Final Report
EVALUATION OF PNPM RESPEK: VILLAGE INFRASTRUCTURE AND INSTITUTIONAL CAPACITY

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EXECUTIVE SUMMARY

1. Background

This study is conducted to evaluate the implementation of PNPM RESPEK Program in Papua and West Papua. This program is part of PNPM Mandiri – the nation-wide community driven development (CDD) program in Indonesia. Started in 2008, PNPM RESPEK has reached 87 percent of villages (4000 villages) in Papua and West Papua. In the program, special autonomy funds of Rp 100 million are directly provided to villages[1], which can be used for 5 priority programs – one of which is village infrastructure. On average, 70 percent of this fund is used for village infrastructure.

This study focuses on three aspects of the implementation of PNPM RESPEK program: quality of infrastructure, utilization of infrastructure and the development of village institutions.

2. The Objective of the Study

Given that 70 percent of PNPM RESPEK funds are utilized for village infrastructure, this study provides reviews of the quality and utilization of village infrastructure built by PNPM RESPEK. The study also looks at the impacts of PNPM RESPEK on the village and PNPM's institutions. The study aims to answer the following questions:

a. How is the quality of village infrastructure developed through PNPM RESPEK funding?

b. Is the infrastructure developed through PNPM RESPEK effective? What benefits does the infrastructure provide for the local community (for example, improved access to primary education, health services and access to livelihood resources)?

c. What are the impacts of PNPM RESPEK on local institutions and the implementers (district facilitators – PD, village facilitators – PK and Village Activity Operational Teams – TPKK)? In particular with TPKK, what institutional aspects improve the most as a result of PNPM RESPEK? What are the related challenges?

3. Methodology

To answer the research questions, we used a combination of quantitative and qualitative approaches. Quantitative approaches (surveys and measurements based on civil engineering standards) are used to measure the technical quality of the infrastructure as well as the effectiveness of the infrastructure utilization. Qualitative approaches (secondary data studies, social mapping, observation, in-depth interviews) are used to provide an in-dept understanding of the quality of infrastructure utilization and the development of institutions as well as to understand causal relationships between quality of infrastructure, the utilization of infrastructure, and the capacity of institutions.

The research was conducted in 16 villages in 8 sub-districts from 4 districts in the two provinces from November 2010 to January 2011 (2-2.5 months). The locations were selected to represent geographically different areas with various levels of accessibility.

4. Main Findings

[1] In the field research phase (2010), West Papua Province decided to deliver the special autonomy fund directly to the chief of the village, without going through the Rural PNPM Mandiri mechanism.

PNPM RESPEK has successfully built infrastructure (particularly dry infrastructure) that is of good and relatively equal quality in all of the villages. Furthermore, infrastructure built through PNPM RESPEK is 60 percent cheaper than the one built by the Regional Government. This finding is in line with the findings of the other assessment in Papua and NMC observations.

The challenges of building infrastructure are more pronounced for wet infrastructure projects (related to water, such as latrines, MCK-public bathing-washing-toilet facilities or PAH-rain reservoirs). These infrastructure projects have some functional quality problems (moderate quality), for example, leakage in the piping system and reservoirs as well as insufficient water resources. Even though there are some functional problems, the quality of the infrastructure is generally sufficient because they are still usable. Thus, in Papua and West Papua, capacity to build dry infrastructure with a sufficient level of quality exists but capacity to build wet infrastructure is more limited.

Among the infrastructure that is technically useable, 33 percent is effectively utilized and capable of reaching both the majority and poor groups. The quality of infrastructure has also significantly improved the living quality for these groups (from the health and economic point of view). **Meanwhile, 50 percent of infrastructure is utilized only by a small group within the general community, namely the village elite. The rest (17 percent) is not utilized at all.**

There are three main reasons behind the fact that 67 percent of the infrastructure is not utilized by the majority of the community. The first reason is institutional issue related to the village elite domination in deciding which project to be funded by the program. This has not been handled well by the facilitator because of the limited facilitation quality. A second reason is the weak operational systems of infrastructure projects especially for infrastructure that requires fee, such as generator house, and infrastructure that needs frequent maintenance such as MCK (public bathing-washing facilities) and PAH (rain reservoirs). The lack of operation supports decreased the utilization of the infrastructure. The last reason is technical. Most of the wet infrastructure built has functional problems (leaking and insufficient water resources), which in turn lowers utilization.

On the institutional side, after 2-3 years, PNPM RESPEK has strengthened the potential for accountability through the enhancement of financial record capabilities, the emergence of questions from community elements on the usage of development funds and - although still in a very limited scale – the emergence of village chiefs that are copying the accountability model of PNPM RESPEK to responsibly handle ADD (village allocation) funds. Aside from accountability, **PNPM RESPEK has succeeded in enhancing the administrative capacity at the PD level.** The challenge is that, similar with PNPM Mandiri-Rural, **PNPM RESPEK has not been able to increase community participation especially among the poor population.** With the limited participation of community groups outside the elite, the hope for PNPM RESPEK to be able to build community's capacity has not been realized. The capacity enhancement process has only been enjoyed by implementer groups (TPKK, PK or PD), which are the activist groups in the community.

The design and mechanisms of PNPM RESPEK that prioritize administration and accountability allowed for the enhancement of PD and TPKK administrative capacity (recording and reporting), but not the capability to handle domination by the village's elite or to strengthen community groups. The limited quality of facilitation is caused by a combination of factors: the design of PNPM RESPEK (the broad scale and focus on administration-related incentives), the limited planning process (the facilitators are not following the whole process well, particularly the planning phase), the lack of assistance/support to facilitators, and the specific challenges in the context of Papua and West Papua (limited accessibility, insufficient number of local facilitators, wrong perception of special autonomy fund by some of the community group).

5. Recommendations

This report focuses on two objectives that are expected from PNPM RESPEK: to build infrastructure that is effectively utilized and to strengthen the village's institutions. Previous study in Papua showed that effort to effectively strengthen institutions in general needs to be implemented at a relatively small scale and should start with locations that have shown empowerment potential (AKATIGA, 2010). We do not, however, recommend decreasing the scale of PNPM RESPEK since PNPM RESPEK funds may have provided the only opportunity for the villages to have their own development funds. In order to achieve the two objectives without changing the scale of PNPM RESPEK, we provide three recommendations: increasing community participation and strengthening the village's institutions; enhancing infrastructure's utilization through improving functional aspects of wet infrastructure (from the design and technical operation points of view); and establishing infrastructure operation and maintenance system.

5.1 Enhancing Community's Participation and Strengthening Village's Institution

The following strategies are recommended to ensure community's participation: (1) enhancing facilitation quality through "Facilitator Capacity Building" Program, (2) developing PNPM RESPEK mechanism that gives incentives for facilitation capacity building, (3) creating spaces for community participation outside the village elite as well as strengthening the village elite's ability to support the needs of the poor groups, and (4) synchronizing PNPM RESPEK activities with the regional Government (Province and District) development plans.

Given the macro level obstacle to education quality in Papua and West Papua, **we strongly recommend a serious and a long-term effort to ensure the availability and to build the quality of local facilitators.** One good model for this effort is 'the barefoot engineers program' initiated by the World Bank[2]. PNPM RESPEK implementers at the Province and District levels should work together with INGOs and NGOs that have been working on empowerment in Papua and West Papua, such as World Vision, to build facilitation capacity through a development program for potential PDs, TPKKs and PKs (who show serious commitment in implementing the PNPM RESPEK program). Aside from implementer groups above, this program should also be open for high school graduates to allow them to become PNPM facilitators. The coach for the program can be sourced from the PNPM Mandiri empowerment facilitator groups that have already had strong facilitation capacities.

Besides efforts to develop facilitation capacities, we also recommend building an **incentive and monitoring evaluation system that will ensure the quality of the actors and implementers in conducting the facilitation functions and institution strengthening**. At the moment, the incentive system used in PNPM RESPEK is prioritizing administration compliance. **If PNPM RESPEK wants to build facilitation skills, the program must change the incentive and disincentive system so that every institution involved can be encouraged to develop facilitation quality.** An example of incentive could be the awarding of additional funds for villages that conduct institutional strengthening in areas such as participation or form group that can maintain the infrastructure. Another incentive could be the provision of capacity enhancement programs for TPKK, PK and PD who shows seriousness in conducting the PNPM planning process.

Keeping in mind the special contexts associated with Papua and West Papua, **the design of PNPM**

[2] In the technical facilitator quality enhancement program, funded by the Australian Government, the World Bank is working together with Cendrawasih University to create 'the barefoot engineers program'. The program consists of a 6 month intensive training for high school graduates on their knowledge of civil engineering, construction and facilitation. When they graduate, they can directly become technical district facilitators in the PNPM RESPEK program. Based on the story of PNPM RESPEK consultants, the program is considered very effective in addressing the lack of technical facilitators and to build the basic skills needed.

RESPEK needs to be changed to improve facilitation, especially for regions with difficult accessibility (remote areas). The provincial consultant has already categorized the regions in Papua and West Papua according to the level of accessibility that can be used as database to segregate regions that need special PNPM RESPEK mechanisms (which will require changes in the original design). For remote areas, it is better to lengthen the implementation period and increase the size of fund, for example Rp 200 million for the period of 2 years. It is also important to increase operational funds for PDs (through special autonomy funds) to supervise the remote regions.

Community participation can also be built by creating spaces for community groups (beyond the village elite) to take part and control the decision making in PNPM RESPEK through two alternative means. The first alternative is to determine specific target group/beneficiaries, for example by putting requirement that infrastructure proposal may only be initiated by women groups in the village. The second one is to build internal control mechanisms to ensure that proposals that clearly only benefit a small part of the community can be rejected. For example, creating a small group consisting of women at the district level (representative of several villages) that are specially trained to check whether a proposal is benefiting broader community, including the poor and marginalized groups. This group would have the authority to give recommendations to reject a proposal. To overcome the issue of subjectivity (and conflict of interest), a village representative would not be allowed to judge/evaluate proposals from her own village.

The above recommendations need to be supported through a regional government (district and province) commitment that is in line with the strategy and principles of PNPM RESPEK. Besides the commitment of special autonomy funds to enhance facilitation capacity, the province's policies must also be synchronized with PNPM RESPEK in two ways. First, West Papua Province Government must continue to channel the RESPEK funds through PNPM Mandiri mechanism. Second, the collaboration with related departments and offices such as the Health Department is necessary to build institutional/community capacity such as training on hygienic behavior or utilization of latrines/MCKs to improve utilization of the infrastructure.

5.2 Increasing the Function of Wet Infrastructure

Given the functional issues in wet infrastructure that could affect utilization, we recommend special efforts to increase the functional (technical) quality of the water infrastructure through the followings:

First, employ stricter selectivity for availability of water resources. There is a need to have stricter verification in the planning phase with additional precondition: sufficient water resource verification before agreeing to wet infrastructure proposal that needs water resources. For every wet infrastructure project, the sub-district facilitator has to be sure that this precondition is fulfilled.

Second, conduct special training for technical facilitators, especially at the sub-district level, for wet infrastructure projects given the high risk of failure during implementation. Based on experiences of technical facilitators in handling wet infrastructure projects, module and training materials can be developed in a more contextual way by learning from general mistakes made in the past and providing lessons on how to handle them.

Third, put together templates of various technical plans/designs for wet infrastructure. The provincial and district technical consultants can put together templates of various alternatives for technical plans/designs for wet infrastructure. The templates should consist of technical design scenarios that could accommodate various local condition and the types as well as physical forms that are best suited for each condition. These alternatives will complement the existing technical templates.

