

Evaluation of Norwegian Power-related Assistance

Executive Summary



Norad

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1 Executive Summary

The evaluation department of Norad has planned and tendered for an evaluation of the Norwegian power related assistance. The evaluation has been carried out by a consortium of consultants, led by Scanteam of Oslo, in the period from January to October 2007.

Assistance to power sector development has been an important component of Norway's development cooperation for the past 25 years. More than NOK 10 billion have been granted to over 70 countries. In accordance with the Terms of Reference (TOR), this evaluation is based primarily on project case studies in Mozambique and Nepal, two of the main partner countries that together have received over NOK 2 billion, and using available information from Angola and Uganda.

Assistance to Nepal has focused on the sub-national level small hydropower development and rural electrification, starting in the late 1960s, in a situation where rural infrastructure of any kind was largely absent. This was later complemented by support to the legal sector, privatisation efforts, training, water resources research and institution building, feasibility studies of hydropower schemes, assistance to renewable energy development, and environmental management. It is estimated that in the period from 1980 to 2006, Norwegian assistance to the power sector amounted to about 7% of total donor assistance to the sector. The evaluation has covered eight projects, plus the impact of the fellowship training programme on the sector.

Norwegian assistance to Mozambique was at the mainstream national level, and began in 1977, at a time of civil war, when the existing power infrastructure became increasingly derelict, nationwide power consumption dropped dramatically, and skilled personnel was lacking. Norway provided financial assistance to a personnel fund, equipment and spare parts supply, the finance for and introduction of a management information system in the national utility *Electricidade de Mozambique* (EDM), institutional cooperation both at EDM and the Ministry of Energy and its predecessor, and massive funding of transmission lines, sub-stations and distribution networks, including rural electrification. In the period up to 1992 Norwegian assistance to the sector amounted to about one quarter of total donor assistance, while this dropped to around 20% in the period since then. The evaluation has covered nine projects, plus Mozambique's benefits in the regional context of the Southern African Power Pool (SAPP) cooperation.

Results of Assistance

The results achieved through the power sector support are substantial, though the profiles of the programmes have been quite different in the two countries. Norwegian assistance to Nepal has focused on developing its hydro-resources through a gradual increase in the size, complexity and thus financing needs of the power generation sub-sector, and has maintained a largely local institutional development approach. A number of projects had a distinct poverty focus, resulting in effective improvements in the living standards.

In Mozambique, the focus has instead been on taking advantage of the large-volume and low-cost hydropower available from Cahora Bassa, leading to national transmission and then localized distribution networks expansion. The small-scale hydropower schemes during the 1980s and early 1990s were largely supported for political reasons during the conflict period. The priority has been on rehabilitation and expansion of transmission and distribution to support economic growth.

The present summary contains important findings and conclusions, following the structure laid out in the TOR.

Project Results

The assistance to implementing infrastructure projects has been successful in achieving the outputs stipulated at the outset, but this often happened with time delay and cost overruns.

Not surprisingly, the results chains in capacity building and training assistance are more difficult to discern and assess. In both countries however, a large number of training outputs were produced. In the operational area, this became a productive force in Nepal sooner than in Mozambique due to the conducive and constraining environments respectively. Institution building in the public administration sector proved elusive under difficult political conditions in both countries. Reports from Angola and Uganda draw similar conclusions.

Interventions of the knowledge building type, through study and research, are seen by the evaluation as much needed supplements to other assistance, to provide information that guides decision making in the sector. This type of assistance may be instrumental also in future, such as the Generation Master Plan in Mozambique, and potentially river-basin or watershed development studies, and pertinent non-technical subjects in other countries.

An important general result in both countries is skilled manpower throughout the sector. This skills development process has been somewhat different in the two countries. In Nepal, it has been a long-term and systematic build-up in skills. Mozambique, on the other hand, faced a large-scale and sudden crisis at independence with a total loss of technical and managerial staff when the Portuguese left. The fact that the country largely succeeded in keeping its physical network functioning during the war and subsequently expanded is testimony to both own efforts and the success of the Norwegian and Swedish training support.

