Safeguard Policy

E2388 v2

**INDONESIA:**

**Environmental Management Framework**

**Introduction:**

PNPM Rural III is the most recent in a series of projects that began with the Kecamatan Development Project (KDP) and have been cited as a model for the development of projects of this nature. Project methodology benefits from a continual refinement to incorporate lessons of experience and best practice and reflects a pool of direct experience extending back over more than a decade in the Indonesian context with PNPM Rural projects I and II, and grant-funded activities that use the PNPM Rural planning and implementation processes, in particular PNPM Generasi Sehat dan Cerdas (PNPM – A Bright and Healthy Generation) and PNPM Green.

The Bank has assessed this project as category B.

The objective of the Project is that villagers in PNPM rural locations benefit from improved socio-economic and local governance conditions. Negative impacts may include: (1) air pollution from vehicles, (2) flooding if bridges are improperly sited, (3) an increase in air-borne dust, (4) noise pollution, (5) increased erosion, and (6) diverting the flow of rainwater.

In overview five specific mitigation methods are routinely applied; (1) selecting an alignment that reduces environmental disturbances; (2) utilizing civil works and vegetation treatments to limit negative impact; (3) ensuring maintenance and repairs are made in a timely fashion; (4) using vegetation to stabilize slopes and prevent erosion; and (5) using special treatments, such as drains, to overcome problems with ground water.

This Annex outlines the procedures put in place to ensure that all project activities are assessed and that potential environmental issues are identified and addressed before an activity with the potential to negatively impact on the environment is commenced.

Where it is assessed that the merits of activity indicate an activity should proceed, even though a negative impact may result, this framework outlines the standard operating procedures that have been incorporated in PNPM Rural III to minimize and offset those negative impacts.

The three basic principles guiding project design and this environmental framework are:

1. Proposals should avoid or minimize negative environmental impacts, and in each case viable alternatives with no or minimal negative impact will have been explored.
2. Before any activity where a potential negative environmental impact has been identified can proceed past the planning stage it must be accompanied by a plan to mitigate the negative impact.
3. Any proposed activities should fit into the General Spatial Plan and avoid areas designated by the Ministry of Environment.

PNPM Rural III follows official Indonesian government policy in regard to environmental management and protection. The Indonesian Environmental Law No. 32 of 2009 governs environmental management in general and covers all sectors. Government Regulation 27 of 1999 established the required methodologies for environmental impact analyses (or AMDAL in Indonesian), and Ministry of Environment Regulation No. 8 of 2006, further provides guidance on the AMDAL process. On the basis of these Regulations planned development activities are divided into three classes. The first class covers those activities that clearly have a large and significant adverse impact that are sensitive, diverse or unprecedented, and as a consequence require a formal environmental impact analysis. The second class covers those activities with less adverse impact and these impacts are site specific and in most cases mitigatory measures can be designed more readily that the first category, and for these an environmental management plan is required. Lastly, the third class covers those activities with relatively minor or no adverse environmental impacts and for these an explicit impact analysis is not required. A review of the scale and nature of activities proposed under PNPM III identifies that in line with the Decree of the Minister for the Environment No. 11 of 2006 for *Activities Obligated to be Supported by Environmental Impact Analysis*, the type and size of activities undertaken by PNPM Rural III mainly fall into the third class where due to the very small scale of investments and construction activities supported they do not require a formal impact analysis and can follow standard operating procedures issued by sectors as available.

**PNPM Rural III Environmental Impact Analysis:**

The first step in the PNPM review was to conduct a thorough review of experience under the Kecamatan Development Project (KDP).

A total of 14,175 small-scale infrastructure projects were financed in just the third year of the first KDP project. Since there were no technical changes to the design manuals in later years, these are considered to be representative of investments in all years. The infrastructure investments have been classified into one of ten infrastructure development types and the investment costs tabulated. The summary data are shown in the Table 1 below which the following conclusions can be drawn:

* of the ten categories of development, only five are of a type which would raise any potential concern from an environmental point of view, namely; roads, irrigation, bridges, water supply and wharves; and
* the average scale of construction was extremely small.