5.3 Developing Infrastructure Management System [3]

So far the existing operational system (infrastructure management) is not conducive for the optimization of infrastructure benefits in Papua and West Papua. Ideally, this problem can be solved by building institutional system or group responsible to manage the infrastructure, including providing funding support. According to the recommendation by the National Management Consultant (NMC) of PNPM Mandiri, **the institution can be developed with the support of special autonomy funds. This community group, with TPKK and PK facilitation, can propose maintenance funds through the special autonomy funds.**

Another alternative is the development of infrastructure designs (technical drawings/templates) that utilize less complicated operational systems and minimal maintenance fee. Technically it is very possible to develop various simple designs. For example, for areas where water is scarce or where a wet infrastructure project has to be built far away from the water resource, the type of infrastructure operational design applied should be the one that requires less water. Currently there are various technical designs (structural and material) for public bathing-washing-toilets that do not need a lot of water, for example, latrines with larger capacities or material selections that make it possible to limit the use of water.

[3] More on the infrastructure operation and maintenance recommendations can be found in the World Bank report, *Village Capacity in Maintaining Infrastructure: Evidence from Rural Indonesia* (November 2010).

LIST of ABBREVIATIONS

ADD	*Anggaran Dana Desa* (Village Government Fund)
Bamuska	*Badan Musyawarah Kampung* (Village Legislation Body)
CDD	Community-Driven Development
CEA	Cost Effective Analysis
CER	Cost Effectiveness Ratio
Distrik	Area equal to a Sub-District in Papua and Papua Barat
ISPA	Upper Respiratory Infection
Kampung	Area equal to a village in Papua and Papua Barat
MKS	Village Meeting for Socialization
MKPP	Village Meeting for Implementation Preparation
MKP	Village Meeting for Accountability
MKST	Village Meeting for Handing Over Maintenance Responsibility
PAH	Rain Water Reservoir
PMA	Spring Water Reservoir
Pustu	Sub-Community Health Service
PBM	Village Meeting for Planning
PD	Sub-District Facilitator. There are two PDs: technical (engineering) and empowerment.
PTO	Operational Technical Guidance
PJOK	The Person Responsible of Operational Activity, at the sub-district level
Pen-Kab	District Facilitator, consists of 'technical' and 'empowerment/social mobilization'
Pen-Prov	Provincial Facilitator. Provincial Facilitators are professionals that provide intensive facilitation and guidance as well as providing technical and management support to the PD.
PNPM Mandiri RESPEK	Community Empowerment National Program – RESPEK. The merger of PNPM and RESPEK has become the focus of this study
Pustu	Community Health Sub-centre
PK	Village Facilitator. Every village selected two PKs: one male and one female.
Posyandu	Integrated Health Post
RESPEK	Village Development Strategic Plan (funded by regional autonomy fund)
T3T	*Tim Tiga Tungku*, consists of customary elders (outside the chief of the village and village's apparatus), usually head of clan

TPKK	Village Activity Operational Team
TPKD	Sub-District Operational Activity Team

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CHAPTER 1
INTRODUCTION

1.1 Background

This research has been conducted as part of program evaluation of PNPM RESPEK for village infrastructure and institutional empowerment aspects. PNPM RESPEK is a joint program between regional government (through special autonomy fund for Papua and West Papua) and the central government (through PNPM fund). Started in 2008, the program covers 87 percent of villages (about 4000 villages) in Papua and West Papua[4]. The program provides block grant of Rp 100 million per village that can be used to fulfill village needs proposed by the community. The planning mechanism was conducted through several meetings to garner community needs, to make proposals representing community needs, and to make decision on which proposal to be funded. The whole processes were carried out at the village level and were facilitated by a group of facilitators. The block grant is directly channeled to the village level [5] and can be utilized for five program priorities, [6] one of which is village infrastructure. From the five priorities, 70 percent of the funds are used for village infrastructure.

The study was requested by the World Bank to provide a deeper understanding of PNPM RESPEK results in three aspects: quality of infrastructure, utilization of infrastructure and the development of village institutions.

Due to the limited existing literature on Papua and West Papua, this study relied on several studies, such as the Papua Accelerated Development Needs Assessment – PADNA, a quick study conducted as part of the initiative by the Governor of Papua with the World Bank and the UN to provide background and understanding of development situation and context of Papua and West Papua. Other research was conducted by AKATIGA (2010) to evaluate marginalized group participation in National PNPM, with case areas including Papua (Biak and Paniai). The result of these studies revealed PNPM's implementation potential (infrastructure quality and village institution) as well as

[4] According to the data of Home Affairs Ministry in 2008, there are 3440 villages in Papua and 1149 villages in West Papua. These numbers are expected to increase as there are now new villages resulting from *pemekaran*.

[5] This is different from PNPM Mandiri Rural where the fund is given to the sub-district (*UPK*) to be given to the winner of a competition among the villages. In Papua and West Papua, the fund is directly provided at the village level, there is no competition at the sub-district level.

[6] The program's five priorities are (i) nutrition (ii) basic education (iii) primary health care (iv) village infrastructure and (v) livelihoods.

challenges related to the special conditions of the area, especially accessibility (of isolated areas), the availability and quality of facilitators (education issues) and the impact of elite groups (village chiefs)[7]. This study focused on the existing context and provided comparison with other alternatives when relevant, especially the infrastructure development implemented by the regional government.

1.2 The Objective of Research

The research aimed to answer the following questions:

1. How is the quality of village infrastructure developed through PNPM RESPEK funding?
2. Is the infrastructure developed through PNPM RESPEK effective? What benefits does the infrastructure provide for the local community (for example, improved access to primary education, health services and access to livelihood resources)?
3. What are the impacts of PNPM RESPEK on local institutions and the implementers (district facilitators – PD, village facilitators – PK and Village Activity Operational Teams – TPKK)? In particular with TPKK, what institutional aspects improve the most as a result of PNPM RESPEK? What are the related challenges?

1.3 About PNPM RESPEK[8]

PNPM RESPEK, a community empowerment development program, is a collaboration between two programs: RESPEK (Village Development Strategic Planning) and PNPM Mandiri Rural. RESPEK was a Papua program launched by Governor Barnabas Suebu that was later combined with PNPM due to the similarity of their mechanisms. In 2008, RESPEK formally joined hand with PNPM Mandiri and became PNPM Mandiri-RESPEK which conducts community development programs with focus on the hamlet or village level.[9] The provincial government provides annual block grant of Rp100 million to every village from its Special Autonomy fund and PNPM (central government) provides the technical assistance.

Before becoming PNPM RESPEK, the RESPEK fund was given directly to the chief of the village in cash

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7 AKATIGA's study (2010) concluded that there was low participation of marginal groups including in Papua. One of the obstacles identified was the focus on the role of elite groups, and particularly the chief of the village.

8 Data from numerous resources: World Bank PNPM RESPEK website, PNPM RESPEK Operational Technical Guidance, interviews with Anton Tarigan (PSF program officer for Eastern Indonesia when the study was conducted) and the facilitators for Papua and West Papua Provinces.

9 In the field research phase (mid October 2010 – December 2010), there were no more PNPM RESPEK programs in Papua Barat Province. The Special Autonomy Fund was directly channeled through the Chief of Sub-District and Village, without going through the mechanism of Rural PNPM Mandiri. As the consequences, since July 2011, PMD Jakarta named the Papua Barat program Rural PNPM Mandiri (PNPM MPd) without using the word RESPEK anymore. RESPEK understanding is only valid in Papua Province.

to be managed in collaboration with the community. After the merged, the fund was delivered directly to the village through PNPM Mandiri community planning mechanism facilitated by the sub-district and village implementation team (TPKK). The study conducted by AKATIGA (2010) showed that several village chiefs rejected the mechanism of fund management through TPKK and this has become one of the challenges in the implementation of PNPM RESPEK.

Similar with other community driven development (CDD) program, PNPM RESPEK focuses on the principle of participation where the idea/proposal to be funded has to go through a series of discussion/consultation processes with the community and then agreed proposals must be submitted by the community groups in the village.[10] These processes are facilitated by a group of facilitators. Basically every citizen, such as farmers group, religious group, art group, the smallest neighborhood (RT), neighborhood (RW), hamlet, ethnic group, women's group, is entitled to put forward suggestions for the proposals. The selection of proposals would be determined in the community planning process (PBM) by considering the number of groups who made the suggestion, the number of beneficiaries and the amount of available funds.

In PNPM RESPEK, small teams of community development facilitators (a mix of empowerment specialists and field engineers) are placed at the *distrik* (equal sub-district level), with a ratio of approximately one facilitator to five villages, to assist communities in the participatory planning process to define their needs and priorities, and in the design and implementation phases to ensure quality of program activities and transparency and accountability in managing the fund.

The main actors of the program are the village communities as decision makers and beneficiaries. The forefronts of PNPM RESPEK in the village are the TPKK and PK who were chosen by the community during the village socialization meeting. At the sub-district level, the program is managed by the Sub-District Activity Operational Team (TKPD) and Sub-District Facilitator (PD). There are two types of PDs: one (or more) specializes in civil engineering and the other facilitates the community in implementing activities outside of infrastructure building (empowerment or social mobilization facilitators). In the field, the PD is the backbone of PNPM activity implementation. The difficulty of recruiting potential facilitators is one of the challenges for PNPM RESPEK implementation.

The program implementation consists of five phases:

[10] The difference with Rural PNPM Mandiri is that the competition is not in the sub-district level. In PNPM RESPEK, every hamlet (village) gets PNPM funding and the suggestion at the village level does not need to go through competition in the sub-district level.

1. Program socialization and selection of PK and TPKK, usually through socialization forum at the sub-district and village level (MKS).
2. Training for PK and TPKK (conducted by PDs).
3. Community-Based Planning Meetings (PBM), conducted to discuss a series of proposals (infrastructure) that come from the community.
4. Planning to implement the selected proposal, conducted through the Village Forum for Implementation Preparation (MKPP).
5. Fund disbursement: conducted in 2 phases, phase 1 right after the MKPP, and phase 2 after Village Meeting for Accountability I (MKP I). These are follows by MKP II and a meeting to hand over the ownership of the infrastructure (MKST).

1.4. Methodology

1.4.1 The Study Framework

The study answers three aspects simultaneously: infrastructure quality, infrastructure utilization, and institutions effectiveness. The research was based on field study (using primary data). To answer the research questions, the study team utilized both quantitative and qualitative research methods. The quantitative approach was used to measure the technical quality and the magnitude of infrastructure utilization. Meanwhile, the qualitative approach was used to obtain deeper information on the quality of utilization, the quality of institutions and the relationships between infrastructure quality and utilization and institutions quality.

1.4.1.1 The Quality of Infrastructure

There are 2 (two) aspects that were observed in terms of quality of infrastructure: structural quality and functional quality. The structural quality focuses more on the infrastructure's structural condition. To appraise the structural condition, the infrastructure is assessed based on several aspects, such as the strength of the initial building, the material used for the structure, the sufficient measure of the main structural components (blocks and columns), and the overall building integrity (existence of cracks and/or disintegration). With other words, structural quality answers questions such as does the wall have sufficient cement, is the foundation of the building strong enough, etc.

Meanwhile, the functional quality focuses more on whether parts of the building or the building system as a whole are functional as intended, for example:

a. Functioning of water reservoir, flow and drainage.
b. Functioning of roofing.
c. Functioning of air circulation and lighting.

Another aspect included in the functional quality is assessment of whether the infrastructure is planned and designed by taking into account the suitability of the infrastructure to local conditions and operational preconditions. For infrastructure that has operational preconditions, such as the availability of water, attention must also be paid to the location and quality and quantity of the water resources.

