a general consensus that the “user-pays” principle should be adopted for the provision of infrastructural services, except in a very limited set of specific circumstances. A commercially-based pricing structure is desirable if the service provider is to secure an adequate profit and improve users’ accessibility through new capital investment. However, commercially-based prices place many modern energy services outside the

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grasp of many poor people (Birdsall and Nellis 2003; Weisser 2004). The question is how to balance accessibility and affordability. In the energy sector, this balance has to be struck either through subsidies, or through linking improved energy services to income generating end uses. That is, to enable new users to increase their ability to pay for the improved energy service.

This is the strategy adopted by Japan, which aims to improve both the **willingness to pay and the capacity to pay** in order to improve affordability. To this end, the possible measures include giving incentives to pay to the users and providing additional support for them to increase their income. When the capacity to pay improves so much as to sustain the operation of the project on commercial basis, future private sector involvement may be expected to follow.

In order to achieve "affordability of supply" and the financial viability of the service supplier, Switzerland strives to ensure that infrastructure projects are implemented in sectors where **cost recovery** is high on the development agenda of the host government and is supported by the donors. When suitable, they try to have a dialogue on these issues with the authorities as well as with like-minded donors.

For Germany, the problem is that in many countries, energy consumption is heavily subsidized for most consumers (poor and not so poor) and thus tariffs are not cost recovering. They point out that this gives the wrong incentives to users and does not favor investments in energy efficiency or renewable energies. Their suggestion is then to ensure subsidies are adequately targeted.

In order to reduce the cost of extending service affordably and improve their reach, the UK has looked at ways of **"piggy-backing" on other initiatives**. For example, they suggest forging strategic alliances between national government programmes and the efforts of the NGOs to reach remote rural areas where distances are great and population densities are small. The UK also tries to secure an appropriate level of community contribution, one that is sufficient to achieve ownership but not so high as to disadvantage the poorest.

Private sector and national and local regulatory framework and institutional settings for service provision

In recent years it has been widely accepted that neither the state nor foreign donors are able to provide sufficient finance to meet the needs of developing countries for all the infrastructural investment that they need for growth, development and the reduction of poverty. This means that the State must develop and enforce regulatory frameworks and institutional arrangements that both protect the interests of consumers (particularly poor consumers) and attract sufficient investment.

However Estache (2004) argues that the characteristics of less developed countries (LDCs) often lead to solutions which are quite different from those that would be given for the restructuring of infrastructure in developed countries. Indeed, the limited enforcement capabilities in LDCs are quite significant in practice and, with the unusually high risk levels, this is one of the key reasons why "one size fits all" does not apply when reforming infrastructure.

Most countries agree that the policy and institutional environment should encourage commercially viable infrastructural services, particularly energy services. At its heart this is likely to include tariff levels that allow cost recovery in order to encourage sustainable private sector participation. France argues that efficient, affordable and reliable services can be achieved through encouraging competition, making regulatory interventions and implementing practices of financial transparency. Japan takes a slightly different view by suggesting that it may be necessary to provide a guarantee of monopoly profits in the early stage of an infrastructure operation in order to attract investment by private-sector. Switzerland and Germany, suggest that private sector investment needs to be accompanied by a strong regulatory component –including competent authorities - to ensure access to the poor segment and to combat poverty. However, the adequate conditions to achieve a balance between private investments and increased access to the poor vary according to the specific situation and conclusive successful experiences are limited. The exchange of experience between donors is deemed as a useful prerequisite to ensure these issues are covered.

Views on the specific **role of the private sector vary depending on the characteristics of the developing country and the degree of private involvement required.** In this sense, it is important to acknowledge that “private sector” covers a wide range of players and some can be more flexible/efficient than others – depending on the situation. In this sense, Switzerland clarifies that private sector participation should not be understood solely as the sale of infrastructure assets to private companies, but rather as the attempt to benefit from the expertise of private (local, national or international) companies in running infrastructure services or providing a special part of the service. This approach can be shaped through service contracts to concession contracts. It can also take many forms, ranging from the creation of an autonomous public utility, operating on a commercial basis, the contracting out of (part of) the operation of a utility to the private provision of all management and maintenance tasks of the utility, including tariff collection. Further, as highlighted by the UK, the size of the private company providing the service need not be large. Private sector providers who are close to their customers can provide flexible payment options including frequent small payment rather than infrequent large payment.

The programme for the electrification of remote rural areas with photovoltaic systems in South Africa supported by the German government is cited as an example of cooperation between the government and a private concessionary. The private concessionary will invest, install and maintain the systems over a period of at least 15 years. Part of the initial investment cost will be reimbursed to the concessionary by the government, and passed on to the users in the form of reduced fees to cover the costs of equipment repair and maintenance.

So far, some problems encountered on the design and implementation of programs that involve private provision of services include the targeting of the poor populations, arbitration between financing of the connections and consumption for the private supplier, arbitration between public and private financings for the suppliers having structurally insufficient profitability, installation of transparent and durable processes, difficulties for installation of structures of regulation.

Comments on conditions under which public provision of energy services is preferable or justifiable?

A synthesis of best practice compiled by The World Bank confirms the view held by many people involved in the practical implementation of rural energy schemes when it says that “It is illusory to expect that increasing access to electricity for a significant part of the population traditionally excluded from grid-based electricity can be financed only by the private sector” (Floor, Massé et al. 2001).

There are **circumstances in which public provision of energy services is not only acceptable but can be desirable.** For example, purely public provision of a service is justifiable **if the service is a purely public good** and “free riders” cannot be excluded from consumers paying for their share of the service. Public lighting is thought to be such a service.

For Switzerland, if a public provider performs well according to relevant benchmark indicators - such as competitive figures for staff per 1000 connections, unaccounted for revenue collection rates, if the utility is autonomous enough to use the money collected to reinvest in the networks and plants according to the local requirements, and if the tariffs are set at a level which guarantees the long-term operation of the facilities by public provision is a good solution. However, note that countries such as the UK argue that where the service delivery has clear objectives and measurable targets or indicators, the Private Sector is best placed to achieve these.

Japan highlights the convenience of public investment in cases **where institutional reform for introducing private sector is delayed** and consequently private investment for infrastructure is slow. This is a critically important conclusion as sector reform has been delayed in many parts of the world and energy infrastructure is in a critical condition. The Japanese cite the case of the Indonesian power sector after the currency crisis, where the delay in sector reform discourages economic growth. In such circumstance the development of infrastructure facilities by using public investment including ODA may be justified.