For example, the average road investment financed development of only 1.2 kilometers of new road at a cost of about 36.6 million rupiah (US$ 4,100) per kilometer. Most of the irrigation development involved rehabilitation of small schemes although there was some new construction as well. To provide some perspective, for new construction, the average investment of around 25.3 million rupiah (US$2,850) would finance only five or six hectares of new, low technology irrigation command. The other forms of development were similar: bridges include small scale steel girder bridges with wooden decks, concrete bridges, wooden bridges, and suspension bridges; water supplies come from a variety of sources, but mostly come from springs and dug wells. Most distribution systems are gravity fed, but some utilize electrical or diesel pumps.

**Table I: Sample Cases of Environmental Impact in KDP**

|  |  |  |  |
| --- | --- | --- | --- |
| **Location** | **Activity** | **Environmental Impact** | **Comment** |
| Kecamatan Sosopan, South Tapanuli, North Sumatra | Irrigation project Aek Bustak | Caused downstream areas to suffer drought from lack of flow | Incorporate standard guideline requiring design engineer to check effects of incremental water demand on downstream users. |
| Lancap Jae, Kecamatan Arse | Use of heavy equipment in constructing a new road | Disturbed wildlife in the surrounding forest | Largely unavoidable and only of short term effect. No special safeguards recommended |
| Riau province | Construction of a road leading to protected forests | Became a link in the transportation of illegal logging | Potentially significant but difficult problem to deal with. One option might be to include a prohibition of such investments in the negative list. |
| Tana Toraja, South Sulawesi | Culverts in general built without protective structures including wing walls, drop structures, and lined discharge channels. | In relatively flat areas the uncontrolled discharge damaged field or orchards.  In mountainous areas led to landslides on the side slopes of the road. | Failure to follow good design principles. Need to find out why communities or their engineering advisers were not applying standard design safeguards. |
| Cilacap, Central Java | Construction of a bridge with a reduction in the wetted perimeter of the channel | Reduction in flow area caused the stream to overflow, causing damage to productive rice fields. | Failure to follow good design principles. Need to find out why communities or their engineering advisers were not applying standard design safeguards. |

The review of KDP environmental impact and safeguards illustrated three key facts:

* the basic environmental impact potential of investments supported through the project is low so the general strategy followed under KDP remains relevant;
* nevertheless, the desk and field reviews suggested that a small number of environmental issues were encountered. Furthermore, with block grants doubling in size there is some potential for increased impacts should more villages cooperate on large investments (even though subproject maximum sizes will remain unchanged from KDP).
* most of the issues had their origin in apparent failures to follow best civil engineering practice and it is likely that these can be addressed through continued training and supervision of engineering staff providing technical advice to participating kabupatens; the small number of environmental complaints made to the KDP complaints unit may be a reflection of the very low adverse impact potentials of investments supported under the project but it also could be a reflection of lack of interest in environmental issues on the part of beneficiaries or a reluctance to report problems upwards.

These three items have been addressed in the design of PNPM Rural. It has been made clear that the national government, the donor, and the national consultants place high importance on attention to the environment. It is the responsibility of the kecamatan facilitators to explain the basis for this to the villages and to monitor implementation. Sanctions are imposed where breaches are identified, for example causing environmental damage is sufficient cause to cancel an activity. Not paying attention to the environment is sufficient cause to have the facilitator replaced.

This attention to the environment is equally important at the kabupaten level, where the kabupaten consultants and especially the kabupaten engineering consultant must enforce environmental standards. In addition, the project's negative list (refer to Annex 1) is extensively announced and explained and reflected in the project's legal documents.