In principal the evaluation of these two aspects are conducted in the following phases:

1. The researchers with civil engineering skill used standardized instruments to collect information at the field. The instruments - tested and revised in the training process conducted before the team is dispatched to the field - aim to maintain the scope and objectivity of information collected. The research team collected information on the measured structural condition and functional condition. The information is complimented by structured visual documentation and guided interviews.
2. The information is compiled and presented in the form of percentage of structural and functional conditions with the value of 100 percent indicating infrastructure in prime condition and 0 percent indicating severely damaged infrastructure.
3. The research team then conducted initial assessment in the form of intensive discussion with infrastructure expert to standardize the measures obtained in the field.
4. The final assessment is conducted by dividing the results of the assessment into 3 (three) categories: the first category, “good grade,” represents infrastructure project that is structurally and functionally sound (80 - 100 percent condition) and does not have significant issues that will disrupt the utility of the building; the second category, “moderate grade” (condition <80 percent), represents infrastructure project with issue in one of the parameters, whether functional or structural. However, the issue does not mean that the building is not utilized; the third category, “bad grade,” means that there is significant issue structurally or functionally that makes the infrastructure unusable. For example, a sub-community health center (*Pustu*) that does not have roof, will be graded “bad,” while a rainwater reservoir (PAH) that is leaking will receive a “moderate” grade.

In addition to assessing the condition of building quality, the researchers the also explore what causes the good or medium level of technical quality of the built infrastructure. The reasons can be found from both technical and non-technical points of view. The technical aspects are:

1. The quality of design/template of the infrastructure
2. The quality of technical implementation team (PD, TPKK and PK as well as the workers)

Meanwhile, the non-technical aspects are related to the village institutions and social aspects that affect the overall technical quality.

This study also compares the cost and quality of infrastructure projects built through PNPM RESPEK with those that were built by the regional government - through the public works office for roads or through the health office for sub-health center. The study selects the regional government infrastructure projects that are similar with PNPM RESPEK in terms of type, area, service and coverage, to allow fair comparison between the two.

The study only includes infrastructure projects that were actually built. Cases where infrastructure projects were proposed but not built are not included in this technical evaluation scope.

1.4.1.2 Infrastructure's Utilization and Effectiveness

The above analysis will provide information on how many infrastructure projects that are technically functional. For these infrastructures, the next question is whether the community really utilizes them and who specifically is utilizing them. To explore the utilization of infrastructure, we ask the following questions:

1. Has the infrastructure been utilized? How many infrastructure projects have not been utilized? How many are only utilized by a small group within the community and how many are utilized by broader community including poor people? And what is the extent of the utilization?
2. For utilized infrastructure: are the benefits big enough relative to the cost itself?
3. Has the infrastructure been utilized such that the benefit is greater than benefit that could be provided through other options/alternatives?
4. What are the obstacles to optimizing utilization?

Ideally the above questions should be answered using the quantitative method by conducting cost

effectiveness analysis (CEA). The CEA is a very useful instrument to assess the efficiency of a policy in terms of social benefits gained by the community. CEA does not provide the monetary value of the benefits, but it produces ratio that can be used to compare alternative projects/approaches. The lower the cost to effectiveness ratio, the more effective is the utilization. The cost is calculated in rupiah spent for the infrastructure built, while effectiveness is measured by certain quantity according to the need/benefits gained. The benefits measured are usually benefits that cannot be monetized but can be quantified, for example, by rupiah per life saved. By calculating the ratio of cost to effectiveness (benefit) of each alternative, the results can be used as the basis for determining policy priorities.

However, after testing the research instrument[11], there were several obstacles in the field that limit the ability to conduct CEA. Therefore, the method was modified by combining it with qualitative methods and analysis. There are four obstacles to conducting the CEA:

1. There are no reliable data, such as the one on health service utilization, number of graduates, class succession, and other data needed to construct the benefits.
2. In terms of measuring time saved due to availability of road/bridge, the measure of time and distance used by the community in Papua and West Papua is not very precise. They are not used to measure time or distance.
3. Some benefits cannot be converted into economic/monetary measure because of the subsistent economy in Papua and West Papua. Besides, the concept of work utilized by the community is also different. Time savings caused by building infrastructure cannot be valued in the form of money because it does not affect their economy. For example, the women's groups use their time the whole day to nurse, cook, go to the field, look for food in the forest. The time used for these activities cannot be converted into monetary value. Members of community groups often do not have jobs or work in the field and forest, the output of which is hard to measure in monetary manner. In other words, there is no way to describe the extent to which Papuan and West Papuan people value their free time.
4. The market in Papua and West Papua is highly distorted so that traditional concepts of economic rationality cannot be utilized, and often the modern economy structure exists side by side with the traditional (subsistent) economy structures. For example, in certain areas, renting a vehicle (usually the 4WD type) to reach other *distrik* costs much higher than the selling price of sweet potatoes.

[11] One of the phases of the study is research instrument testing for a week in Manokwari that was conducted before the researcher training and the field research.

These four factors hampered the attempt to convert study's findings on time saving, distance saving, health enhancement or limited school opportunities into rupiah value. As a result, it was also difficult to measure benefits in rupiahs (willingness to pay). Using the rules from other regions will not provide an accurate picture of the value of infrastructure for the Papuan community. Therefore a lot of benefits are discussed through a combination of quantitative and qualitative methods.

In this report, the evaluation of effectiveness is conducted from two perspectives:

1. From the user perspective: there are three categories of evaluation for this. First, infrastructure will be graded effective when the users are the majority of community; not only the village elite, but also the majority and the poor population. Second, infrastructure will be graded as limited when it is only utilized by a small group of the community. Third, infrastructure that is not used at all will be graded as poor.
2. From the quality of utilization perspective: for infrastructure that is highly utilized, a more detailed evaluation will be conducted on how effective the utilization is by looking deeper into the impact of infrastructure utilization on the quality of life of the users in terms of health, education and economic livelihood.

After evaluating the effectiveness, the study tries to find out why an infrastructure project is highly utilized or not. The factors that are assumed to be affecting this are divided into:

1. Technical factors: structural and functional issues of infrastructure that affect utilization.
2. Non-technical factors: institutional issues related to the planning process, the capacity of implementation team, village structural and socio-economic factors found in the field.

1.4.1.3 Evaluation of Institutional Aspects (Institutions)

There are two institutional aspects studied in this evaluation: the village institution and institution of program implementation team.

The village institution is evaluated from the community development perspective through among

others, analysis of the community participation in decision-making process, the development of the institution's capacity as well as the existence of critical behavior towards accountability. Therefore the village institution is evaluated in two ways:

First, the village institution is evaluated in terms of its impact on the community participation process. This participation is defined as "a process where the stakeholders can influence and control various development initiatives, decisions and resources that are impacting their lives".[12] Does the existence of PNPM RESPEK decrease the power of the elite, or is it doing the opposite? Does the program open up access for other groups in the village, especially women and poor groups? In other words, the study looks at who has influence and makes the decisions in PNPM RESPEK planning phase, and to what extent are the poor and marginalized groups involved. For this, we need to have an initial understanding of the institutional context at the village level, village politics, village social systems and the relationships among the village elite.

Second, the village institution is evaluated by its impact on accountability. The study defines accountability as the ability to build a foundation of accountability, recording of documents (materials), as well as monitoring and reporting.[13] Therefore, the aspects we consider under accountability are: (a) records of documents related to financial responsibility and PNPM RESPEK implementation process, (b) channels for complaints or other forms of community supervision, and (c) whether the village officials learn from PNPM RESPEK accountability process and use it for other development programs in their villages.

Meanwhile, related to PNPM RESPEK implementation institutions, the study aims to reveal whether PNPM increased the administrative and facilitative capacity of TPKK and PK. The study conducted by AKATIGA to evaluate the participation quality in Rural PNPM (AKATIGA, 2010) showed that PNPM was more successful in developing administrative capacity but not the facilitation capacity (to be able to act as a social mobilization activist). In this case, does PNPM RESPEK also improve administrative ability? If the answer is yes, what administrative aspects are being improved? Does the facilitation capability increased as well? The study tests, elaborates, and provides more in depth analysis of the institutional aspects of PNPM implementation team (TPKK and PK) and the obstacles faced in enhancing their capacity.

Administrative capacity is defined as the ability to conduct assignment/activity according to plan,

12 The World Bank, 1994, in Rietbergen McCracken & Narayan, 1998, page 4
13 Bergman, 1981

including documentation capacity. Related to PNPM RESPEK, the administrative capacity is measured by someone's ability to conduct all of the PNPM phases according to the Operational Technical Guidelines (PTO). The administrative capacities studied are: implementation of all phases, finalization of documents required by the PTO, documentation and recording – both of the activity as well as financial document/reports (cash flow of goods and materials).

Facilitation capacity is related to the ability to facilitate the interaction process between various groups, including encouraging the participation and learning process of each group so that the most effective decision can be reached.[14] Facilitators hold an important role in building communication among groups and supporting the learning process of each group. In community with hierarchical social structure, the facilitator is expected to be able to bridge various interests within the community, encourage participation by the poor and marginal groups, and overcome the possibility of domination by certain group.

1.4.2 Data Collection

As explained above, this research utilizes both quantitative and qualitative methods. The quantitative approach is used to provide measurable answers to questions of infrastructure quality and cost effectiveness (research questions 1-2). Quantitative data collection for CEA is conducted by using questioner distributed to 15-20 users per infrastructure project in each village.

Meanwhile, the qualitative approach is utilized for three things: (1) to compliment and improve the quality of benefits-related data (which would be hard to evaluate quantitatively); (2) to collect information on the impact of PNPM RESPEK on local institutions and implementation teams (question 3); and (3) to gather more comprehensive stories to provide clearer picture of the causal relationship. The methods used to collect qualitative data include: in depth interviews, social mapping, and direct observation. While the focus group discussion was only held at the end of the field research to confirm the initial findings from the field.

Primary data collection was conducted starting from mid-November to the beginning of January 2011 for about 2 - 2.5 months in each district. Each district was handled by a different team, a total of 4 teams for the whole evaluation.

[14] Kaner, 2007

1.4.3 Research Location

The research was conducted in 4 districts in Papua and West Papua. In every district the researchers selected one remote sub-district and another sub-district that was located close to a city. In every sub-district they selected 2 villages. At the beginning, the research location was determined based on inputs and consultation with the World Bank PSF as well as the Provincial and District PNPMs consultants in the related locations. Several locations had to be changed later in the field due to security factors (especially in the District of Jayawijaya and Boven Digoel).

Locations were selected based on the following criteria:

1. The length of involvement with PNPM RESPEK: The study covered both locations that already had PNPM for 2-3 years and new locations that only had PNPM RESPEK for the first time.
2. Diversity in geographical context, especially related to accessibility. Two sub-districts in each district were selected to represent two geographical categories. One was in a mountainous area in the inland with limited access (transportation costs tend to be expensive), and one was in a sub-district located in coastal or urban area (easier access) (see table 1.1 below). These criteria are important because the location determined accessibility and affected the infrastructure quality and institutional capacity. (See Sub Chapter 2.4 for details).
3. Diversity among government administrations: locations were chosen in both the provinces of West Papua and Papua.

Table 1.1 Research Locations

Province	District	Sub-District	Accessibility
Papua	Boven Digoel	Mandobo Waropko	Easy to access Hard to access
	Jayawijaya	Wamena Yalengga	Easy to access Hard to access
West Papua	Teluk Bintuni	Bintuni Tembuni	Easy to access Hard to access
	Manokwari	Ransiki Hink	Easy to access Hard to access

Picture 1.1 Orientation Map of Research Locations

Reference: from various resources, modified by Rian Ihsan.

Because of the limited budget, the study only covered areas accessible to the researchers. The study did not reach locations or villages that were prohibitively difficult to reach where researchers need to travel by foot more than 1 day or need to use a chartered plane.

1.5 The Report Structure

In general, it can be concluded that infrastructure problems in PNPM RESPEK were more related to the issue of utilization rather than technical quality. From all of the infrastructure projects that are technically useable (in the category of good and medium), 67 percent are not effectively utilized: 50 percent is utilized only by a certain group (usually the village elite group) and 17 percent is not utilized at all. Only 33 percent of the infrastructure units are effectively utilized. Institutional factors (the domination of the elite and the weakness of facilitation skill) are the main reasons why infrastructure is not effectively utilized. Further elaboration of this finding will be explained in Chapter 3.