Other circumstances where public sector management, including ODA, is desirable is when the private sector is not interested in playing a role, such as **in cases of conflict, disaster, and in very dispersed and/or low income areas.** For example, Germany notes that the decentralization of forest management to Tibetan villagers

themselves can help to secure fuel wood supply in the long run at subsistence level. France mentions instances where profitability of the public sector is structurally deficient, in particular in the field of rural electrification. Note that the UK argues that even in these occasions public involvement could be limited to providing the correct incentives.

3.4. Governance

All DAC member replies recognise the importance of building capacity at all levels to improve governance. Two general aspects of governance are considered to be key: 1) equity and reduction of social exclusion and 2) the efficient and accountable functioning within and between institutions at all levels.

The donors, in general, do not express state explicit preferences regarding the division of roles between public and private sectors, rather they suggest that donor policies should be based on pragmatic analysis of who is best placed to provide services required for the poor. However, a number of responses (eg from Germany, Japan, Sweden, UK) stress the need for service provision based on **commercial principles**, to encourage efficiency and ensure **appropriate incentives** are in place, both at an institutional and individual level.

3.4.1. Accountability and capacity building of infrastructure institutions

Lack of accountability is recognised as a significant problem in DAC member replies in all infrastructure sectors. However of all the responses few mentioned energy-specific issues and experiences. The general point being made is the need to work across all levels of government, private sector and civil society, to ensue **roles and responsibilities are clearly defined** and enforced.

Governance problems associated with public and private infrastructure investment and operation and maintenance, including problems of equity and social obligation

Generally the **Institutional arrangements** associated with maintenance are considered to be inappropriate by a number of DAC members. However, as Japan points out, the key governance issues are different for 'network-type' and 'local-types' of infrastructure. For network-type energy infrastructure energy services which cover a wide area, the main operation and maintenance problem is a lack of capacity to administer both policies and budgets in a coherent and coordinated manner. They believe that the institutional settings of central government or the executing agency are often inappropriate. For decentralised energy infrastructure, they find that the main issue is lack of involvement of beneficiaries in planning, operation and maintenance of projects, and hence lack of ownership. This can result in provision of energy services that do not reflect the real needs of the beneficiaries.

In the specific case of the **electricity** sector Japan emphasises the need for an environment and institutional setting, which assures commercially based sustainable operations. However rather than proceeding directly to horizontal 'unbundling' of generation, transmission and distribution and the establishment of regulatory bodies, Japan appears to reflect the emerging consensus that it is more helpful to have a preparatory period in which the administrative unit in charge of the power business is separated from day to day government interference by "corporatisation" before it is transferred to an entity based totally on commercial principles. In addition, if an efficient and stable electric power supply system can be established by reorganizing the government entity into a public corporation, it is not necessary to divide the sector into smaller functional units.

Lack of transparency and accountability is highlighted by all as a major problem. UK, Switzerland and Germany stress the problem of **political interference** as a key issue associated with public infrastructure development. These problems can result in a reversing of priorities between the interests of the large number of poor people and the interests of small groups of influential individuals (Switzerland). The UK outlines how politics can over-ride any policy, with short-termism resulting in inappropriate priority setting.

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On an operational level, Ireland mentions that for public projects a key issue is the lack of accountability between expenditure and the quality or quantity of work completed. Switzerland, UK, Germany and Japan specifically highlight non-transparent and unprofessional procurement practices.

A **lack of expertise and capacity** is recognised by DAC respondees as a key constraint, with most focussing on weak public administrations. Australia and Japan note specifically a general lack of management expertise, and inadequate financial resources. The US highlights typical problems including lack of training, weak institutional capacity to manage complicated operations that are characterised by variable cash flows arising both from their operations and from the central public budget. This appears to be particularly prevalent in the chaos of post-conflict countries. Germany points to overstaffing, inefficient organization, and corruption as widespread problems in public institutions.

Measures for tackling “corruption” and lack of accountability in implementing energy aid projects/programmes

A variety of measures are highlighted for **tackling corruption and improving accountability** in infrastructure development generally:

- Australia is working on improved Governance, Law and Justice programs and in the case of poor performing states by providing direct assistance to governments through its Whole of Government approach. This provides direct support by placing personnel in key ministries of finance, police and justice.
- Germany tackles this problem in a number of ways: (1) through capacity building components (particularly in finance, accounting and management). (2) By providing support to the sector reform processes. (3) By setting conditions on its support (4) by seeking Private-Public-Partnership models⁸ for private entrepreneurs to provide operation and maintenance services (5) by involving local private sector in service delivery, in particular for non grid energy carriers. (6) by offering assistance in bidding and tendering processes and in the awarding of the contracts and (7) by encouraging transparent project reporting, including yearly progress reports with on-site-visits, and regular auditing through external experts.
- Ireland stressed the need to involve communities in the design and monitoring of projects so that they know exactly what to expect from the contractor and on what basis the contractor is being paid. The recommend clear accounting procedures, with regular independent financial audits supported by ongoing monitoring and community participation. Their response to corruption is tailored to the scale of the problem but can in extreme circumstances lead to their withdrawal from projects.
- Japan prioritises assistance for institutional capacity building of executing agencies in recipient countries, with particular emphasis on improved operation and maintenance performance. In order to improve the governance of executing agencies, Japan is supporting institutional reform by co-ordinating its actions with those of other donors including the international financial institutions.
- Sweden has developed an Anti-corruption regulation which forms the basis of SIDA’s work, in order to counteract the risks of corruption and deal with any cases of misuse of Swedish financing of development co-operation that may arise.
- Switzerland takes a wider view and recognises the need for a more cautious approach to project appraisal. This includes assessment of the overall context of both the country and the sector (for instance they look for examples of ambiguous or corrupt practices) and taking account of other donors' experiences in the field. It supports reforms aimed at reinforcing the capacities of partner governments in public tendering

⁸ Possible models include Build, operate and transfer (BOT), Build Own, Operate and Transfer (BOOT) and through concessions

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and hold regular dialogs on governance issues with partners, either bilaterally or through multilateral institutions (such as the OECD). At the project level, Switzerland aims to provide a clear formalization of the roles and functions of the various project partners including the Project Implementation Unit (PIU), through the elaboration of a comprehensive project agreement assigning precise roles and competences. It systematically introduces an anti-corruption clause in each agreement and contract that they sign with project partners, be they governments, enterprises or consultants. Finally Switzerland has signalled that it will, in some cases, withdraw financing when faced with project counterparts unable to abide by impartial, international rules.