Reluctance to report problems is widespread in most projects. Problems will be reported faithfully only if several conditions are met:

* There are no negative effects from reporting problems
* There are positive results from reporting problems, i.e. help is given
* There are negative effects from not reporting problems

The design of PNPM Rural attempts to address all three of these conditions. Reporting of problems is a major point in the performance evaluation system. Problems that are reported are discussed and handled at monthly meetings, and doing this is a major point in the performance evaluation of kabupaten consultants. The first item is connected with the attitude of senior consultants, government officials, and donor representatives when confronted with reported problems. They should perceive these reports as evidence that the system is working and as opportunities to improve performance in the field.

Success in the field depends upon the discipline of project actors meeting these three conditions, which is a task for senior management. A review of the effectiveness of these measures will be included in the first-year evaluation and measures for correction will be agreed with the Bank prior to the approval of the second year program.

Supported by donor-grants, PNPM Rural will also be piloting new approaches for community based environment work in the fragile upland areas of Sumatra and Sulawesi. These “green” programs cover watershed management, renewable resource energy, and environmental education. Detailed design documents are in the project files. They include the direct involvement of experienced green NGOs in promoting environmental awareness and community based resource management. Fifty percent of a core Bank environment specialist provides oversight and support to these programs.

**Lessons incorporated in the PNPM Rural III design:**

Even though exempt from formal studies, (Minister for the Environment Decree No. 11 of 2006 for *Activities Obligated to be Supported by Environmental Impact Analysis*, designers of PNPM Rural infrastructure are required to consider environmental effects. The designer is a graduate civil engineer who works with the local communities assisted by a village technical facilitator. In analyzing environmental effects, the designer must be capable of imagining all effects that might arise as a result of the activity.

Environmental effects are defined as those changes that arise directly as a result of development activities, both positive and negative. The types of problems encountered are determined based on the experience of experts, the field experience of the designer, interviews, literature, and simulations. Analyses on PNPM Rural III investigate concerns that may occur during construction and those which may occur after construction is complete and during operations.

An example of environmental effects for a rural road can be seen in the table below, according to types of impact:

**MATRIX I Possible Environmental Impacts of a Rural Road**

|  |  |
| --- | --- |
| ***Category 1: Serious but local problems***  Water flow concentration  Landslides  Loss of productive land due to landslides | ***Category 2: Serious negative impact on environment***  Sale of land to outsiders  Deforestation  Increased sediment load due to road erosion |
| ***Category 3: Negative effects of slight probability or less important impact***  Air pollution from vehicles  Flooding due to improper sitting of bridge  Increase in airborne dust  Increase in criminal activity in the village  Noise pollution | ***Category 4: Unclear effects, positive or negative***  Increase in use of chemical fertilizers and pesticides  Establishment of small industries that pollute  Increased intensity in farming or livestock  Residents seek employment outside the village  Moving houses to roadside  Outsiders move into the village |
| ***Category 5: Clearly positive impact***  Reduction in erosion from agricultural land due to application of improved technologies  Availability of construction materials in village  Increase in communication, including access to health and education facilities | ***Category 6: Negative impact, but clearly acceptable to the local community***  Traffic accidents  Loss of land required for road widening |

From the above Matrix it can be seen that categories 1, 2, and 4 require special attention. Category 1 includes problems of short-term impact even though the effects might be widespread. These are handled through the application of standardized design and operational procedures which are implemented right across the project. This is also the case with deforestation and increased sediment from Category 2.

The determination of negative effects requires experience, coupled with the use of input from the various existing manuals. Negative environmental effects for roads and bridges, for example, arise especially from the disturbances of unstable soils that are sensitive to landslides or from changes in the flow of water. Excavation and embankment frequently result in landslides or erosion. Landslides bring with them three kinds of negative impact

* endangering agricultural land or housing
* increasing erosion because the soils are not compact
* diverting the flow of rain water

Erosion of roadsides can have large negative impact if the soil is transported to productive land or if the soil is carried in suspension to a reservoir, as this will reduce its storage capacity. At the same time, both landslides and serious erosion will result in unsightly scars near the road. Changes in watercourses can destroy productive lands or irrigation canals, as well as disturb the road itself.