Chapter 4 discusses the impact of PNPM RESPEK on the village and program implementation institutions. During the evaluation period, PNPM RESPEK appears to strengthen the potential for accountability. Meanwhile, similar with findings about community participation in Rural PNPM (AKATIGA, 2010), participation remains a challenge in Papua and West Papua. The village elites (especially the chief of the village and head of the clan) dominate the planning process of PNPM RESPEK and hence the proposed infrastructure usually ends up being more beneficial for them. Corroborating previous study, facilitators are loaded with administrative work and focus more on administrative matter rather than facilitating different groups. These findings will also be discussed in Chapter 4. The social context of Papua and West Papua and the role of village customs will be discussed in Chapter 2. The report concludes in Chapter 5 by providing recommendations to enhance infrastructure utilization and institutional strengthening.

CHAPTER 2

THE CONTEXT OF PAPUA AND WEST PAPUA

As explained above, the implementation of PNPM RESPEK is strongly influenced by the institutional context of the village, particularly the elite domination within the village hierarchical structure. Beside the village social structures, other factors that influenced the implementation of PNPM RESPEK are the special autonomy status of Papua and West Papua, human resources quality (related to education), and geographical factors, particularly those that affect accessibility. This chapter explains several factors that influence the implementation of PNPM RESPEK:

1. The issue of village structure and elite domination in the village, where the authority of the village chief is very high because the chief of the village is also the traditional chief (chief of the strongest clan). There is no other institution that can compete with the authority of the village chief except when there is another clan in the village that is equally strong.
2. The special autonomy status, especially in West Papua since 2010, has not been conducive towards implementing CDD program like PNPM because the special autonomy fund is channeled back through the village chief (rather than through TPKK).
3. The limited number of human resources with quality education creates a significant challenge for CDD model that rely on facilitation.
4. The geographic and accessibility issues are very challenging: there are many villages that are hard to access and it is very expensive to reach the areas. This in turn affects the price of materials and the frequency of facilitation.

2.1 The Context of Village Institution

Village institutions in Papua and West Papua are influenced by the development of three influential institutions of village government[15]: (i) Papua traditional institutions (*adat*), (ii) government institutions, and (iii) church institutions.

The traditional structure in Papua and West Papua consists of various types of hierarchical kinship.[16] First, at the broadest level, there are ethnic groups (*Suku*), such as Dani, Ekari, Asmat, Mimika etc. The *suku* is a group in which all members are believed to come from the same family tree. Initially different *sukus* did not live together in the same area. Currently, however, they can be

[15] Slamet 2005

[16] Slamet, 2005 & Sudarman, 1977

found living together in areas that have become urbanized or interacted intensively with outer world such as in coastal areas. There are several *sukus* that are more aggressive than others, particularly in the highland.[17] Second, the clan is the hierarchical group at the sub-*suku* level (*fam*); they usually understand very clearly the kinship distinctions between each other. Within a clan there are other kinship related groups that live in the same area. This usually happened when a clan becomes too big and dispute or certain natural condition caused the clan to break into smaller clans. And third, under family related groups there is extended family (for example family that lives in one traditional home-*honai*). After that comes the core family that the community usually calls *marga*.

Position of authority in Papua and West Papua is closely related to traditional/*adat* divisions and kinship structures. Every *suku* has a chief and customary council who resolves issues within the *suku*. The customary council in West Papua is called *Baperkam* (Village Representative Body), and in Papua is called *Bamuskam* (Village Council Body). Clan or kinship related groups also have their heads (head of clan) and influential people who usually have their influence because of mastery of certain skill such as war commander, teacher, midwife, etc. The village chief is usually the strongest clan leader who first founded the village or is a descendant of that family. Newly arrived clans that migrate from other villages and women's groups hold very low positions.[18]

An example of existing tribal structures in the research areas can be seen in the native populations of Honelama village, which consists of the Danis who live in area called 'Baliem Valley' and in most parts of Jayawijaya District and are bound by the same language. The Danis of Honelama consist of more than one clan (*fam*), which are the Wisa and Wita clans. The Wisa clan consists of several families (*marga*): the Kossay, Wuka, Elopere, Lanitipo, and Itlay. Meanwhile, the Wita clan consists of the Hubby, Matuan, Ikimia, and Hisage families. Within one clan, the various families (*marga*) hold different places in the clan hierarchy, for example: the Kossay are considered higher than Wuka. A member of the Kossay thus became the head of the clan in addition to becoming the village chief in Honelama.

Besides being influenced by traditional structures, the village institutional structures in Papua and West Papua are also influenced by the Indonesian government structures.[19] Those who are included in the government structure or government activities are generally people who are more educated and can speak Indonesian well, but who usually do not come from the top of the

[17] Slamet 1964
[18] Slamet, 2005
[19] Slamet, 2005

traditional leadership hierarchy. These people usually choose to become civil servants because they did not previously hold high positions in the traditional leadership hierarchy such as the village chief. Thus they use their status as civil servant to increase their position within the village. Within the current governance structures, for village Programs, such as PNPM and other programs that are channeled through the traditional hierarchical systems, the village chief and traditional structures are capable of determining the course of the program. However, if the program is government activity from the government offices such as public works projects of the province or district, the civil servants are more capable of determining the course of the program.

Besides the traditional and government institutions, **the church influences village institutions through its influence on the traditional hierarchy**. The church institution's influence is mainly built through the education system, health and religious services. For example, primary education services are provided by the Catholic Church in remote areas of Papua and West Papua. Before Suharto's administration, the influence of churches, whether Catholic or Protestant, was very significant in Papua and West Papua. In the 1980s, Suharto banned all foreign missions and foreign funds in Papua (Slamet, 2005). This weakened the influence of the churches although the Catholic Church was still able to maintain a presence in the area.

In addition to the influence of the church, there are now people living in Papua who came from outside Papua, especially in the coastal areas or areas near the coast. According to customary law, these people are considered to be people without any authority, a marginalized group, and yet on the other hand they have significant economic power. For example, they own hotels, control transportation between villages, control trade between villages, and are able to influence the district government. Still, according to customary law they do not have any role at all.

From the economic side, most of the community member's main livelihoods are centered on farming, animal husbandry and hunting. The type of plants cultivated there are vegetables, such as potatoes, carrots, green beans, shallots and sweet potatoes. The types of animals bred are pigs, cows and chickens, although the most common animals are pigs. **In general, the community's economy is subsistent (only to fulfill their own needs for food) and only a small portion of products is sold at the market**. Other livelihoods that exist depended upon local natural resources, such as collecting orchids or honey in the forest to be sold at the market. The women groups hold an important role in farming and selling goods. The farm is communal in nature and is managed and controlled by the head of the clan, but clan members can work in the farm.

Based on the information provided above, we can conclude that community hierarchy in a village in Papua or West Papua consists of:

a. **Village Elite Group. The elite group in the village is led by chief of the strongest clan or *marga,* who also serves as the village chief.** The kinship network is "adopted" into the village government system. The village institution usually consists of village government (with the village chief having strong customary influence) and Bamuskam/Baperkam (or *tim tiga tungku*[20] in the PNPM RESPEK structure). The main village government structure in Papua is made up of the village chief who is also the head of strongest clan, combined with two or three other members of the strongest *marga*. Economically, this elite group - including the head of clan - is distinguished by their access and control of the village's productive resources (land, pigs, '*noken*[21]', and traditional settlements). The group of religious figures usually became part of the elites even though their influence on village politics is not always strong.
b. **Village activist group**. This is the group of the "majority" that have kinship ties with the village elite, or have specific skills needed for a program (for example: able to speak Indonesian, teacher, civil servant, midwife, nurse), or have position in church institutions or existed public service institutions.
c. **Majority.** These are the commoners who usually do not have control or authority over resources as do the village chief or the family of the village chief, but they still have access to work on the farmland, whether they are part of the strong clan or common clan (lower level hierarchy). This group includes the populations from other *sukus* in Papua who married members of the *marga* in the village.
d. **Poor/marginalized group.** The poor and marginalized groups in Papua and West Papua are groups that do not have the ability to farm. This inability is due to two main conditions. First is age or physical (illness) factors—this includes widows. Their difficulties generally increase if they are seen as migrants (for example married to a native clan or did not come from the strongest clan) or have a large number of dependents. Second is access to land: some people do not have access to farmland because they are not members of the clan that own the farmland.

[20] *Tim tiga tungku* is one of the PNPM RESPEK body at the village level, which consists of appointed customary figures and religious figure of 3 people or more who formally have the same function as the village chief to control the PNPM process.

[21] Bag that is made of wooden bark, usually hangs by the head or neck of women in Papua and West Papua who use them to carry vegetables, pigs, or babies. In the Papuan cultural structure, *Noken* has a very important place.

In various places, especially in the highland or regions that are more homogeneous, class differentiations are not very strict, especially between the poor and majority groups. Aside from the above four groups, **outsiders are seen as those who do not have the right to determine resource allocation.** Nonetheless, as explained above, the migrant groups because of their dominant economic powers are often able to take advantage from PNPM and other programs.

The authority is centered on the village elite and thus the groups outside the elite do not have any authority and usually only follow the elite group. Based on elite authority, there are two types of elite relation groups in Papua and West Papua. In village that has only one strong clan, usually there is a monopoly of authority (for example: the village chief is also the chief of the strongest clan). In village that has more than one strong elite group or consists of two or more strong clans, however, there is a tendency towards balance of power. It is important to consider the relationships between elites to better understand the influence of PNPM in a more comprehensive way (in Sub-Chapter 4.2).

2.2 Overview of Special Autonomy

The implementation of PNPM RESPEK is closely related to the special autonomy fund implemented in 2001. Based on interviews with PNPM implementation groups (TPKK, PD) and the community - especially in Manokwari, there was a strong/positive perception towards the special autonomy fund (RESPEK fund source) before PNPM RESPEK started. At that time, the special autonomy funds were distributed directly to every household by village chief. For example, in the sub-district of Ransiki, the special autonomy funds were usually distributed in cash to the community. The amount varied from Rp 150,000 – 300,000 per household and Rp 20,000 – 50,000 for school children. The amount is not significant but the community felt that they were enjoying directly the special autonomy program in Papua from the government. This perception changed when PNPM RESPEK started because the community stopped receiving cash payments. Instead, they began receiving aid through productive activity and infrastructure. **The community's expectation to receive some share of program money is still very high and therefore in several villages the PD and TPKK are facing significant obstacles to getting the community buy-in regarding the change of program mechanism**.

This situation is also apparent in a discussion in Kompas newspaper (2011) on the special autonomy status of West Papua. In the article, the District Secretary of Ransiki stated that most of the village

chiefs and the community wanted special autonomy funds shared through direct provision to every household. Not all of the village chiefs agree that the special autonomy funds should be put towards the village development projects. Often, the discussion on how to utilize the special autonomy fund in the village creates a debate among the villagers themselves.

When the research was conducted, the communities were often confused about the PNPM RESPEK mechanisms. In 2008, when the community already conducted the PBM (community planning) phase and agreed on the utilization of program funds, the Head of District ended up distributing funds through the chief of villages (not directly to village implementation teams as in the PNPM regulation). In 2009, the community was asked to conduct PBM, but ultimately they just used the PBM results from 2008 that had not been implemented. When the disbursements of funds were made, community asked TPKK to show the money in front of villagers so that everyone would believe that the program really existed. **In 2010 when the community started to conduct PBM again, The Governor issue a decree number 900/161/X/2010 stating that the PNPM fund will be directly channeled to the village chief.** These inconsistencies of decisions have eroded community's trust towards PDs, PK, TPKK, TPKD and this made their job of facilitating program implementation in the future more difficult. Besides, the decision of the Provincial Government of West Papua to distribute the fund through village chiefs may hinder community's participation in the program's decision making.