- The UK places emphasis on integrating infrastructure into the wider and longer-term reform processes. It focuses on setting up adequate and transparent systems and procedures, and leading by example. They work directly to build, support and strengthen community based organisations that are able to hold service providers to account. They contribute to strengthening decentralization, improving public auditing, donor harmonization, and working through governments' own Medium Term Expenditure Frameworks (MTEF).
- USAID has programmes to address corruption, implemented primarily through seminars and conferences and training for selected officials to introduce best governance practices.

Views on how to achieve pro-poor regulatory authorities

All agree that good, **equitable, transparent and independent regulatory authorities** are required but that they are hard to establish (Germany). Ireland notes that the failure of the private sector to perform is often due to a lack of capacity to regulate them in an accountable manner. For the UK regulation is associated with the issue of equity, and regulation requires a **long-term commitment** in what can be a policy environment that is overly concerned with the short term. For the US regulatory reform at the sector level can be addressed through technical assistance, usually through programmes such as the multi-donor "Public, Private Infrastructure Advisory Facility" (PPIAF) which finances "upstream" assessment work on infrastructure issues and constraints that impede the flow of private investment.

In the context of enhancing aid effectiveness and up-scaling for development results, what are DAC member views on the role of technical and financial assistance and its complementarities in particular, as well as their approach to support partner demands on infrastructure investment and operation and maintenance.

- Germany focuses on two main instruments: first on technical assistance, which usually focuses on institutional change within organizations, particularly restructuring, streamlining processes, the introduction of new products, increased market-orientation and so on. Second on financial assistance, which supports investments in infrastructure and equipment. Through their technical and financial assistance they provide capacity building and training, and they contribute to structural changes to achieve efficiency and sustainability of the projects. They also try to enhance their capital investment in the energy sector by combining concessionary (ODA) funds with commercial funds in order to leverage bigger volumes to meet the demand.
- Ireland stated its intention to be increasingly selective, and will finance new infrastructure only where adequate policy and institutional frameworks are in place. In cases where the framework is not in place but there is a demand, DCI will only provide technical assistance and limited financial assistance to build up capacity and pilot new approaches.
- Japan also attempts to enhance the impact of its assistance on infrastructure activities, by combining both financial and technical assistance. The former includes the improvement and expansion of physical assets

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while the latter focuses on designing institutional settings and the development of human resources. Japan aims to work with other donors on common sector approaches.

- The UK focuses on the Poverty Reduction Strategy (PRS) approach, on harmonization, and on working towards sector programmes. In terms of aid effectiveness, Technical Assistance (TA) is considered a key area of support and can have reasonable impact for limited expenditure, if the wider policy environment is conducive. The current focus is on TA in association with budget support which is itself in line with PRSs. In this context, where there is limited experience in operation and maintenance, TA is being used to establish correct systems and processes in order that O and M can become self-financing.

3.4.2. Participation of the poor

There is clear consensus among the DAC respondees that participation of local beneficiaries is an essential element if energy services are to meet the real needs of poor people. Participatory approaches, involving beneficiaries and other stake holders, can improve governance of implementing agencies by promoting transparency and accountability. Many donors recognise that consultation processes increase the time needed to plan and execute projects, and warn of the dangers that the process can be captured by special interest groups. All identify the need to improve participatory practices, and suggest a wide range of approaches to achieve this:

- Australia builds participation into programmes during the design phase, using log frames in projects which have specific outputs for community participation. Specific outputs of community consultation are then included in all contracts and can be included in monitoring programs, through ex-post project evaluations and technical assessment groups. AusAID experience is that community programs are more successful when they are facilitated through local community groups and NGOs. Contractors in their development assistance programmes must include a community participation and development specialist in their project team to design and implement community programs and to ensure pro-poor participation.
- Germany recognises the need for participation and highlights the rural electrification project in Tibet as an example of good practice (see appendix 2). For decentralized energy projects participation of the poor can be easily enhanced through demonstration projects and multi stakeholder steering committees. In the case of small hydropower, biogas, solar home systems, mini-grid with service provision to communal infrastructures, it is necessary to ensure people participate in the planning process, as well as in the implementation, operation und maintenance of projects.

Germany draws attention to the fact that participation is a completely different issue in large energy projects, which constitute the majority of German development investments. Here participatory approaches can only be used if the project are intended to target the poor directly. However they accept that participation is absolutely necessary where there are (real or imagined) negative implications for the population. Such situations include the case of big dams when people are displaced and must be indemnified. In the case of dams, the regulations of World Commission on Dams are the basis for German participatory approaches.

- Ireland states that the benefits of following participatory practices far outweigh the problems, which are avoidable through allowing flexibility and adequate time for planning. The main problems arise when donors intervene with a fixed amount of finance, for a limited duration and are tied to a specific sector. Improving participation can be achieved by concentrating on areas which are predominantly poor; targeting employment towards poor people; ensuring minimum acceptable wages are paid, and that there are quotas for women etc; ensuring community involvement at the earliest opportunity (feasibility stage); and by appointment of community representatives onto relevant committees responsible for the works.
- Japan points out that in general participatory planning and implementation of a project requires more time in terms of negotiations with the government, liaison with parties on technical aspects and settlement of conflicts, etc. Large-scale network-type infrastructure, such as power distribution, are technically complex and participation of the local beneficiaries does not guarantee the appropriate design and implementation of the project. They point to the specific problems that arise in participatory processes if decisions are captured by special interest groups or particularly influential people who do not necessarily represent the needs of the poor.

Japan also stresses the need to create awareness about the importance of participation among executing agencies and various sections of the government, and to cooperate and coordinate their activities if effective participatory processes are to be achieved. Specialist NGOs and consultants can be helpfully act

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as intermediaries. In the case of electricity Japan highlights that co-operatives (between farmers for example) can be a useful means of raising awareness of the value of electricity, and ensuring participation in planning and execution of rural electricity programmes - (see appendix 2: Rural Electrification Programs in Bangladesh).

- Switzerland points out practical problems associated with direct participation, in particular the difficulty of ensuring that participants represent the interests of all concerned people. In order to ensure participation of the poor, Switzerland attempt to consult stakeholders from the very start of projects (e.g. public hearings). Assessments of the beneficiaries' ability and willingness to pay is a key aspect of participatory processes. Transparent information and consultation is provided during project preparation and implementation.