Seen in the light of cost-efficiency and financial performance of EDM, which is a declared goal, assistance measures and EDM's own efforts have not been effective in attaining financial sustainability, which is troubling, given the long-term and large-scale assistance. It is seen that income is growing significantly, based on higher sales volume at higher tariffs, and that costs increase in proportion with income, indicating a lack of rigorous cost management. This results in unchanged loss-making performance, and if the trend continues, it remains distant from a turn around.

National Level Impacts

In general, assistance to the power sectors of Nepal and Mozambique has a positive economic impact. This was also found in other reviews and evaluations in Angola and Uganda. The net benefit from the electrification projects was positive and of considerable magnitude. However, results vary and depend on the specific circumstances of the project. In Nepal, the power production impact is a plus of about 470 GWh annually (more than 20% of the total), which also contributes significantly to reduced load shedding. Institutional support has resulted in more competence at large in the sector, and less monopolistic structures in both countries, and this is also observed in Uganda.

In Mozambique, the impact from generation projects is around plus 15 GWh on average annually, a marginal less than 1% of total supply, but it is noted that small hydro development has not been the main focus. Power supply has increased due to a number of transmission and electrification projects, and in this, the volume attributable to Norwegian assistance is about 250 GWh per year, mostly at the provincial level. This amounts to roughly 15% of total supply, and contributes significantly to reduction in imports of diesel fuel and kerosene, as it displaces diesel generators at the local level and kerosene lights in households.

Rural Electrification

In sum, impacts on electrified rural areas are more economic activity and higher living standards for which electricity is not the sole cause, but a major contributor. Direct benefits at the household level is from electric light, resulting in kerosene saving and better indoors environment. Indirect benefits that accrue are found in the health and education sectors. In Gurué, home to the principal institutions in both sectors at the district level, survey respondents have the perception that without electricity their services could not have improved as they did. This is a trend that is continuing, although the impact in terms of better health and better education cannot be measured over a time period of no more than six or

seven years. In the rural areas in Nepal, where higher level health and education facilities are not available, such positive signs are less discernible.

Impact on industry is found to be massive in Mozambique, where reliable electricity supply has allowed growth in the tea and agro industries. The arrival of grid electricity has triggered substantial rehabilitation and expansion investments. Project areas in Nepal had no such industrial potentials, and the support to small scale enterprise development has brought only modest results, documented by the fact that “industrial” power use is only about 15 kWh per day and enterprise, and there are only somewhat more than 1% industrial consumers.

Impact on Poverty

As one would expect, electrification benefits the poor more, when the project focus is on the poor, but obviously such a focus is not always rationally possible. While the whole population benefits from indirect electrification impact, only those with own electricity access derive direct benefits. Therefore another important criterion in rural electrification is the access rate. It has been easier in Nepal to achieve almost full coverage in two of three electrification projects and approximately 40% access in the third, where even the latter is better than national average.

In Mozambique, the increase of access overall, has been marginal for many years. It remained stagnant during the war, but began accelerating around 2003, and stands now at about 8.6%. One of the key issues for even development in Mozambique is accelerated increase of electricity access, and the challenge for EDM has been to surpass population growth, and it is clear that this would not have been possible without Norwegian (and World Bank, Sida) funding. The long-term Scandinavian assistance has been particularly important.