2.3 Basic Education Issues

One of the requirements in conducting CDD programs like PNPM is the availability of sufficient number of qualified facilitators. Many facilitators[22] stated that **the biggest challenge in PNPM RESPEK implementation was the limited quantity and quality of technical as well as empowerment/social facilitators**, with the highest difficulty in recruiting the technical facilitators. There were some local facilitators who could not count or read in the sub-districts and the situation was even worse at the village level. According to the consultant in the province, from 500 applicants for facilitator position, usually only 100 had the potential, and from the 100 only 50 were administratively capable.

The challenge of having limited quantity of qualified facilitators is rooted in education. The issue of education in Papua and West Papua is a complex one. Seeking solutions to overcome the education problems in Papua and West Papua is like trying to straighten a tangled string, without knowing

[22] The result of an interview with Facilitators in the Province of West Papua, Working unit of Provincial PNPM (Pak Radhie Soetjahya) and interviews with other facilitators in the districts of the selected locations.

where to begin and how to do it (Kompas, 2011). The education challenges in these provinces are related to various issues such as: (1) the insufficient education facilities, especially in remote areas of Papua and West Papua; (2) the insufficient number of teachers, especially in the remote areas as most teachers choose to work in the big cities; (3) cultural and poverty issues in Papua where children have to work in the farm and do not have time to go to school, and (4) the national education curriculum implemented in Papua and West Papua was not adjusted to fit the specific context of life in Papua. All of these factors have resulted in low quality of education: there were even cases where high school graduate cannot read and write according to the national standard.[23]

2.4 Geographic Conditions (Accessibility)

Looking at the relationships between natural conditions and infrastructure characteristics, we divide Papua (the island of Papua) into three main parts (areas):

a. The Northern Area that has flat to hilly topography; they have good quarry materials which benefit infrastructure developments. For flat and coastal areas (Manokwari and Teluk Bintuni), water resources usually depending on surface water (river) and rainwater.
b. The Central Area has more mountainous topography and good quarry materials. Although they have abundant amounts of stone, they have difficulties in developing road infrastructure because of the mountainous topographical conditions. They have abundant water resources, especially surface water (river and mountain spring) with good quality.
c. The South area has flat topography with challenges finding good quarry materials for infrastructure development that require stones for building material. This area is swampy with limited water resources. They usually depend on rainwater or digging wells (more than 7 meter deep) and the water quality is not very good.

Topographical conditions influence several types of infrastructure. The first is road. While road is one of the most commonly suggested projects in the regular/national PNPM, in Papua and West Papua road is not the popular choice of infrastructure. Building road is difficult due to the topographic conditions, especially in the mountainous area. Second, for clean water facility, many regions usually depend on surface water (river, mountain water, springs, and rain). Accessing ground water would be expensive due to the rocky soil condition.

Public facilities that are available in the study areas are very limited, especially education and health services. Only some villages have public primary school (SDN). For junior high school, the community

[23] Kompas, 2011

has to go to sub-district capital or other villages which can be as far as 9-30 km. Health facilities available are usually integrated health posts and midwife facilities. Unfortunately, integrated health posts are not available in every village. Clean water facilities and electricity are also very limited. Usually they do not have electricity at all or it is turned off after 6 pm.

Picture 2.1 Natural Environment Characteristic

Asides from topography, the special feature of Papua and West Papua are the **inaccessibility**. Several regions in Papua and West Papua are very difficult to reach. The indicator of whether an area is difficult to reach can be seen from how much it costs to reach the area. There are many areas that are only reachable by renting small plane which costs approximately Rp 17.5 million per hour. There are also areas that cannot be reached at all unless by walking for more than a day. Some of these areas can only be reached after 4 days of walking. The areas (sub-districts) included in this study could still be reached by less than a day walking or by public transportation. The explanation of the areas chosen can be seen as follows (Table 2.1):

Table 2.1 Accessibility Condition of the Study Areas

District	Sub-District	Accessibility
Jayawijaya	Sub-District Wamena	Travel by foot or by *becak* from Wamena (district capital), but Wamena itself can only be reached by plane.
	Sub-District Yalengga	About 2 hours drive from Wamena toward the mountain range (Baliem Valley). Rental car per day is about Rp 600,000. Public transportation (renting 4WD vehicle) is available only 2-3 times a day. There are security issues as well.
Bintuni	Sub-District Bintuni	There are motorcycle taxies and taxies to reach the villages in Bintuni. Motorcycle taxies cost about Rp 15,000 and taxies cost around Rp 25,000.
	Sub-District Tembuni	Used to be only accessible by long boat. Since 2008 is also accessible by three-hour ride with motorcycle taxi costing Rp 150,000 or renting car for about Rp 750,000.
Manokwari	Sub-District Ransiki	There are many public transport alternatives from Manokwari in the form of bus and smaller vehicles (*Kijang,* APV). The cost is about IDR 30,000 by bus and Rp 40,000 by *Kijang* or APV. The vehicles can also be rented for IDR 350,000-400,000 (one-way) or Rp 600,000 (return).
	Sub-District Hingk	Accessible only by four-wheel drive (4WD 4x4) vehicle because of the difficult terrain and the vehicles can be rented for a minimum fee of Rp 1,500,000 per-way. The villages in the sub-district are often reached on foot.
Boven Digoel	Sub-District Waropko	Public transport is available near Tanah Merah (the district capital of Boven Digoel). To reach Boven Digoel, there are small planes from Jayapura or Merauke which are often full. Another alternative is by car from Merauke with 1-4 days of travel time depending on the rainfall.
	Sub-District Mandobo	It lies 110 km from Tanah Merah. The means of transportation that is usually used is motorcycle due to the large numbers of muddy roads. The cost of transportation is Rp 1,000,000 using a motorcycle or Rp 3,000,000 to rent a car one-way.

Even though the district capitals can be reached through various means of transportation, there are a lot of villages in every district that are unreachable, such as in Mandobo and Hingk. The sub-district Hingk, for example, lies in mountain areas 1,300 – 2,200 meters above sea level. Almost all of the

mountainous areas have villages that are spread out and far from each other. In that district, there are eight villages that are relatively close by, while the rest of the 21 villages are considered far. In the local understanding, close-by villages are villages that are close to the district capital and are not separated by hills or rivers. It takes 1-2 days on foot to reach the farthest villages.

Picture 2.2 Example of Public Transportation Within Sub-District

An example of the sub-district public transportation, the fee varies between Rp 250,000-500,000 per person or chartered for a minimum fee of Rp 1,500,000 one-way

In relation with PNPM RESPEK implementation, the issue of accessibility has impact on material prices. The expensive transportation fees affect prices for cement and the options of transportable materials. The accessibility also affects the frequency of facilitation by PD. PD can only provide limited time for facilitation for villages that are less accessible.

CHAPTER 3
THE QUALITY AND UTILIZATION OF INFRASTRUCTURE

There are 70 units of various infrastructures built in the 16 study villages. The majority of the infrastructure (76.56 percent) are wet infrastructure (toilet, open well, rain water reservoir, pipe well, spring water reservoir, water tank) followed by unpaved roads (6.25 percent). There are only 3 units (4.7 percent) of integrated health post (Posyandu) and community health sub-centre (*Pustu*) built in Jayawijaya and Boven Digoel Districts. The rests are houses (4.7 percent), generator houses (3.1 percent), one kindergarten, one woman's meeting hall and one market.

Picture 3.1 Examples of Infrastructure Built by PNPM RESPEK.

Clockwise: bridge, road, latrine and sub-community health center.

The 70 units of infrastructure were evaluated based on their technical and utilization quality. The structural and functional aspects determine the technical quality. Structural quality is examined by rating the structural conditions of the infrastructure, such as the strength and precision of the design. Meanwhile, the functional quality is assessed by rating the functional aspects of the building system as a whole and/or parts of the building, such as the reservoir functions, flow of water, drainage, roofing, air circulation and lighting. Assessment was also made on whether the building is suitable with local conditions (Sub-Chapter 1.4.1.1).

Meanwhile, the utilization of infrastructure is determined by who the users are and the impact of facility utilization on users' quality of life. The infrastructure will be considered effective if the users include most of the community members, elite and non-elite, strong clan groups and poor populations. The infrastructure will be considered to have limited utilization when only a certain group, usually the elite or strong clan group, utilizes the infrastructure. Additionally, infrastructure units that were not utilized at all due to technical, functional as well as institutional problems will be considered to have poor utilization (Chapter 1).

Details on locations and type of infrastructure units that are examined can be seen in Appendix 1.

3.1 Main Findings

Infrastructure issues are more related to utilization problems rather than technical problems. From all infrastructures that technically can be utilized, 67 percent is not effectively utilized: 50 percent are utilized only by small groups in the village, usually the village elite, and the rest (17 percent) are not utilized at all. This leaves a total of 33 percent infrastructure units that are effectively utilized. For details, see Table 3.1 below.

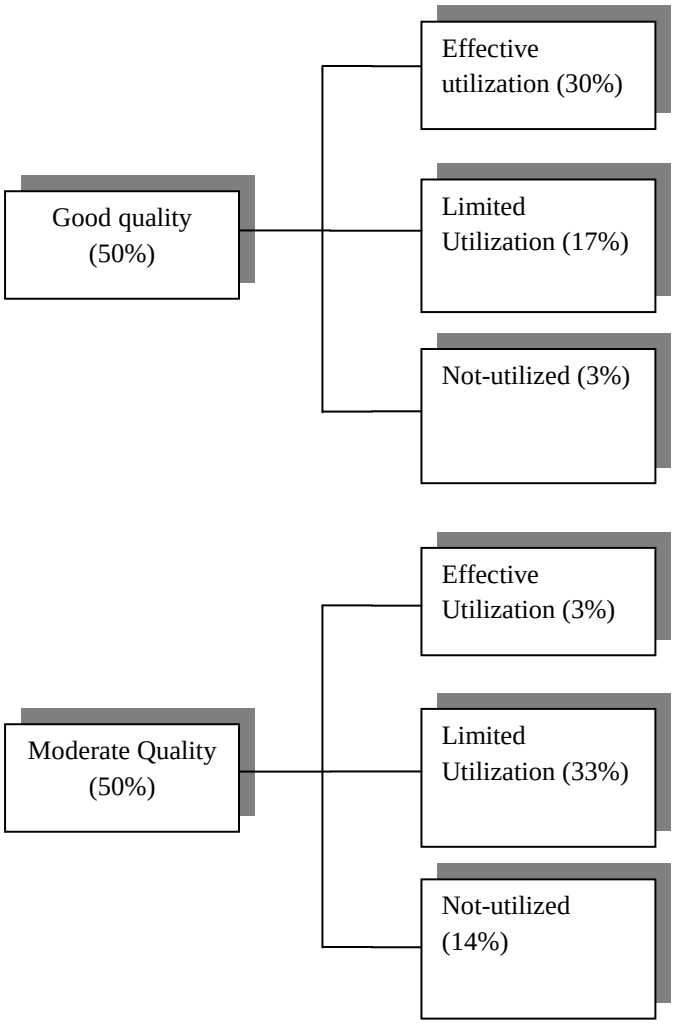
Table 3.1 Category of Quality and Utilization of Built Infrastructure[24]

Category*)	Unit	Percentage	Remarks	Primary Reason
3-3	21	30%	Latrine; Kindergarten; Pustu; Road; Generator house	Institution
3-2	12	17%	House; MCK; well	Institution
3-1	2	3%	Market and Posyandu	Institution
2-3	2	3%	PAH	Technical
2-2	23	33%	PAH; Well; latrine; Water tank	Technical and Institution
2-1	10	14%	Latrine; PAH; Woman's Meeting Hall	Technical and Institution

Remarks on 'Category':

a. **3 – 3: Good (technical) quality, effective utilization**
b. **3 – 2: Good (technical) quality, limited utilization**
c. **3 – 1: Good (technical) quality, not-utilized**
d. **2 – 3: moderate technical quality, effective utilization**
e. **2 – 2: moderate technical quality, limited utilization**
f. **2 – 1: moderate technical quality, not-utilized**

[24] This table provides a summary of the findings. The more comprehensive explanation is written in the next part of this chapter.