There are four steps in the process of reducing environmental damage.

* Identifying potential dangers;
* Selecting an alignment that reduces environmental disturbances;
* Utilizing civil works and vegetative treatments to limit negative impacts; and
* Undertaking maintenance and repairs in a timely fashion.

The first two are the most efficient, and they are the responsibility of the surveyor and designer. A good survey can truly reduce or eliminate many environmental problems. This is emphasized in pre-service training.

Roads are often located in critical lands that are sensitive to erosion and landslides, where soil types and climate combine to multiply risks. The designer must consider a variety of treatments to build infrastructure that will not harm the environment while still bringing sustainable benefits. To analyze the environmental effects one needs to record information about three things, as follows:

*Treatments necessary* to overcome environmental problems, include:

* Changing the alignment to reduce steep grades
* Moving houses
* Building civil works to stabilize side slopes
* Using vegetative treatments to stabilize side slopes or prevent erosion
* Using special treatments to overcome the problem of ground water, such as drains

*Negative environmental effects* that might still exist after construction include:

* + Side slopes that are unstable and endanger housing or agricultural land
  + Excavation that results in the stockpiling of unstable soil
  + Side slopes that are left bare, without any vegetative cover
  + The muddying of rivers as a result of construction
  + Changes in the course of a stream, which could cause flooding, erosion, or sedimentation
  + Changes in water flow that damage productive land
  + An increase in erosion and sediment as the result of uncontrolled discharge from ditches or culverts
  + The cutting down of the forest
* *Socioeconomic problems* that arise as the result of constructing a bridge or road.

These problems include the sacrifice of productive lands or other land holdings. If other problems arise, it is necessary to record any information that need to be considered about the type and extent of the problem.

For water supply projects or sanitation projects, there is always the possibility of increasing contamination, for example a water source contaminated by surface water entering from outside, or ground water contaminated by a poorly designed or constructed waste control system. One also must consider the formation of an operations and maintenance committee for water or sanitation projects.

**PNPM Rural III Environment Impact Control Strategy**

The method used to ensure that proper attention is paid to environmental problems is a combination of standard checklists and a special checklist for the environment (please see attached Form 22)

For each type of subproject, a technical standard is included in project manuals, and these include considerations of environmental effects. For example,

* The magnitude of the grade of a road and the steepness of the cross-slope perpendicular to the road are limited.
* Drainage for the road must be installed, together with culverts to discharge water safely.
* Leeching fields from latrines have to be located at least ten meters from any water supply, and located downstream as groundwater flows.
* Water supplies cannot be located near any potential source of contamination.

The completion of the environmental format is an obligatory part of the planning process. Each type of project is checked for the various treatments that must be performed on it to avoid or repair environmental problems.

At any point during construction, the same form is brought out to the field and reviewed, at a time when it is still feasible to easily repair deficiencies. At the end of construction, the form is reviewed again. The kabupaten engineering consultant is responsible for reviewing all infrastructure designs on PNPM Rural projects in the kabupaten. He or she will reject any design not accompanied by a completed environmental form and may also request clarification for any feature where a problem is anticipated.

One other element of handling environmental problems is the use of technical inspection forms, which exist for many types of subprojects. Among the items inspected are those dealing with aspects of environmental impact, such as for roads where the forms include slope protection, drainage ditches, and shoulders. These forms are filled out incidentally by anyone who inspects the infrastructure.

PNPM Rural III also has a “Negative List” based on cases from past experience, which identifies activity clusters which may present specific environmental impacts and which, as a result, require special screening, for example:

* Fisheries
* Herbicides and pesticides
* Tobacco and tobacco products
* Ozone depleting substances
* Asbestos
* Sub-projects that may produce liquid or gaseous emissions
* Hazardous materials or waste
* Logging
* Mining
* Excavation of coral or reefs
* Development on protected areas

The full negative list can be seen in Attachment 1.