In Nepal, in the project with the longest impact period, it was possible to measure a significant reduction of (income) poverty that occurred in the period after electrification, in fact reversing the earlier trend. This is not considered the effect of electrification alone, but is attributed to overall economic growth in the area, driven by money from remittances of out-migrated workers, but to which electricity has contributed. The projects in Gurué, Mozambique and Jhimruk, Nepal, both of more recent origin, did not show significant measurable poverty reduction results, but a positive trend, in terms of living conditions and non-income poverty dimensions, could nonetheless be identified. An obvious explanation is that only very few household connections were provided in Gurué. In Jhimruk it appears that overall economic impact has been slow, and remained below the threshold of measurability, and “industrial” development is almost non-existent. Analysis of impact on poverty using benchmarking, calculating direct and indirect benefits, on the other hand, showed positive net impacts over the life of the projects, but there is large variance from project to project in total benefit when this is related to the investment.

Hydropower Development

The strategy of developing hydropower from the bottom up, in conjunction with institutional development and training has paid off for Nepal. It is seen as coherent and effective, and has resulted in capabilities conducive to further indigenous developments on a larger scale.

Small hydro development in Mozambique can be regarded as a deviation from the overall strategy of distributing Cahora Bassa power. This strategy deviation was a logical result of the war, but unfortunately it also led to a disruption of the capacity development process in hydro development.

Regional Context

Due to unfavorable developments in Zimbabwe, the impact of the transmission line from Mozambique is moderate in economic terms, but important for regional integration. One may argue that economics had been doubtful in the first place. Mozambique could have continued to export the same energy to South Africa over the existing line, without additional investment. Hence, the remaining valid rationale is political and regional: without lines such as these, the concept of SAPP could not have progressed as far as it did.

There has been no regional dimension to assistance in Nepal and Uganda in the past. However, it is clear that this may gain importance in the future, in particular in Nepal, as power trading with India has become a burning issue.

Success Factors and Constraints

The most important success factors appear to be:

A vision of development and persistence in pursuing it; the assembly of a comprehensive portfolio of complementary interventions; a project focus that considers recipient capacity and the entire value chain where possible, and emphasises strong local anchoring; the willingness to take calculated risks; Norway's consistency and predictability as a donor, leading to the building of good relationships and trust among partners; and finally participatory processes.

The major causes for failure have been structural. The most important was the armed conflicts that affected both countries. The second most important are institutional changes within the sectors that led to disruptions and waste of resources particularly from capacity development investments. A final key concern is lack of capacity and political will to implement agreed-upon strategies and plans.

Concerning risk management, at the technical and project level good engineering practice has mitigated risk while economic risk has been less in focus. Political risk assessment has generally not been done or is not documented. An exception is found in Nepal where a study was carried out in relation to hydropower investments. Environmental risks were addressed appropriately in the small and medium scale projects, while the study for the Mphanda Nkuwa project is incomplete. Risks caused by faulty or delayed capacity development do not seem to have been assessed.

The power sector, more than most others, is dependent on long-term and consistent policies and priorities, because the basic investments – power stations, transmission lines and distribution systems – have such long economic lifetimes. The predictability and stability of such framework conditions are thus the basic pre-condition for successful support to the power sector. The most important factors in this are political stability, good governance and capable institutions.

Challenges and Opportunities

Norway has contributed considerably to aid effectiveness by promoting better coordination and joint-funding. It has also taken up the challenge of assisting the Mozambique government when somewhat rash reforms were intended as a condition for a large sector loan from the World Bank.

Project finance for large projects, involving private sector funding will be a challenge in the future. From international experience it appears that project finance is intricately linked to the institutional arrangements which are put in place. International and bilateral finance institutions play a large role in raising commercial funding, and in covering some of the risks. Private sector funding on the equity side may be minor and tied to contracts, by which a part of the investment flows back. National ownership may tend to be marginal. On a more general level, the perception of investment risk is formed by the track record of Good Governance in the host country. On institutional capacity development, the challenge for cooperation partners is to gain a deeper understanding of the capacity development needs, and how to address these with a view to the numerous obstructions.

Norwegian Stakeholders

Norwegian support in the power sector was to begin with tied to the use of Norwegian suppliers. This was important for many to gain international experience and later be able to compete for other contracts. The untying of aid will be a challenge to consulting firms but in particular to public institutions, since Norwegian funding is a pre-requisite for international engagement for the latter.