Half of the infrastructure built have good technical quality, which means the infrastructure is in a good condition structurally and functionally (the building is relatively strong and well functioning). Some infrastructure units have moderate technical quality (strong buildings but are functionally not very good). The issue of functional quality is especially found in wet infrastructure (infrastructure related to water), for example, leakages in the piping system and reservoirs as well as insufficient water resources. **This shows that while there is established capacity for building dry infrastructure in Papua and West Papua with sufficient structural quality, there is still challenge to build wet infrastructure.**

The relatively similar quality of infrastructure across the 16 villages was possible because the technical facilitators (*PD teknik*) had been equipped with standard templates of infrastructure. From the institutional side, PNPM RESPEK uses TPKD and TPKK to manage the funds, with strong supervision on administrative and accountability (cash flow) matters. Also, funds of Rp100 million are not big enough to build infrastructure that require advanced skill. Therefore, the basic skills needed to build simpler infrastructure can be mastered by the facilitators, including village level implementation team (village chiefs, TPKK, PK and community members who work as construction workers).

From the utilization point of view, 33 percent of infrastructure units are effectively utilized by a variety of groups including the elite, the majority and the poor group. There are 18 units that have a satisfying level of effectiveness to enhance quality of life (in terms of health, education and time saving). Considering significant challenges in Papua and West Papua explained in Chapter 2, 33 percent is a meaningful amount compare with other areas in Indonesia. Moreover, the cost of building infrastructure in PNPM RESPEK program is usually 60 percent cheaper than the cost of building relatively similar infrastructure by the Regional Government.

Optimum utilization is caused by institutional factors. Effective infrastructure management is made possible because of the ability of activist groups to organize user groups in the village such as midwives that are closely related to health cadres and women's groups or water user group. The funding mechanism of PNPM RESPEK managed by TPKK opens up opportunity for participation by the activist groups. This group has never been much involved, especially when the incoming funds were directly given to the village chiefs.

However, the extent of infrastructure utilization has to be further increased. Half of the infrastructure units built (50 percent) are utilized only in a limited capacity by small groups in the village, usually only by the village elite. 17 percent of the infrastructure is not utilized at all even though these units have good technical quality (structurally and functionally). **In total, 67 percent (47 units) of the infrastructure are not effectively utilized.**

Some main reasons why the infrastructure is not effectively utilized are:

a. **Institutional factors:** There are 28 units of infrastructure in 10 villages that were not optimally utilized because the planning process of the infrastructure was dominated by the village elite group. Facilitator did not have the facilitation capacity to handle the domination of this group or

to increase the quality of the planning process. The domination by elite group led to infrastructure development that was only intended for the interests or needs of the elite, for example the housing development in Nuhuwei. In addition, the determination of location is not done based on accessibility but rather on the availability of land that did not have potential for causing friction among the community groups or located near the elite's houses.

b. **Technical factors:** Technical problems such as leakage and insufficient water resources are commonly found in wet infrastructure. The high level of difficulty of wet infrastructure was not captured in the template/standard design used by the technical facilitators. Technical facilitators do not have the skills to handle more complicated problems that usually occur in wet infrastructure as well as to adjust the template to suit local condition (Chapter 3.2).
c. **Operational factors:** Eight (8) units of infrastructure are not operated well, particularly those that require operating fee and plentiful water resources such as the generator houses and latrines. Moreover, the operational systems (responsible groups, operational task, monitoring evaluation of operational systems) and hygiene habit are still inadequate in most of the villages.

3.2 The Quality of Infrastructure

The quality of all infrastructure built was good or moderate. There was no infrastructure that was completely unusable (poor quality). All dry infrastructures were of high quality (structurally and functionally). This, however, does not apply to the wet infrastructure, where 66 percent of the units had either structural or functional problems; most of the problems, however, were functional.

The infrastructures with low quality usually were wet infrastructures with relatively high difficulty/complexity which was not captured in the standard template used by technical facilitators. The difficulties are caused by insufficient knowledge about the availability of water resource, the wrong selection of materials needed to avoid leakage, the poor construction of water flow and reservoir, as well as the limited quality of human resources handling the infrastructure. For wet infrastructure units, the templates have to be adapted to meet local condition of water resources.

Infrastructure units with both good and moderate quality were spread out evenly throughout various study locations. Accessibility did not significantly affect the infrastructure quality but it did appear to determine the infrastructure volume[25]. In other words, there is a strong correlation

[25]As written in Chapter 1, methodologically, the study only covers certain levels of accessibility. The study does not cover

between the volume/amount of village infrastructure units built and the accessibility of the area where the units were built. Village accessibility was measured by cost to reach the village. The more difficult the access, the more expensive the cost of materials (like cement) became and the fewer infrastructure projects built. The ratio of accessibility of the area to volume of infrastructure units built was up to 1:2. This means that if in a more accessible location the project can build for example 12 toilet units, in less accessible locations it could only build 6. The accessibility will thus influence utilization because the number of infrastructure units built was lower.

3.2.1 Good Quality of Infrastructure

Half (50 percent) of the infrastructure units were in a good condition. The infrastructure units that were in a good condition were dry infrastructure, such as houses, secondary health center (Pustu), markets, women's meeting halls, and generator houses. From the structural quality, the building meets the technical standard. The infrastructure units built were permanent buildings with strong building conditions and good air circulation and lighting that supported its functionality. Meanwhile, in terms of construction materials used, in several buildings, such as kindergartens, houses, and *pustu*, villagers used the best material that can be obtained and suitable to the local environmental conditions. The quality of work is also very good. The dimension of building structure components such as columns and sills are considerably well-measured and neatly done. The walls of houses were even constructed using materials that help increase buildings' endurance against earthquake that often occurs in the area. The aspects that are still lacking in quality are the functional and aesthetic aspects, for example, seeping of sap on timber and untidy paint jobs.

From the functional side of the buildings, air circulation is adequate, no leakage founds on the roof, and lighting seems relatively good. Each of the building components are well functioning. For Pustu, the waiting room is relatively comfortable because it was designed and built using a good lay out. For the houses, the buildings have good air circulation and lighting and therefore provide healthy indoor environment.

Box 3.1
Good Quality Building: Pustu Honelama

the very difficult to reach locations or areas that require more than 1 day of travel to reach or could only be reached with the use of special chartered plane services.

The Honelama Sub-Community Health Center (Pustu) is very well maintained and built according to the template. The Honelama Pustu is a permanent building located in the village and has strategic location accessible by all villagers by foot. The Pustuhas 4 rooms: waiting room, examination room, treatment room, and bathroom/toilet. The building has concrete walls plastered and painted white on every surface. Every room has window and ventilation that gives good air circulation and lighting. This made receiving health services more comfortable for the users. The floor is concrete with smooth plaster (not a ceramic floor). The Pustu is also equipped with water sanitation reservoir and septic tank. It has enough electricity. However, in the night time the lighting is not bright enough because the light bulbs used do not have enough power to accommodate the room.

Picture 3.2

Good Quality Building: *Pustu* Honelama

Examination room and Pustu Honelama (from the side).

In terms of road infrastructure, with funds of Rp 100 million, the village on average can only build the body of the road with simple drainage system. The roads were built according to standard template. The widths of the roads were sufficient for four wheeled vehicles. Some also came with space for road shoulders, bridges and drainage without lining. The bodies of the roads were already built by taking into account surface drainage concept for future development. The provision of normal crown by increasing the height of the mid part of the road and drainage digging proved that the body of the road was built using good principles and can be developed in stages. Although the infrastructure is still made of stone and sand, these roads are still able to accommodate the needs of the community in conducting their daily activities. Furthermore, aside from providing easy access, the availability of road also gives security and comfort to the community compared to the previous conditions where villagers had to go through forest, fields or bushes. The users feel more comfortable because they have to deal with snakebites or itchiness in the past. In addition to that, they are now more comfortable because they can travel at any time whereas in the past they cannot travel when the bushes grew high or the path became muddy after raining.

3.2.2 Medium Quality Infrastructure

Half of the infrastructure units, mostly wet infrastructures, are of moderate quality. There was only one dry infrastructure unit, a woman's meeting hall, that was deemed to be of moderate quality because of roof leakage.

Structurally, the majority of the wet infrastructure is pretty strong. Some of the building columns are made from timber that has not been processed. The walls were built with bricks and functioned well. The water tanks were made of mixed cement and sand but the cement portion was usually inadequate causing moderate quality water tank with leakages in several cases.

There are more structural problems found in rain reservoir (PAH), especially related to weaknesses of the water towers. We noticed the faults in the materials and structure of the towers. Towers that are wet all the time were built from soft timber that was not waterproof. The soft timber was used

because it was cheap as good timber required higher transportation costs. Also, the structures adopted for the tower's legs were not strong enough to support the burden of the water reservoir because they did not have bracing and the width of tower's legs was not wide enough.

Picture 3.3

The Weakness of PAH Tower

The construction that holds the burden (water) is located in a very humid location and made of wood without any special treatment, so it tends to have poor durability and is dangerous (may collapse and fall on people)

Meanwhile, most of the water infrastructure units have the following issues:

a. **In terms of comfort, most buildings do not have good air circulation.** The condition of the buildings tend to be humid and in the daytime can be somewhat suffocating. Lighting is only available during nighttime (when electricity is on). Daytime lighting is dependent on sunlight. These conditions were mainly found for toilets.
b. **The availability of water resource as supporting element for latrines/MCKs and clean water facility is still lacking; sometimes, sufficient water sources do not exist at all.** Some of the latrines have problems where water resources are located too far from the buildings so that people have to carry water from the closest resource. Most of the time the water tanks are only functional in rainy season. In dry season or when there is not much rain, the toilets often do not flush well. There are also cases where the dug wells and water tubs were not fully utilized because they are built 20 meters (vertically) below the residential area. Wells built in such condition were not properly used by the community as those who are incapable to carry water uphill ended up using rainwater instead.
c. **Leakages in some of the water tubs/reservoirs.** These leakages occurred because the materials used were of low quality and the workmanship was not very neat. Leakage may also have resulted from weak foundations and cracked walls due to water erosion. Some other examples of leakage are: broken floors of rain water reservoirs due to uneven settlement of the platforms, broken water reservoir walls on the latrines because of the insufficient cement in the plaster mix.

Picture 3.4

Example of Wet Infrastructure Units with Weak Functionality

In one of the MCKs, the community had to bring water jars and it often caused the toilet to not flush well (left picture). Water seeps into the building's foundation (right picture)

So far the functional problems have not made the infrastructure units totally unusable (poor quality category). The leakage does not prevent utilization. However, when there is not enough water (lack of rain or other conditions) then the infrastructure cannot be utilized.