A new approach currently being tested in one project, is the introduction of a "Customer Service" in the supplier company to ensure the pursuit of interactions with the population after project implementation. Other approaches, including creation of social monitoring teams within supplier companies, are also currently, with the aim of ensuring that supplier companies continue to undertake social activities after project implementation.

- Sweden considers participation of the poor during project design and in project implementation to be important to maximize the impact on pro poor growth. Participation of the poor in the design phase can ensure that projects are designed and implemented in ways that incorporate their needs. The poor can also benefit during direct participation in the construction/execution phase of a project, for instance through employment.
- For the UK the main problems arise in (i) the general burden on communities to participate in numerous development activities and to be in many user-groups and committees, (ii) difficulty of ascertaining the extent to which various community organisations are representative of the community iii) the specific problem of this excessive burden on women, (iv) can be time consuming; and "captured" by special interests.

For DFID approaches to ensuring effective participation include good communications, working with appropriate partners, and appropriate targeting, ensuring that consultative processes are proportional to expected results. A strong livelihoods analysis is also stressed. The UK highlights the need to take a holistic approach and look for opportunities to link to other wider initiatives such as decentralisation.

- The US point out the difficulty of identifying local "champions" or decision makers that truly represent poor groups. They point to the difficulty of obtaining sovereign agreement to work with sub-sovereign groups which have little or no formal standing in the country's governance and regulatory structure. Difficulties particularly arise when channelling funds flows to these groups and/or to activities at the sub-sovereign level to finance the desired intervention. Representatives of poor people often lack experience in managing donor interventions, accountability, and often lack the capacity to manage the often intricate requirements of donor programs.

3.5. Other Sub-theme(s)

Possible additional themes include:

- **Improving co-ordination at national and regional level.** Co-ordination of donor efforts is generally best achieved at national or regional level. However national/regional energy bodies are often weak. Is there a role for DAC member assistance to encourage co-ordination in this area?
- **Under-representation of energy in PRSPs, CSPs, CAPs etc.** As highlighted earlier, energy currently has a low profile in the majority of these key documents and aid planning processes. Is there a role for the

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DAC and its members to work to integrate the provision of modern energy services more effectively into poverty reduction strategies including the MDG? One aspect might involve further **integration and coordination of DAC member energy activities with other sectors**, recognising the need for complementary activities across a range of sectors to achieve maximum poverty benefits from energy interventions, in particular to ensure productivity gains for the poor (eg in agriculture).

- **National/regional energy policy and planning** is inadequate in many developing countries. Is there a need for more co-ordinated support for energy policy and planning, possibly based on the SWAP framework?
- **Need for energy access baseline data** . In order for policy, planning and prioritisation there is a need for enhanced understanding of the 'baseline' energy situation of the poor. Such data is absent or incomplete in most cases. For example poverty differentiated data on electricity access, biomass use, affordability etc is not available in many developing countries; is there value in improving sharing mechanisms for such data, and for supporting improved, and standardised collection methodologies, for example by integrating energy issues into ongoing national censuses.
- **Independent validation** of 'what works'. Given that many agencies are exploring new ways of providing modern energy services to combat poverty, there is also an essential need for independent empirical evidence of what works and why.
- **Climate Change** – Is there value in seeking to develop a joint DAC position - on the trade off between donor energy interventions aimed at climate change mitigation and those aimed to reduce poverty?
- **Energy security** has become one of the major driving forces in recent energy policy of OECD countries. However there has been relatively little policy analysis of the impact of developed country energy security policy on developing nations. In particular future fossil fuel market development is likely to have deeply harmful impacts on the energy security and economic policy of poor, energy-importing, developing nations.
- **How to complete the next round of energy sector reforms**, given that many programmes are now stalled, are incomplete or have been subverted. How can the interests of poor people be taken into account more effectively in such reforms?
- What **new aid instruments are required to support decentralised provision** of energy services?

4. ANNEXES

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4.2. Annex 2 – Selected Case Studies by Country

4.2.1. GERMANY

Case Study 1

PROJECT NAME: Programme for Biomass Energy Conservation in Southern Africa (ProBEC) - Household Energy and Natural Resources (HEPNR in Ethiopia)

DONOR: German Federal Ministry for Economic Cooperation and Development (BMZ)

PARTNER COUNTRY: Ethiopia, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zimbabwe (Tanzania and Zambia forthcoming).

IMPLEMENTING AGENCY: German Technical Cooperation (GTZ)

SECTOR: Energy (cooking energy)

PROJECT SCOPE: Development and promotion of Biomass Energy Conservation (BEC) strategies at the national level.

PROJECT OBJECTIVES: Biomass energy related institutions and private sector in the SADC region have the expertise, resources and commitment to ensure that affordable energy-efficient technologies and techniques for cooking and heating are commercially available and widely used in the region.

SPECIFIC MEASURES ADDRESSING THE THEMES:

- Stove production and marketing training for independent producers.
- Job creation in the informal sector is targeted through production and marketing of improved technologies. Women are primarily targeted in trainings and extension services.
- Installing functioning national steering committees;
- Realisation of regional workshops (planning, training, information exchange/networking);
- demonstration projects
- selection, adaptation and awareness of improved BEC technologies,
- HIV/AIDS awareness is being integrated part of all programme interventions

HOW IT WORKED OR DID NOT WORK:

Participatory and gender-sensitive approaches improved prospects for technology acceptance.

Financing was important since easier access to credit lines, especially for women entrepreneurs improved dissemination rates. Even for very poor people donations don't work – people don't use or neglect stoves they have received free of any charge. If subventions are necessary they should never cover 100% and they should be targeted and limited in time → smart subsidies.

OBSERVED IMPACT OR RESULT OF INTERVENTION:

BEC programme results up to date have shown that with a comprehensive package of solutions (use of energy efficient devices, profitable production and marketing of these devices, efficient wood fuel use and kitchen

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management, and substitution with alternative renewable energy sources) it is feasible to reach multiple, long-lasting environmental, economic, and social benefits at local (families and small businesses), national (savings of foreign exchange for energy imports) and global (reducing net emissions, improving storage of greenhouse gases, optimising timber and non-timber forest products, etc.) levels. Smoke reduction through BEC measures has been proven to reduce respiratory diseases by 50% both for women and children.