At the same time, Norway as a partner in the power sector and with considerable resources invested in longer-term ventures has a need to maintain its own knowledge network, both

internally within its own institutions, but also its partners in the public and private sectors. How to balance the need for own trusted sources of advice and knowledge while accepting the more open competitive markets that are to ensure enhanced efficiency and effectiveness of resources will remain a challenge for political management.

Content and Quality of Inputs

Generally Norway provides grants to implement projects. Following the principle of Recipient Responsibility, it is then up to the host country to determine the contents. Particularly in the early years, the implementing partner and advisor was prescribed by Norway. From about 2002 the practice of free choice became the rule, but recipients often continued to use Norwegian equipment and services. In the case of institutional twinning, such a choice does not exist, as there is only one potential partner in the sector.

A practice benchmarking was conducted to assess the quality of inputs. Each project was scored along a number of dimensions throughout the project cycle, and each dimension was given a weight according to importance in the project.

Overall, it appears that the infrastructure projects, achieved a satisfactory quality of inputs. Planning and design was of variable quality depending to a large degree on the relevance of information available or obtained, and on the effort and resources put into the planning process.

Implementation was of even and good quality across interventions. This indicates that the routines of implementation management are in place, though for some projects there is a improvement potential compared to “best practice”.

Project completion and follow up show the largest quality variance across projects. This may be due to the fact that not all recipients have the discipline to put sufficient effort into the preparation of completion reports in time. The Norwegian system seems to lack instruments to enforce the quality of final reports and accounts, and does not track long-term performance in a systematic way.

Projects of the Capacity Development type have shown planning and project design quality that has been quite good for half of the projects. One project of Institutional Assistance to MIREME, Mozambique, was assessed as much weaker than the average because “prior needs assessment” was not done. The model of assistance chosen was twinning with the Norwegian Water Resources and Energy Directorate (NVE), and the cooperation agreement was signed without a firm plan in place.

Project implementation is quite good, indicating that players generally have high performance standards. The lowest ranking project (Legal assistance Nepal) has attained this score due to the fact that in spite of changing circumstances no correction has been made regarding the terms of cooperation in a second phase.

In addition to input quality in terms of the process, the Development Assistance Committee (DAC) criteria of Efficiency, Effectiveness, Relevance, Sustainability and Impact were also assessed by systematic comparison of the projects. There is a wide spread in the results but a tendency that projects in Nepal achieve higher scores. This is due to the high quality of many of the Nepali projects but also the difficult conditions prevailing in Mozambique during a long period.

Value Added and Comparative Advantages

Norway has been a predictable and long-term partner in the power sector in both Nepal and Mozambique. There are indications that power may be the sector where Norway as a donor has been most consistent and predictable over time. A key reason for this seems to be the broad range of players that are involved on the Norwegian side.

This stability in the partnership is much appreciated by the local partners, as indicated by their frequent preference for Norway to continue providing support over time. It has helped build trust and thus improved efficiency and effectiveness in the collaboration.

A major reason for this is Norway's own history and experience of developing its hydro-power resources, the changes to its organisation, and thus Norway's broad range of skills and experience, not least in terms of public sector management and role in power sector development.

A particular form of collaboration used by Norway is twinning. The purpose of this approach is to make the broad range of experiences and also the "corporate culture" available to the local partner, where the implicit knowledge provided can be substantial.

Norwegian aid administration has largely been following the same procedures since the 1994 Development Cooperation Manual was produced, though the new version of 2003 has simplified certain elements with the transfer of more responsibility to the country representation and the partner. Norwegian aid management is considered flexible by local partners, but some times this seems to be prompted by a lack of rigorous planning and adherence to established milestones. Flexibility could therefore be a lack of results focus rather than pro-active adjustment to changing circumstances.