Problems of functionality are caused by:

a. **Technical factors in the design phase (inadequacy of standard template).** Eight infrastructures have this problem. Some of the templates do not clearly state requirements for good materials (e.g. the mixture of materials needed to prevent leakage) or for locations (e.g. must have nearby water source). Wet infrastructure is more difficult to build and requires the capabilities of technical facilitator to adapt the technical design in accordance with local conditions. These skills may not be found among the sub-district technical facilitators, let alone the village implementers. Furthermore, in order to adjust technical design with local conditions, facilitators need to conduct more intensive discussion with villagers to gather local knowledge on water resources, characteristics and availability. In most cases, the facilitators did not conduct this phase.

b. . **Low infrastructure operation and maintenance (O&M management).** There are only 5 infrastructure units that have decent O&M systems. For these 5 units, there are groups formed to manage the infrastructure through, among others, scheduling maintenance and collecting fees for maintenance. There are 5 infrastructure units that conduct very simple O&M such as weeding road and cleaning water reservoir pipe. The lack of O&M management is usually due to poor arrangement: after the infrastructure was handed over to the community, no clear plan was made regarding who should be responsible for supervision and monitoring of the operation of the building and thus nobody pays attention to the O&M.

   When the O&M system is not built, there will be other problems regarding maintenance in the future, for example:

   - For buildings such as Pustu, woman's meeting halls and schools, there is risk of rotted wood components due to lack of maintenance of the piping system. The rotting in turn will create weak points within the system that has been built.
   - For body of road and water reservoirs that need certain amounts of weight-supporting

capacity, it can be anticipated that blockage in drainage could cause uneven lowering of land due to water accumulation. Such uneven settlement would in turn have a bad affect on the structural integrity of infrastructure.

- For wet infrastructure, the usage of poor quality materials for foundations will create cracking and leakage and also water erosion. If not anticipated properly, this will cause the water tub to break in the next year or two.
- For water tower, what needs to be anticipated are the rotting of wood columns caused by lack of maintenance in the form of annual painting. The rotting will later form weakness points in the tower systems built. There is a much bigger risk when this happens with roof components due to the heavy burden upheld by the tower columns system.

c. **Water resources located far from the units**. There are some cases were water infrastructure units (3 units) are located in a neutral location (accessible by all groups of community and not in areas that caused conflict over resources) even though these locations were often far away from water resources. This caused lack of utilization of these infrastructures.

3.3 Effectively Utilized Infrastructure

About one third (33 percent) of infrastructure units built were effectively utilized and were of high quality. The types of infrastructure units in this category include the community health sub-center (*Pustu*) in Honelama, latrine in Iguruji, road and generator house in Upyetetko. These were not only effective in terms of utilization but also in terms of maintenance because of the existence of groups responsible for operation and maintenance.

3.3.1 Users

The first indicator to determine whether utilization was considered effective is when different levels of community and groups are able to use the infrastructure when they need to. The more people using it, the higher level of effectiveness is accorded to the facility and the more effective were the funds used to build it. Table 3.2 shows the number of users of each infrastructure unit.

Table 3.2

Number of Users for Effective Infrastructure

Type of infrastructure	Unit	Number of users (person/household)

Generator house in Upyetetko	1	25 households from various groups
Bangun Mulya Kindergarten	1	17 kindergarten students from the general community
Pustu Honelama	1	3726 people residents of the village and other villages
Family toilet in Iguriji	12	383 people from all clans
Water reservoir in Taganik	1	20 households with everyone using it
PAH in Taganik	1	100 household and everyone uses it
Total	**17**	

From the user side, the 17 effective infrastructures also served as infrastructure that benefits the community, including the poor (Table 3.2). The *Pustu* Honelama, for example, is utilized by all of the village community members and even those from other villages. The same also happened in Iguruji, where the 12 toilets built were utilized by all of the families living in the village. Each latrine was utilized by 2 households, which consisted of several (2-3) main families. The kindergarten in Bangun Mulya village was also categorized as infrastructure project with relatively high number of users. Although the number of students was only 17, they came from all community levels in the village.

Picture 3.5

Users of Pustu Honelama

The community in the village crowd in the sub-community health center (Pustu) in Honelama. Some even have to wait outside.

3.3.2 The Effectiveness of Infrastructure (Impact on the Infrastructure Utilization)

Aside from the number of users, the infrastructures categorized as high quality and effective also give further impact on the enhancement of welfare and living quality of the community, for example:

a) ***From the quality of life of community:*** Pustu and latrines have an impact on the enhancement of health quality by decreasing the number of illness occurrences in the community, especially water-borne diseases such as diarrhea. For example, in Iguruji, 70 percent of respondents stated that after they had toilets, the average illnesses of adults was reduced to less than 1.7 cases per household per month over the last 6 months. In addition to health benefits, the kindergarten infrastructure increased the number of students that later on went to elementary school and the generator house provided lighting for the community which resulted in more social interactions among the population.

b) ***Sense of security and time saving***: A more general impact aside from the improvement of life quality was also felt, such as better sense of security (because the sanitation infrastructure was located closer to the residential area) and the ability to save time (average of 30 minutes to an hour of travel per person because the health services and water were located close by).

c) **In terms of economic benefits, cost saving was only achieved in the case of *Pustu* Honelama**. Road has not led to economic benefits yet (decreasing of expenditures or increasing of income). The building of roads that were expected to open economic opportunity has not led to such economic opportunities because the roads built did not connect to economic activity/market.

Cost Effectiveness of Infrastructure

***Pustu* Honelama demonstrates high levels of utilization and effectiveness.** The cost effectiveness in this case can be calculated by how much the health center help maintain community's health in the village. For toilets and water reservoirs, those considered effective are the ones able to decrease the

number of illnesses among villagers. The cost effectiveness calculation is done using data collected from respondents and generalization based on population numbers (head of households) in related villages. The calculations of certain illness costs (diarrhea, upper respiratory infection and skin disease) were obtained from the World Bank Economics of Sanitation Impact report for Papua, West Papua and Indonesia**.**

With approximately 800 households (HHs), Honelama is a relatively large village. Before the sub-community health center (*pustu*) was built, most people seeking medication had to go to the health center outside of the village and thus they often spent quite a lot of money to receive treatment. After the *pustu* was built, almost all HHs had received treatment there, with an average visit of 7 times per year (data processed from the questionnaires). Every visit could save up to Rp 4,500. In terms of effectiveness, **the *pustu* can handle about 5,600 illness cases every year, or about 18 cases per work day**. The cost efficiency ratio (CER) of 5,331 (i.e. Rp 5,331 per case) showed the relatively low cost to handle illness case in Honelama village. If we compared this to the same type of infrastructure built by the regional government in Papua and West Papua, the cost would usually amount to Rp 350 million with a CER of 12,500. The CER calculation examples can be found in Appendix 2.

> "my child is sick, his tongue burnt, he has fever and is coughing, feverish and crying all night……I took him to the *Pustu* and the midwife gave me medicine, I did not have to pay…I like going to the sub-community health center"
> (Interview, female, user of Pustu, Honelama)

> "we built the Pustu , so we have to go there, we used to be cadres in the integrated health post (far from here) helping the midwives…before we had the sub-community health center, we went to the pharmacist to buy medicine for IDR 10,000, now we can go to the *Pustu*…we never go to the traditional shaman..."
> (Interview, female, resident of Honelama)

For education facility, it is hard to obtain the monetary value of benefit from educating a child to kindergarten in Papua or in Indonesia in general. However, from the questionnaire and interview we understood that kindergarten had a great impact for the community. As stated above, the education infrastructure has not often been proposed through PNPM RESPEK although it is a fundamental need for the community. Even though kindergarten is not a high enough education level, the existence of kindergarten at Bangun Mulya village has encouraged more children to study in the kindergarten and is expected to increase the number of students enrolled at elementary school. In the past when the closest kindergarten was located in a different village quite far away, there was

only an average of two kindergarten age children that went there. Now with the Bangun Mulya kindergarten in the village, all children of kindergarten age (5 to 7 or 8 years old) went to kindergarten. The kindergarten education also helped decrease the workload of the limited number of elementary school teachers because the children that graduate from kindergarten are already able to read and thus relieve part of the burdens for those teachers. The CER is actually quite high (588,223) but it is not higher than if the building was built by the regional government in the form of PAUD (early children education center).

Latrines and MCKs are part of sanitation provisions for villagers. The sanitation provisions are important basic needs that generally do not need large investments as roads and health centers. Although the data on diarrhea cases were not available, the perception of toilet users in Iguriji showed that **there was a decrease in the number of diarrhea cases especially among children**. Beside the decrease of diarrhea cases, qualitative interview showed other benefits, such as creating a feeling of safety (because villagers do not have to go to the river especially at night time), saving time (with an average of 30 minutes per hour) and energy, especially for women. The women could now use the time to rest or take care of children at home.

In the case of generator house in Upyetetko, the infrastructure project encouraged a significant change in the community's social interaction levels as well as children's learning habits and provided more cooking time for mothers. This case shows that PNPM RESPEK fund can be invested in electricity as a very useful infrastructure project. Although electricity is a very important need, it rarely becomes a priority in PNPM RESPEK activities. However, the CER value for the generator was as high as 83,400, which is quite high especially considering the fact that the monthly fee of Rp 20,000 charged for this generator is double the fee charged by the State Electrical Company (PLN) for simple households, which usually only pay Rp 10,000 per month. Nonetheless, because electricity from PLN has yet to come to the village, the villagers do not have other option.

For road infrastructure, although they are utilized by many stakeholders, most of the roads built in Papua and West Papua with PNPM RESPEK funds do not increase access to the market or increase community's economic welfare. The roads built are usually as long as 500 - 2,000 meters, generally slightly decreasing travel time and increasing the load that can be carried per way. It also helps improve the comfort of users in reaching their destination. Previously they had to use muddy roads (especially during the rainy season) with high grass and threat of snakebites so comfort and safety became the biggest benefits for the users. In Papua and West Papua where most of the population

go on foot to work in the field surrounding their residential area to meet subsistence needs, the decreasing of travel time caused by better road does not have a major impact on their welfare. This is particularly the case because the majority of the roads were not built to connect residential areas with community's economy center, but only to connect one group of traditional houses (*honai*) to another or from *honai* to the field. From 4 road infrastructure units built in 4 villages, the average utilization among all respondents was only 7 times per week or close to once per day. With the average user of around 20 persons (as in Wananuk village), the effectiveness and benefit of road for improving community's welfare is difficult to measure.

One of the factors that encourage effective utilization of these infrastructures is good institutions, including in planning and management. For example, the sub-community health center in Honelama and the generator house in Upyetetko both had groups of communities that were responsible for the infrastructure's management.

Table 3.3

Cost Effectiveness Ratio (CER) of Built Infrastructure[26]

Villages	Infrastructure	CER PNPM
Hetuma	PAH	6,553
Upyetetko	Generator	83,400
Honelama	*Pustu*	5,331
Bangun Mulya	TK (Kindergarten)	588,235
Iguriji	Toilet	539.15
Kali Tubi	Well	5,756.25

Source: processed from questioner and Economic Impacts of Sanitation in Indonesia, World Bank Indonesia

3.4 Limited Utilization and Not-Utilized Infrastructure

Most (50 percent) of the infrastructure with medium quality is only utilized within limited circles, while 17 percent is not utilized at all. What we meant by infrastructure with limited utilization is infrastructure that is only utilized by certain individuals or community groups. The infrastructure is

[26] One of the CER calculation examples can be found in Appendix 2.

usually utilized by the elite groups (village chiefs, head of clans, as well as members of the rich class) and their relatives. Even if it is accessible to other members of community, it is only accessible to those within the closest distance from the infrastructure unit. Such infrastructure consists of housing, family toilets, and water reservoirs. The elite group sometimes planned some of the infrastructure units such as houses and rainwater reservoirs only for their own utilization. Some other infrastructure units were planned for several households; however, because of the location they could only be utilized by certain groups.

The main reasons behind the limited utilization are the low quality of facilitation and the domination by village elite groups. The infrastructure planning process was still dominated by village elites (village chiefs, head of clans and *tim tiga tungku*) and thus the proposals that won were usually the ones benefiting these groups. On the other side, the facilitators did not have the facilitation capabilities needed to decrease domination by elite groups or to increase the quality of planning.