These programmes demand for an integrated approach both on horizontal as well as on vertical level. Excellent results have been achieved with this approach in a number of BEC programmes, especially in East and Western Africa. These results are well documented and substantiated by a number of studies carried out by national and international development organisations and scientific institutions.

Case Study 2.

PROJECT NAME: Rehabilitation of Small-Scale Hydropower Plants in Tibet

DONOR: German Federal Ministry for Economic Cooperation and Development (BMZ)

PARTNER COUNTRY: Autonomous Region of Tibet

IMPLEMENTING AGENCY: German Technical Cooperation (GTZ)

SECTOR: Energy (small-scale power supply for rural development)

PROJECT SCOPE:

a) Rehabilitation of existing small-scale hydropower plant, b) Vocational training: electricians, cooks and tourist guides, welding, schemes to teach woodworking, carpet weaving, vegetable growing, c) Construction of greenhouse, d) Provision of loans for farmers and craftsmen

PROJECT OBJECTIVES:

Development of the employment and income situation of the local Tibetan population through improvement in the electrification of the rural population.

SPECIFIC MEASURES ADDRESSING THE THEMES:

- Adoption of a private-sector operator concept.
- Enhancement of the efficiency of the water board in the use of hydropower, through staff training and the development of technical monitoring system, allowing for quick responses to interruptions in village power supply.
- Sustainable service delivery to the poor was ensured through the use of local engineer in the rehabilitation, as well as exclusive use of locally manufactures turbines, generators, switches and control devices.
- Decentralization was carried out by handing administration of power plants to local villages and operation to local leaseholders.
- Financing was ensured through billing according to consumption in a manner that was comprehensible for all stakeholders so that each consumer has understanding of the rate policy and debits. Also through promotion of the productive use of electricity, accomplished by, among others, the establishment of financing schemes for the purchase of electrically powered machines and provisioning of technical upgrading for villagers in areas such as welding, wood processing and spinning.

HOW IT WORKED OR DID NOT WORK:

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Since Tibetan inhabitants of the **community were involved** from the very beginning, historically evolved mistrust towards central Government activities was broken down.

Upgrading for potential power users among the village population and very **straightforward electricity rates** resulted in a very high level of acceptance and paying morale in the target group.

Sustainable operation and distribution was secured, among others, by **measures to ensure rise in local demand** for energy (e.g. promotion of small-scale entrepreneurship)

OBSERVED IMPACT OR RESULT OF INTERVENTION:

- More than 95% of households within the area connected to power grid.
- Permanent jobs have been created at all power plant sites.
- Improvement of living conditions; average income rose from 200 to 230 Euro between 2000-2002.
- Better housing and creation of business opportunities (guesthouses and shops); many run by women.
- Sustainability of the power-plant operation is assured with the revenue from the electricity charges. Reserves were used to connect neighbouring community to grid, opening the opportunity to lease them the mini hydropower plant.
- Long-term, free from interference use of 28 small-scale hydropower plants in the three rural districts of Lhasa, Shannan and Linzhi in the AR of Tibet has been secured.

4.2.2. JAPAN

Case Study 3

PROJECT NAME: Support for Market-Oriented Economy in Vietnam

DONOR: JICA / JBIC

PARTNER COUNTRY AND EXECUTING AGENCY: Vietnam

IMPLEMENTING AGENCY: Ministry of Planning and Investment, and others

SECTOR: Multi sector

PROJECT SCOPE: The support to Vietnam's transition toward a market-oriented economy has been conducted from various perspectives, including "study and policy advisory", "financial support" and "infrastructure development". Regarding the later Japan has comprehensively supported economic infrastructure development such as roads, harbours and electricity. Major infrastructure projects include Pha Lai Thermal Power Plant Project, and Phu My – Ho Chi Minh City 500kv Transmission Line Project, as well as transport related projects.

PROJECT OBJECTIVES:

The overall objective of the series of projects and programs are to support the transition of Vietnamese economy from planned to market oriented one by supporting to develop sources of economic growth, inflow of Foreign Direct Investment and its further sustainable development, thereby reducing the poverty in Vietnam.

HOW IT WORKED OR DID NOT WORK:

The Vietnamese government has shown a strong commitment to move toward the market economy, by reforming state enterprise sector, liberalizing trade and investment, promoting FDI and so on. Despite this commitment, the government has not yet developed solid strategies or practical policy measures to realize the objective.

The project has provided data and information about the local economic activities as well as the international economic environment, and helped the local authorities formulate the strategy and elaborate the policy measures.

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The series of financial assistance projects to rehabilitate economic infrastructure have made a considerable impact on improving investment environment of the country and promoting foreign and private local investment.

OBSERVED IMPACT OR RESULT OF INTERVENTION:

The series of technical and financial supports have led to expansion of private sector and the dramatic growth in investment to Vietnam. Vietnamese economy grew by 7.2 percent in 2003. Export growth, in value terms, accelerated from about 11 percent in 2002 to reach 21 percent in 2003. Industrial production remained strong and investment solid.

Concerning poverty, a significant improvement was observed from late 1980s. According to the Vietnam Living Standards Survey in 1998, approximately 37 per cent of Vietnamese, some 28.4 million people, are living in poverty. This rate of poverty was previously 75 per cent in 1990 and 58 per cent in 1993. The reduction in poverty has been reflected in other measures of welfare, as follows.

- Primary school enrolment rates increased from 86 to 92 per cent.
- Lower secondary enrolment rates have doubled for both girls and boys.
- Malnutrition of under 5 year-olds has declined from about half the population to a third.
- Access to infrastructure such as public health centres, clean water and electricity have all increased.

Case Study 4

PROJECT NAME: **Rural Electrification Programs**

DONOR: **JBIC/USAID**

PARTNER COUNTRY AND EXECUTING AGENCY: **Bangladesh**

IMPLEMENTING AGENCY: **Rural Electrification Board**

SECTOR: **Energy**

PROJECT SCOPE: The project constructs the power distribution network in various regions of Bangladesh. In parallel, a cooperative known as Palli Bidyut Samities (PBS) is established through technical assistance from the Rural Electrification Board (REB), and PBS will be in charge of the operation and maintenance of the distribution network.

PROJECT OBJECTIVES: This project aims to contribute to increase in productivity in agriculture and other industries by increasing the number of electrified households and to improve the efficiency of power distribution through the establishment of electricity cooperatives.

