

Indonesia: Diesel Stations IV

**Ex-post evaluation**

<b>OECD sector</b>	23061 – Oil-fired power plants	
<b>BMZ project number</b>	1992 65 042	
<b>Project-executing agency</b>	P.T.PLN (state power utility)	
<b>Consultant</b>	Lahmeyer International	
<b>Year of evaluation</b>	<b>2002</b>	
	<b>Project appraisal</b>	<b>Ex-post evaluation</b>
<b>Start of implementation</b>	Q 1 1993	Q 4 1993
<b>Period of implementation</b>	30 months	24 months
<b>Investment costs</b>	EUR 24.9 million	EUR 25.0 million
<b>Counterpart contribution</b>	EUR 4.5 million	EUR 4.6 million
<b>Financing, of which FC funds</b>	FC: EUR 11.0 million Fin. loan: EUR 9.4 million	FC: EUR 11.0 million Fin. loan: EUR 9.4 million
<b>Other institutions/donors involved</b>	-	-
<b>Performance rating</b>	Overall inadequate degree of developmental effectiveness (Rating 4)	
• <b>Significance / relevance</b>	4	
• <b>Effectiveness</b>	3	
• <b>Efficiency</b>	5	

**Brief Description, Overall Objective and Project Purposes with Indicators**

The project is part of an overall programme comprising five phases (D I - D V) on islands outside Java. The measures address bottlenecks in the provision of electricity and generating capacity. The component measure D IV consists of the turnkey construction of a diesel generating plant in Kumai (Kalimantan) and the expansion of four diesel stations constructed within the framework of D I in Palangkaraya (Kalimantan), Jayapura, Sorong (Papua, formerly Irian Jaya) and Dili (administered by East Timor since 1999) by adding a total of eight 2.8 MW diesel units. The **project purpose** is to achieve efficient supply of electricity at the project locations and to ensure that the diesel generating stations feed the power grid in line with the demand forecasts. The **overall objective** is that the electrical power supplied to consumers be used chiefly for production purposes in order to boost the economic and social development at the project locations. Indicators for the achievement of the project purpose are:

- (1) a rise in capacity utilization of the generators to over 50% from the third year of operation, and
- (2) a macroeconomic cost coverage rate of least 80% for the programme.

Indicators for the achievement of the overall objective are:

- (1) an increase in peak load and electricity sales in line with the demand forecast,
- (2) more than 60% of increased demand for production purposes.

Total costs amounted to EUR 25.0 million, of which EUR 20.4 million were foreign exchange costs financed out of mixed-finance loans (FC: EUR 11.0 million; financial loans: EUR 9.4 million) and a small volume of residual funds from D III. In-country costs were financed by the project-executing agency PLN.

### **Major Deviations from the Original Project Planning and their Main Causes**

There were no major deviations from project planning. Project implementation was delayed overall by six months, with the result that all plants were in operation by the end of 1995.

### **Key Results of the Impact Analysis and Performance Rating**

The project contributed to

- economic development by supplying manufacturing companies. However, the proportion of power used for production purposes was only slightly over half that originally forecast.
- improved living conditions at the project locations through private consumption; here, benefits resulted either from power consumption in semi-industrial, craft or similar business activities (for example repair work), or through improvements in the quality of life (for example electric lighting).

Furthermore, the project countered the increase in regional disparities and thus had an indirect, positive impact on political stability.

In accordance with the project concept, there were neither specific impacts of benefit to the poor, nor targeted promotion of gender equality. With respect to the environment, the project-executing agency fulfilled the requirement for proper disposal of waste oil at the project locations (D I – D IV); there are no other environmental problems to speak of.

The project-executing agency PLN has found itself in desperate financial straits since 1998, and this also has negative consequences for the maintenance and repair of the existing infrastructure. There was evidence at all locations that the recommended maintenance intervals for the diesel units were at times considerably exceeded, and repair work on damaged generators could not be carried out. The longer this period of maintenance deficits persists, the greater the risk of breakdowns and of shorter plant lifetimes. At two locations (Kumai, Dili), the newly installed diesel units suffered major damage or outages, the causes of which have yet to be clearly determined. As a result of this and the fact that the units in Palangkaraya are operating at peak load times only, it is unlikely that the capacity utilization of the units will rise above 50% for the year as a whole. The current risks concerning the sustainable achievement of objectives are therefore high.

The evaluation of project success is influenced by the fact that the goals pursued were only partly achieved. The overall objective was met in terms of demand forecasts, but the use of power for production failed to meet the operational appraisal criterion (OAC) of 60%, achieving

only values of 33% to 41% at the different locations. Measured against the macroeconomic cost coverage ratio - which was under 50% at the time of the ex-post evaluation and thus considerably below the threshold value of 80% required in the OAC - the project purpose was not achieved either. When the ex-post evaluation was conducted, the capacity utilization of the diesel units was still in line with the targets of the project purpose; however, if the current situation persists, there is considerable risk that the capacity utilization of the units will fall below the critical 50% mark. On a positive note: in terms of significance the project has contributed to meeting basic energy needs and to improving environmental protection at the various locations.

On the basis of the sub-criteria for rating performance, the project is regarded as having an overall inadequate degree of developmental effectiveness (Rating 4) in terms of relevance/significance. In particular, this is because the percentage of power used for production is still insufficient, despite other positive impacts. The effectiveness criterion (i.e. above all the capacity utilization required) was met between 1997 and 2001. It may be assumed, albeit with a large degree of uncertainty, that capacity utilization of almost 50% can be achieved in the future, at least for the Indonesian diesel generators (providing the severely damaged generator in Kumai is repaired). Consequently, this sub-criterion is still being met to an adequate degree (Rating 3). With a macroeconomic cost coverage ratio of only 47% (minimum target 80%), the efficiency of the project is clearly insufficient (Rating 5). In view of the significant deficits mentioned above, the project is evaluated as having an overall inadequate degree of developmental effectiveness (Rating 4).

### General Conclusions Applicable to All Projects

There are no general conclusions applicable to other projects.

### Legend

Developmentally successful: Ratings 1 to 3	
Rating 1	Very high or high degree of developmental effectiveness
Rating 2	Satisfactory degree of developmental effectiveness
Rating 3	Overall adequate degree of developmental effectiveness
Developmental failures: Ratings 4 to 6	
Rating 4	Overall inadequate degree of developmental effectiveness
Rating 5	Clearly insufficient degree of developmental effectiveness
Rating 6	The project is a total failure

### Criteria for the Evaluation of Project Success

The evaluation of a project's "developmental effectiveness" and its assignment during the final evaluation to one of the various success levels described below in more detail focus on the following fundamental questions:

- Are the **project objectives** reached to a sufficient degree (aspect of project **effectiveness**)?
- Does the project generate sufficient **significant developmental effects** (project **relevance** and **significance** measured by the achievement of the overall development-policy objective defined beforehand and its effects in political, institutional, socio-economic and socio-cultural as well as ecological terms)?
- Are the **funds/expenses** that were and are being employed/incurred to reach the objectives **appropriate**? How can the project's microeconomic and macroeconomic impact be measured (aspect of **efficiency** of the project concept)?
- To the extent that undesired **(side) effects** occur, are these tolerable?

We do not treat **sustainability**, a key aspect to consider for project evaluation, as a separate category of evaluation (as is the case at the World Bank) but instead as a cross-cutting element of all four fundamental questions on project success. A project is sustainable if the project-executing agency and/or the target group are able to continue to use the project facilities created over an economically reasonable period of time or to successfully continue the project activities on their own once the financial, organizational and/or technical support has come to an end.