**Reporting and Disclosure**

Facilitators and NMC staff will aggregate and review environmental reports and flag them in their quarterly reports. The project manual will include a matrix of likely environmental impacts and steps with which to address them. An experienced environmental consultant will be hired to summarize progress and monitor and measure the impact of the project on the environment as part of the project performance evaluation. The consultant will give input into a summary of findings on sub-projects’ environmental practices, including best practices to replicate as well as lessons learned and how to mitigate them, that will be posted on the project website [www.ppk.or.id](http://www.ppk.or.id). Further disclosure of environmental impacts will come from documents available in line with the World Bank's Access to Information Policy.

**Implementation of the Environmental Management Framework**

The Environmental Management Framework is built into the PNPM Rural operational process and is described in the Project Manual, which includes detailed procedures and protocols and forms (Attachment 2). The PNPM operational procedures and protocols are updated to reflect lessons learned.

Attachment 1: Negative List

Excludes to finance expenditures pertaining to or involving:

(a) a military or paramilitary purpose;

(b) civil works for government administration or religious purposes;

(c) the manufacture or use of environmentally hazardous goods (including asbestos, pesticides and herbicides), arms or drugs;

(d) the manufacture or use of dynamite;

(e) the financing of government salaries;

(f) the production, processing, handling, storage or sale of tobacco or products containing tobacco;

(g) activities within a nature reserve or any other area designated by the Borrower for the management and/or the protection of biodiversity, except with the prior written approval of the Borrower’s agency responsible for the management and/or protection of such area;

(h) mining or excavation of live coral;

(i) water resources development on rivers which flow into or out of another country;

(j) alterations to river courses;

(k) land reclamation covering an area in excess of 50 hectares;

(l) new irrigation schemes covering an area in excess of 50 hectares;

(m) the construction of water retaining or storage structures of a capacity greater than 10,000 cubic meters; or

(n) the provision of goods, works or services, directly or through intermediaries, by suppliers or contractors, as the case may be, who have been declared ineligible to participate in the procurement of any Bank-financed or Bank-financed contract, whether indefinitely or for a stated period of time, as a result of a decision of the Bank, and in accordance with the terms of the decision; or

(o) to finance land acquisition

**Attachment 2: Form 22**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Handling Negative Impacts on the Environment** | | | | | | | | | |
|  |  | |  | |  | |  | |  |
|  |  | |  | |  | |  | |  |
| Village : | |  | |  | | Type of Sub-project | | : | |
|  |  | |  | |  | |  | |  |
| Kecamatan : | |  | |  | | Designed by | | : | |
|  |  | |  | |  | |  | |  |
| Kabupaten : | |  | |  | | Date | | : | |
|  |  | |  | |  | |  | |  |
| **Please describe 2 kinds of negative environmental impacts that have the potential to cause greatest loss to the community:** | | | | | | | | | |
| 1. Please describe the primary negative impact that may arise as a result of this project: | | | | | | | | | |
|  | | | | | | | | | |
| State the exact measures that will be taken to resolve this issue or mitigate against potential impacts. | | | | | | | | | |
| 2. Please describe the second negative impact that may arise as a result of this project: | | | | | | | | | |
|  | | | | | | | | | |
|  | State the exact measures that will be taken to resolve this issue or mitigate against these impacts. | | | | | | | | |
| **Please describe two kinds of negative environmental impacts are mostly likely to arise as a result of this project:** | | | | | | | | | |
| 1. Please describe the primary negative impact that may arise as a result of this project: | | | | | | | | | |
|  | | | | | | | | | |
| State the exact measures that will be taken to resolve this issue or mitigate against these impacts. | | | | | | | | | |
| 2. Please describe the second negative impact that may arise as a result of this project: | | | | | | | | | |
|  | | | | | | | | | |
|  | State the exact measures that will be taken to resolve this issue or mitigate against these impacts. | | | | | | | | |