SPECIFIC MEASURES ADDRESSING THE THEMES:

(Decentralization Theme)

- PBS managed by a Board of Directors (BODs) consisting of 12 to 15 people, who are elected from cooperative members. In order to avoid the political intervention in its operation, members of political parties are excluded from BODs from the beginning.
- PBSs receive initial investment fund from REB and they repay this from collected tariffs, which are also used to cover maintenance costs. In addition, they make a contact with REB on the Performance Target Agreement (PTA), which was introduced for REB to assess the performance of each PBS and give bonus or penalty according to their performance. The PTA annually sets several target figures for operation indexes, such as

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system loss, debt amount, growth of customers, growth of sales, and effort to reduce costs. All staff members of a PBS, whose performance significantly exceeds the target, can get a bonus as much as 15% of annual salary while the negative bonus will be applied in case of non-achievement of targets.

(Governance Theme)

- In establishing a new PBS, a project team formed within REB presents the outline of electrification plan to the representatives of a union, the smallest administrative unit equivalent to a village, and explains the importance and convenience of electricity. It is only after the representatives of a union agreed to do the same to the residents that the project team from REB directly presents the electrification plan to the residents. This process usually takes about three to four months.
- Utility rate is the same for every residential customer in a region. If a resident who lives in a remote area within a particular PBS's territory wants to have power supply, that resident has to pay for the cost of connecting to the distribution lines. However, the payment can be done in instalment, and some PBSs provide a loan. These methods provide the opportunity for the poorest layer of residents in a region to benefit from electrification.

HOW IT WORKED OR DID NOT WORK:

- The strong ownership of member farmers created by the establishment of PBSs as well as the incentive for better performance of the cooperatives provided by the PTA, have enabled to capture willingness to pay of the beneficiaries and achieved high tariff collection rates on 97% (FY 1999).
- REB has its own training facilities at their premises and provides extensive training programs for both REB and PBS staff members.
- REB's educational activities to the potential beneficiaries by explaining about the importance and convenience of electricity have induced a propagation effect to other non-electrified villages: when The REB headquarters has a waiting list of villages for electrification.

OBSERVED IMPACT OR RESULT OF INTERVENTION:

REB's rural electrification projects show good performance. System loss ratio remained much lower than the other operator in the urban area. PBS's average tariff collection ratios are over 95%.

Crop yields are up in electrified villages, as are jobs in agriculture and the rates paid to agricultural labourers. In terms of commerce and industry, one entirely new segment of the economy has developed directly through the rural electrification program. The REB and the PBSs employ several thousand people, and jobs have been additionally created by electrical manufacturers, suppliers and retailers.

Beneficiaries identify a significant positive impact on the education of children due to electrification.

Off-farm income has soared with the advent of electricity. In particular, clear improvement is observed in the socio-economic condition of women since the advent of rural electrification. Electricity has lessened the physical burden of the rural women's lives, by mechanizing time-consuming manual chores (such as husking rice and grinding spices). More evening hours have become available for them to engage in cottage industry activities such as sewing, and to take care of their children. The overall position of women in society is gradually improving with rural electrification.

4.2.3. SWITZERLAND

Case Study 5

The Pamir power project conducted in conjunction with the World Bank consists in the setting up a public-private partnership aiming at providing (under a 25 year concession contract) electrical energy to the population of a distant region with very cold winters. Switzerland's contribution to the project takes the form of a grant (USD 5 mio) to the Tajik Government to finance a minimum consumption lifeline of power for each household (80% of which are poor, eliminating the need for targeting) during 10 years.

This enables the reaching of consumption affordability while guaranteeing – through full cost recovery - the financial viability of the supplier firm.

Project covenants foresee that the Government and the energy company have to prepare a financing scheme for the subsidies required after the 10 year period of Swiss support.

4.2.4. FRANCE

Case Study 6

The French-funded project of decentralized rural electrification using photovoltaic kits in Morocco was granted in 2001. It is based on a novel association of public and private partners, including the National Office of Electricity, the FFEM, a Franco-Moroccan consortium and local communities. The project aims to increase the electrification and the supply of drinking water in dispersed habitats through the installation of photovoltaic equipment in 16,000 households, distributed in more than 400 villages in the provinces of Khemisset, Khouribga, Khenifra and Settat. The project includes the installation of one hundred solar pumps in the villages where this technology is relevant, by associating the management of the services of electricity and water. The project, first of this importance in Africa, is characterized by two innovations: (i) the public-private co-investment and co-administration of the decentralized equipment and (ii) the integration in the provision of electricity and water through the installation of photovoltaic systems and solar pumps, all within the management framework of decentralized rural infrastructure.

4.3. Annex 3 Bilateral ODA Commitments for Infrastructure by Sector, and private sector flows to Electricity

Bilateral ODA commitments for infrastructure have decreased strongly since 1997 both in absolute terms and as a share of total commitments. From around 25% of total ODA in the mid 90s to a low of 15% in 2002.

Sectoral structure of allocations shows a clear move away from energy (declining from 29% to 20% between the annual average for the 90-98 period and the 99-02 period) and an increase in transport (36% to 42%), and a small increase in water and sanitation (19 to 22%).