Cross Cutting Issues

Among the cross-cutting issues, the main focus of the evaluation has been on environment, gender and good governance. Overall, cross-cutting issues have been neglected in project design, and consequently in implementation, monitoring and reporting.

Environment

Norway's environmental guidelines are focused on infrastructure projects, do not cover environmental management systems of the ISO 14001-standard, and are based on "do no harm" rather than the current pro-active "do good" principles.

Formally, an obligation of the recipient to adhere by environmental laws was included in bilateral agreements from the late 1990s. However, Norway does not seem to have followed-up systematically in the course of project implementation. Overall, the attention to environmental standards and concerns has been poor and unsystematic both by the Norwegian aid administration and project management.

The most prominent actor in environmental matters (in projects evaluated, and documented in other interventions) has been NVE, which has raised environmental concerns that recipients or other stakeholders have overlooked or neglected.

Gender

Gender has been treated in a perfunctory manner. It is referred to in project documents, but not in action plans and target setting. The exceptions are found in the rural electrification projects, in particular in Nepal, where some project elements were specifically directed at women.

Good Governance

The overriding concern regarding good governance in the power sector is corruption. The power sector is globally assessed as the third-most corrupt, and Norway's partner countries are all considered to suffer from severe corruption problems.

There is thus clearly a need to improve the implementation of existing anti-corruption measures through opening up and strengthening the monitoring of all processes in the project cycle, but with particular focus on procurement and auditing, as well as privatisation processes. In this context, better business ethics need to be fostered also, with a view to "clean business" in the sector.

Legal frameworks in Mozambique and Nepal are at a relatively cursory level. While these need considerable elaboration and clarification, the more important challenge is strengthening implementation and adherence to what are considered "international good practice" standards. Norway does so far not seem to have been pro-active in contributing to this in the power sector.

Benefits from Assistance to SAPP

Norway's support to regional power cooperation has supported rapid technology transfer, accelerated the establishment of a regional power pool that benefits both power exporting and importing countries, and in general has been much appreciated by Mozambique, which has become one of the strong supporters of the SAPP.

Future Baselines

In order to monitor progress and assess results, baselines need to be established, and most projects did not have this. The selection of indicators to include must be relevant to the objectives of the project. The evaluation provides templates for baseline information and indicators for various types of interventions providing a basis for a full DAC evaluation and most important, objective assessment of interventions through systematic comparison (benchmarking).

Conclusion and Recommendations

The results achieved through the power sector support are substantial, though the profiles of the programmes have been quite different in the two countries. Nepal has focused on developing its hydro-resources through a gradual increase in the size, complexity and thus financing needs of its power generation sub-sector, and has maintained a largely local development focus. In Mozambique, the focus has instead been on taking advantage of the large-volume and cheap hydropower available from Cahora Bassa, leading to a focus on national transmission and then localized distribution networks, where the small-scale hydropower schemes supported during the 1980s and early 1990s were largely for political reasons during the conflict period.

Conclusion

The benefits from electrification can be seen at national, regional, and social group level. The net benefits in projects have varied, but are largely positive, depending on the investment and expected maintenance costs over the lifetime of the infrastructure. The distributional impact has varied considerably. While Norway recognizes that the first-round effect of electrification will usually have little direct impact on poverty, it is important to note that those projects that have deliberately targeted the poor have succeeded better in ensuring that the poor have also seen positive effects.

The local partners are very positive about Norwegian power sector support and the results achieved. Norwegian assistance has clearly played a critical role in enhancing sector performance, and helped these countries to move towards a more modern power sector. While it is difficult to make crosssectoral comparisons, there is every reason to believe that this rather sophisticated sector has moved faster and across a broader range of issues than other sectors, while at the same time strengthening its sustainability.