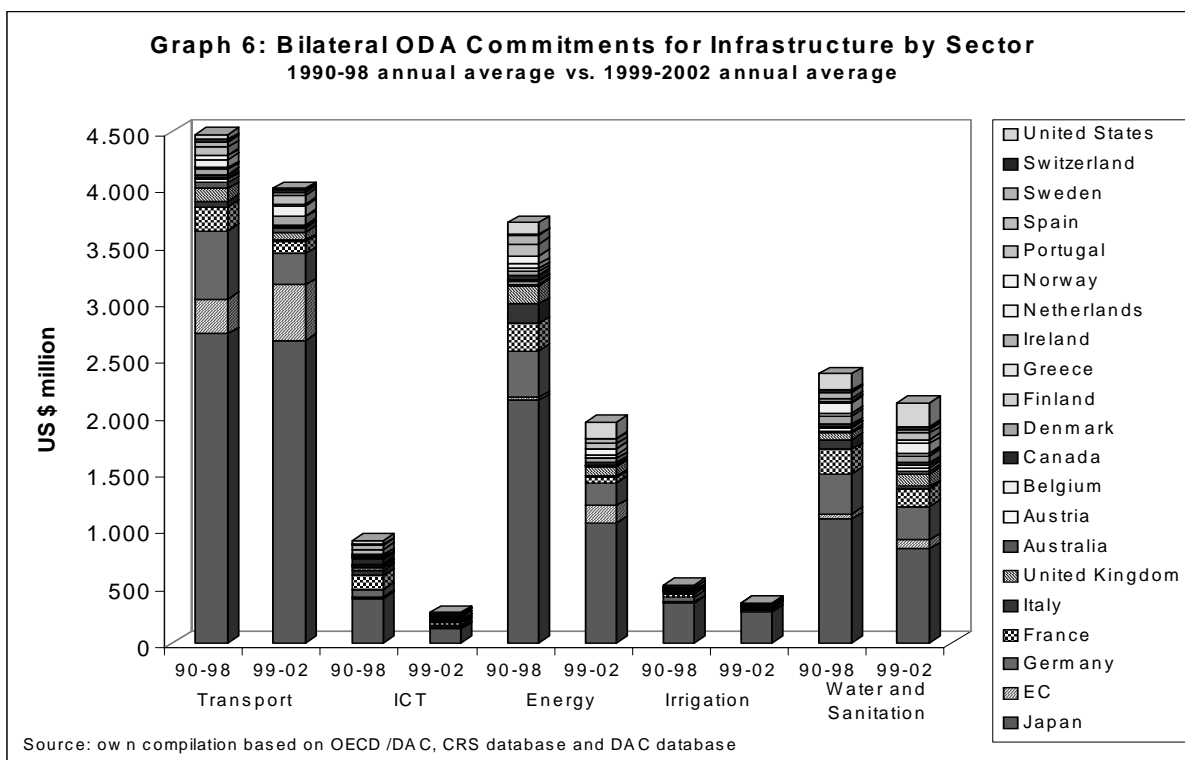


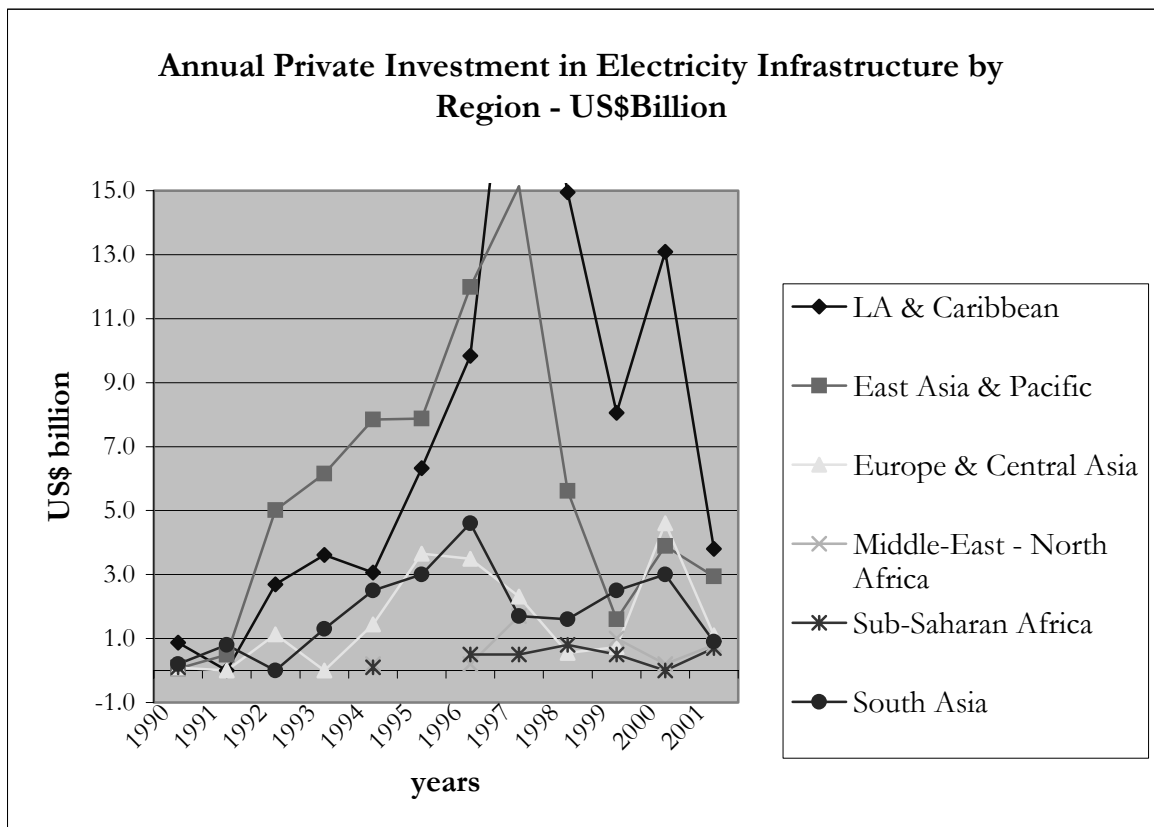
Table:
Hesselbarth S. (2004).

Extracted from :

Hesselbarth S. (2004). HANDOUT FOR SESSION IIa: Current Donor Practices and the Development of Bilateral Donors' Infrastructure Portfolio. DAC Network on Poverty Reduction, First workshop of the infrastructure for poverty reduction task team, March 30, 2004 - Paris

Annual Private investment in Electricity Infrastructure by Region

Annual investment flows to private infrastructure projects in developing countries grew dramatically from 1990 to 1997, but by 2001 had fallen back to the levels of the mid-1990s. Recent declines can be explained by several factors. High levels of investment in 1997 and 1998 reflected major privatisation transactions that would have been difficult to sustain in any environment. The economic crises in several developing regions had a detractive effect on many investors, as did attempts by some governments to repudiate their contractual commitments. And towards the end of this period corporate-level problems affecting some of the major international investors, coupled with declining equity markets in industrial countries, also curbed interest in developing country infrastructure projects. Future prospects will depend on the willingness and ability of governments to grapple with the underlying reforms and to create opportunities attractive to private investors, who can be expected to be more discriminating than in the mid-1990s.



Graph Source: World Bank (2004)

Extracted from:

World Bank (2004). Private Participation in Infrastructure: Trends in Developing Countries in 1990-2001, Public-Private Infrastructure Advisory Facility.

Summary of Emerging Consensus Points from 2nd Workshop of the Infrastructure for Poverty Reduction (InfraPoor) Task Team (28th October 2004, Berlin)

GENERAL STRATEGIC ISSUES

- Energy is a necessary but not sufficient condition for the attainment of the MDGs, and contributes to poverty reduction directly and indirectly. Without improved access to affordable modern energy services the MDGs will not be achieved, and current levels of investment need to be increased.
- Energy access must be further integrated into PRSPs as the basis for donor involvement and donor coordination. Donors should work to encourage beneficiary countries to integrate energy into their poverty reduction strategies, either as a sectoral or a cross-cutting element.
- Energy development policies need to focus on supporting the provision of the *energy services* (eg light, motive power, cooked food, transport etc) that meet the needs of poor users; this involves more than provision of electricity.
- Donors should be consistent in looking for sustainable long-term solutions, based on the energy service needs of the poor (menu of options). Donor objectives should be to maximise the number of people with access to energy, while taking sustainability issues into account. Demand management and energy efficiency in the conversion of primary energy into useful energy should be essential elements of all activities.
- Poor, oil-importing countries are highly vulnerable to fluctuations in global fossil fuel markets. There is a need for poverty strategies to take more account of the economic growth and energy security implications of future national/regional energy scenarios.
- Rural and urban areas require different approaches. While needs are great in rural areas, an increasing number of the energy poor are in urban and peri-urban areas given the rapid urbanisation in many countries.
- DAC donors should aim to improve co-ordination with other donors and with national governments, by designing and implementing their programmes in ways that identify and build on national policies and the work of other agencies operating in the same project/programme area. Co-ordination should be led by the country/region concerned.
- The development of regional energy markets can build regional cooperation, and promote security.
- A DAC code of donor conduct outlining best practice on energy for poverty eradication and growth, would aid learning between donors and enhance the adoption of best practice.

DONOR ORIENTATIONS TO IMPROVE SERVICE DELIVERY TO THE POOR

- Energy-poverty impact chains need to be strengthened in donor energy interventions by linking with, and appropriately sequencing, *complementary activities* in other areas (finance, institution building etc), and sectors such as agriculture, health, education, enterprise development, information and communication technology etc.
- Energy interventions should be designed to increase poor people's ability to pay for improved energy services by leading to increased productivity and higher incomes. Wider electricity access is required and needs to be implemented in ways that support productive capacity (income generation) and enable social services delivery (e.g. healthcare, public lighting etc).
- Donors should focus more on *household energy*, especially the *sustainable production and use of biomass*. The potential for modern bio-fuels – using local energy resources for a variety of applications – should also be further explored. The substitution of biomass with modern fuels, particularly for the urban poor, should receive greater attention.
- In making technology choices, the concept of “least-cost” investments and services needs better definition (i.e. lifetime or initial cost, the issue of external costs such as environmental). Best value for money may not be least up-front financial cost.
- Donors need to better understand the energy needs and priorities of the poor, by making further use of participatory approaches. In order to ensure affordability of energy services, an appropriate trade-off between quality of service and cost may be necessary.

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- The assessment of the poverty impacts (ex-post and ex-ante) of energy programmes (technologies, service delivery models) needs to be improved, and harmonised among donors, to enhance the poverty-focus of interventions, and improve learning on best practice. Promotion of the results of successful energy programmes - independently validated - is required to make the case for further investment and donor involvement.
- Donors should work to help remove barriers to the untapped potential of *decentralised energy technologies*, which are often well suited to meet the needs of the poor. This should increase opportunities for adopting renewable and other energy technologies. Further use of pooled rural energy funds should be considered.
- To reap the potential benefits of *decentralised administrative environments*, donor energy interventions should support the development of appropriate framework conditions and institutional capacity at the local/regional level.
- While recognising that the success of decentralisation depends on commitment by central government, donors can support energy capacity building in local government for improved energy policy and planning, and local government reform programmes including the creation/strengthening of decentralised structures and institutions for energy service delivery.
- Targeting should be applied carefully to meet the energy service needs of particular groups, whether they are the poor in a certain area, or particular disadvantaged groups within a country. Poverty reducing energy programmes need to target women and consciously determine their needs.

Private sector participation

- There is a vital role for both international and local private sector investors and service providers, working with the public sector, to enhance the level of energy services for the poor.
- Improving energy service delivery for the poor requires enhanced partnerships between government, civil society and the private sector.
- Public-private partnerships (PPPs) need clear frameworks, defining rights, roles and responsibilities.
- Donors should support the improvement of the regulatory and other framework conditions needed to enhance significantly the level of investment, and to ensure that private sector involvement results in equitable, pro-poor service provision.
- Further opportunities should be sought to encourage the large-scale international private sector to invest, such as measures to reduce investment risk.
- Donors should do more to encourage private sector investors and service providers at the local level (entrepreneurs) and national level, particularly for decentralised energy generation.
- Subsidies can be appropriate where targeted to improve affordability for the poor, while overall cost-recovery needs to be achieved at sector level. “Smart” subsidies (especially by donors) should primarily promote access and be designed to create markets, not destroy them.
- Good energy tariff design, including *cross-subsidisation*, is key for targeting the poor. Electricity tariffs are highly political, and need careful design to balance cost recovery – including the key issue of maintenance - and affordability. Donors can support data collection and analysis efforts (disaggregated data on energy use by the poor, women etc), and systems for improving tariff collection rates.

Governance, sector reform and regulation

- Governance structures should give a voice to those concerned, including poor consumers (participation). Support is required to strengthen community energy organisations, to allow users to participate in planning processes and, where appropriate, take an active role in managing their energy service provision.
- Sector reforms should aim to improve access to energy services for the poor.
- There is no universal standard model for sector reform; country specific solutions are needed, with reforms being fully planned and actions taken in appropriate sequence. Design of sector reform needs to take into account political realities, economic issues and sectoral/utility starting conditions, in order to ensure that the interests of the poor are protected.
- The energy sector should be run on commercial principles, with management free from day-to-day political interference. Independent regulators are essential to de-politicise difficult decisions.

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- Enhanced pro-poor regulation models are needed to improve access and affordability. There is a need to identify best practice.
- Regulators should promote markets for decentralised and small-scale energy production. Donors can help support the development of a policy environment that encourages the delivery of modern energy services through decentralised systems.
- Regulatory capacity building is essential and should be a high priority for donors.
- Sector reforms are complicated, and require good donor harmonisation and long term commitment.