Because of the consistency in the partnerships, the trust and dense set of links that have been established, the results in what is often the most difficult area for development cooperation – capacity development – must be said to be quite successful. Despite this positive assessment, it is noteworthy that neither Norway nor the local partners have been good at performance monitoring. Only two projects had a baseline. Almost all the results reporting has been at inputs utilisation and activity levels. The Outputs reporting has consisted largely of listing what was produced, but without a critical assessment of productivity, deviations compared with the original plans, etc. Of greater concern is that dimensions that are important to Norway politically – poverty reduction, distribution of benefits, environmental analyses and management, gender equity, and improvement to good governance and the combat of corruption – are largely addressed in an ad hoc manner if at all.

Lessons Learned

The “lessons learned” are largely in line with what has been accepted as “good practice” principles for development cooperation, though there are some specific ones to the power sector:

- All activities need to be well planned and based on clear local ownership principles. This means that Norway at the overarching country sector portfolio level has had to adjust to quite different national power sector strategies.

- The broad-based support to the power sector has made it easier to ensure synergies between the different forms of support such as infrastructure investments and capacity development.
- Collaboration with other donors has been beneficial in several ways: Joint annual meetings and joint funding of infrastructure projects, both reducing transaction costs, and gaining a stronger “voice” by agreeing on policy issues.
- The long-term and large-scale support to the power sector has given Norway unique partnerships in the sector, and it has earned the trust of recipients.
- The large number of actors engaged in the power sector both in Norway and the partner countries has probably contributed to the stability and longevity of the power sector engagement. It has also ensured that Norway has remained strongly committed and has maintained expertise that is relevant.
- The commercial aspects of the sector are becoming even more important, which means that the purely grants-based financing provided by a donor like Norway needs to be more carefully justified, using better targeting criteria to reach intended beneficiaries.
- Unless there is a clear result focus at the planning stage with specified and operational indicators in place, it will be difficult and costly to track performance over time, thus also reducing the ability of management to make adjustments when needed.
- Overall, Norwegian development priorities, such as poverty reduction, gender equality, equity, good governance and the environment, tend to be overlooked during the planning and implementation of power sector interventions. This reveals a need to renew and strengthen the way such issues are put on the agenda, followed-up on and assessed during and after projects. When poverty reduction and gender equality are specified objectives with clear operational means, positive results can in fact increase and be notable.

Recommendations

1. Norwegian engagement in the power sector is yielding good results, in large part due to long-term commitments and broad-based engagement. These should be principles for future support as well.
2. Norway should review the criteria for providing financial support to a sector that is evolving into a more commercial one. The focus should be on activities that have public goods or similar aspects, that strengthen access and benefits to the poor and disfavored regions, that addresses gender disparities and environmental concerns better, and that improve overall governance in the sector, especially in areas that are known to be vulnerable to corruption.
3. Norway should review possibilities for helping partners manage uncertainty and risk better, where Norway can assume the financial costs of the risk-management instruments;
4. In order to ensure possibilities for performance monitoring in line with a results focus, planning must include baseline preparation. Those dimensions that are important in the specific project must be included, but also distributional concerns, environmental impact and sustainability, gender equity and good governance.
5. Linked with a baseline, the parties need to establish a realistic but aggressive monitoring system and process. This must in particular include those areas that tend to be neglected or may be controversial: gender, anti-corruption measures, and poverty reduction.
6. Concerning support to power generation and transmission lines, the long time that is often required for these kinds of investments to generate significant returns in poor countries need to be recognized and taken into consideration when assessing project proposals. The finding that smaller and local-based systems tend to provide greater benefits to the poorer segments also needs to be included when deciding on the focus for Norwegian financing.
7. Increasing Norwegian funding to the power sector in poor countries requires addressing the challenge of maintaining and strengthening relevant parts of a Norwegian knowledge network. This includes assessing instruments such as institutional twinning whose utility is clearly dependent on defined pre-conditions being in place. The Energy Task Force may be a good forum for starting a forward-looking and critical review of options that are in line with the new aid modalities.

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