Besides the institutional factors, there are technical and operational problem as well. There are eight units of wet infrastructure that are not well utilized because of technical and operational issues. Technical problems, such as leakage and insufficient water resources were often found in wet infrastructure units (MCKs, PAHs, open wells and pipe wells) which made utilization conditions worse. Operational problems occur particularly when infrastructure units require fees and regular maintenance. For example, utilization of latrines decreases over time due to limited water supplies to clean the latrines.

Table 3.4: Infrastructure with Limited Utilization

Infrastructures	Villages	Units Built	Users	Remarks
Communal latrines (MCK)	Sokanggo	3	2 Households	Built near elite's house
Communal latrines (MCK)	Mbeigau	4	Only for port laborers and policemen	Located near the port so only benefited the port laborers and policemen
Family latrines	Kobrey	8	8 Households	Toilets are only for the village elite's relatives

PAH	Hetuma	10	28 Households	The PAH is only utilized by HHs whose houses use zinc roofs (the owner of those houses are the better off in the village)
Communal latrines (MCK)	Kanggewot	2	Residents are reluctant to use them and so they are only utilized once per week	The MCK is located near the market and church and are not accessible to all villagers
House	Nuhuwei	6	8 Households (27 people)	For the elites and powerful family clans
Water reservoirs	Upyetetko	1	9 Households (37 people)	For the elites and located near the village elite houses
Open Well	Sokanggo	4	Only 4 households	The location are in the village elite area

Meanwhile, there are 12 infrastructure units built that are not utilized at all that consist of dry infrastructure (village markets, *posyandu* and woman's meeting halls in Upyetetko), and 9 units related to sanitation (MCK/latrines, PAHs and wells). The main factor behind this is planning. The planning of the market, integrated health posts and women's meeting hall did not involve the user groups and therefore no groups were able to manage the infrastructure. The MCKs were built without any consent from village population and they were not needed, therefore nobody utilized them. Additionally, without careful planning, the location often is not appropriate and hence nobody dare to use the MCK.

3.5 The Comparison with Regional Government Infrastructure

In order to evaluate cost efficiency of infrastructure built through the PNPM RESPEK program, this study also looked at the cost and quality of infrastructure built by the regional government using the same methodology. However, there were only two infrastructure projects that were equal enough to be compared with PNPM RESPEK infrastructure that also provided comprehensive data for analysis. The difficulty in making this comparison is that there is no access to the information on data and cost of infrastructures made by the regional government.

Similar to the NMC observation, **looking at units of relatively equal technical quality (structurally**

and functionally), the infrastructure units built through PNPM RESPEK (calculating the *swadaya*) is 60 percent cheaper than comparable infrastructure units built by the regional government[27]. In other words, if with Rp 100 million PNPM RESPEK can build 12 toilets, for the same amount of money the regional government can only build 6-8 toilets.

The technical quality difference is only found in the finishing quality, where PNPM RESPEK infrastructure has a lower quality compared to regional government infrastructure. What we mean by finishing quality here is the quality that does not affect the structure or functionality of the infrastructure, like the flatness of the plaster, the smoothness of the final touch, and the neatness of wood joints. In other words, the regional government made infrastructure that had a tidier appearance.

[27] Interview (7 June 2011) with Richard Gnagey, NMC PNPM infrastructure specialist, said that the observation conducted by NMC estimated that the infrastructure built through PNPM RESPEK mechanisms are 30-60 percent cheaper than the cost of those built through regional government mechanisms.

CHAPTER 4
THE IMPACT OF PNPM ON THE INSTITUTION:
THE CHALLENGE OF INSTITUTIONAL DEVELOPMENT

While the previous section discussed the technical quality and utilization of infrastructure, this section will discuss the impact of PNPM RESPEK on institutional aspects. As stated in Sub Chapter 1.4.1.3, institutions in this report are divided into village and PNPM RESPEK's implementation institutions. The former defines institution from community development point of view in a more comprehensive way; for example, improved community participation in decision-making process and changes in institutional capability and critical attitudes (accountability). The latter defines capability of PNPM RESPEK teams (e.g. TPKK and PD), both facilitation and administrative capability. Facilitation capability involves among others ability to facilitate discussion and produce deliberative decisions in the village. Administrative capability relates to ability to implement PNPM RESPEK process and prepare administrative/financial documents.

Referring to the above definitions, the study concluded in this phase that **the strongest aspect of PNPM RESPEK is the potential for accountability** through increased cash flow documentation capabilities, the emergence of some groups in the community whom question the use of funds and the replication of PNPM RESPEK accountability model by village chief to report on village development budget (ADD). **However, just like any other areas outside Papua, community participation is still limited**. The design and mechanism of PNPM RESPEK tend to focus more on administration compliance and accountability.

The direct funds given to TPKK **increased the administrative capability of PDs and TPKKs in recording and reporting**. However, **the facilitation capability needed to handle village elite domination and conduct good planning is still very weak**. The limited quality of facilitation is caused by a combination of several factors: PNPM RESPEK design (covering wide scale and focusing on administrative incentives), limited planning process (facilitators have not followed the whole process well), limited support for facilitation, and external obstacles related to specific geographic and human resources challenges in Papua/West Papua (see Chapter 2).

4.1 PNPM RESPEK Opens Potential for Accountability

In terms of accountability, PNPM RESPEK indicates potential for a very good start in encouraging accountability. As noted in Chapter 1, this study wants to see if basic accountability tenets, such as

recording documents and emergence of critical attitude to question the use of public funds are found in the villages as institutional response to having PNPM RESPEK in the village.

In terms of documentation, 12 villages have clear documentation on the use of funds (cash flow). Through cross-checking with PNPM facilitators and community groups involved in the infrastructure development, we found relatively consistent data. Comprehensive data can be found at the district level (TPKD or PD), however TPKK itself is capable of recording the purchases of goods. TPKK saved hand-written notes on purchased goods and the labor costs during construction. The capability for note taking and documentation has never happened in other development programs. This documentation can be seen as initial potential for accountability as well as important document to be used later as reporting material for PDs.

On the contrary, in 4 other villages there was no clear measurement of cash flow. In these villages, the TPKK only had part of the data or only remembered the range of total funds used to build the infrastructure. Often when cross-checked to the people who were directly involved in the infrastructure building, the total funds used did not match and there was uncertainty of the quality of information. In these 4 villages TPKKs were often not on location; they did not want to conduct their duties and were not conducting detailed recording. Although when the study was conducted they stated that they had conducted documentation, we could not find the notes and the notes could not be found at the district level either.

Apart from documentation, 7 of the 16 villages were starting to show an indication of supervision from several elements of the community who had begun asking questions about how PNPM RESPEK funds were being utilized. This phenomenon is mainly happening in the villages that have more than one powerful clan. The community from other clans started to check and question the village fund utilization, as well as demanded financial reports for other programs. However, without good socialization on the fund utilization or sufficient background information on PNPM RESPEK, this kind of questioning prompted gossips among community about fund utilization and this could create conflict and even trigger vandalism towards the built infrastructures.

Furthermore, **two villages showed changes in better accountability practices that were modeled after PNPM RESPEK program**. The village chief started to conduct recording and financial reporting for village funds, which had never happened before. Even when one village had another program with very simple mechanisms, the village chief opted to use the accountability mechanism

implemented by PNPM RESPEK. The majority of the community view that PNPM RESPEK has clear mechanism, especially for transparency in fund utilization. The village chiefs in these two villages saw that the neat documentation mechanism and its reports are perceived as good mechanisms by the community. Therefore, in 2010 the village chiefs started to discuss village funds with community, conduct recordings and provide reports on funds utilization.

The potential of increased accountability was made possible because in PNPM design the fund is channeled through TPKK (rather than directly to the village chief). The monitoring and evaluation were conducted based on administrative achievements. The disbursement of funds will happen when formal documents on previous activity phases and financial documents are completed. The administrative aspect has succeeded in increasing project accountability and hence PNPM RESPEK infrastructure is generally cheaper and has less fund leakage problem compare to the regional government's projects. On the other side, this made the facilitators prioritize administration aspect (i.e. documentation and reporting) and not the essence of participation which is an important part of PNPM RESPEK implementation process.

4.2 PNPM RESPEK and Community Participation

Corroborating previous study (AKATIGA, 2010) on the limited participation of marginalized groups in PNPM Rural in Java, Kalimantan, Sulawesi, and Sumatera areas, the participation of community group outside of the village elite in PNPM RESPEK is also limited. In other words, the issue of limited participation in PNPM is not only happening in Papua and West Papua. As explained above, the decision making on PNPM RESPEK proposals in 10 out of 16 study villages are still dominated by village elites (village chiefs, head of clans, especially from powerful clan). Therefore the winning proposals were usually proposals that benefited the elite groups and were of limited used for general community. The level of participation really depends on the composition of elite and the institutional characters of the village before PNPM RESPEK started. The village that has one powerful clan tends to dominate the process. Meanwhile, village that has more than one powerful clans and activist groups often produces proposals that benefit wider community groups. In many villages, TPKK and district facilitators cannot do anything against village elite domination.

"Initially, in Iguruji the template we made for latrine was for one room. If we do it according to the quality calculations with budget of Rp 100 million, we could only make

6 units (of one room toilet). After the implementation preparation meeting, the plan was to make 8 units. But the community that did not get latrines were upset and demanded that they get one as well. Everyone has to get one. They were demanding to build one for each house. At the end the design was changed into 3 x 1.5 (2 rooms) from the earlier design of 1.5 x 1.5 (one room) with condition that the 2 rooms can be shared among several houses nearby. So, the community changed the design" (Interview, male, Iguriji)

The involvement of the majority, and even more so of the marginalized groups, was very limited in the decision making process. Most of the community did not understand PNPM and was not invited to attend the planning phase (PBM). Especially in the case of Manokwari, the majority did not know the difference between PNPM RESPEK and other infrastructure assistance programs that came to the village. The determination of beneficiaries and consideration of options for infrastructure were more often conducted in closed village meetings attended by elite groups. When the meeting was open, the poor were not approached in advance so they did not know. And even if they knew they were reluctant to go. They only participated as construction laborers in these projects. Especially for the migrant groups, they do not have voice and do not attend the discussion to determine what infrastructure is to be built. However, since they are the ones dominating rural transportation (material transportation from outside the village), they are actually indirectly influencing and benefiting from PNPM RESPEK activities.

able 4.1: Village-Level Decision-Making Category

Category	Remark	Number of Village
1	The village elite made the decisions (monopoly of village chief) and the suggestions for infrastructure projects benefitted this group.	10 villages
2	The decisions were made by more than one village elites (village chief, other powerful head of clan) and the suggestions benefit more members of clans.	2 villages
3	The decision was suggested and directed by well-organized experienced activist groups and the decisions made were effective.	4 villages

The limited impact of PNPM RESPEK on community participation is caused **by a combination of domination of village elite and the weakness of the facilitation**. Structurally, the condition of classes and socioeconomic relations within the villages accommodated the legitimization and opportunity for the elite groups (village chiefs and head of powerful clan) to dominate PNPM RESPEK decision-making processes as explained above. At the same time, facilitation quality was still limited. As the results, facilitators are not ready to overcome the structural barriers and are not able to

facilitate the accommodation of the poor in the PNPM RESPEK mechanism.

Structurally, village chiefs in Papua and West Papua have traditional legitimization because they came from strong clans (Chapter 2.1). This means that they have the position and bigger opportunity to influence PNPM RESPEK process and to choose proposals that gave more benefits to them and to their groups (the relatives of village chiefs). The village chief has a big role in planning, implementation and accountability phases. The village chief also selected the TPKK and PK, determined who needs to be invited to the meeting, made proposals and decided which proposal was to be selected, involved in the infrastructure building (choosing the foreman and laborer, disbursing cash, purchasing goods), and some of them were also involved in providing the financial reports with TPKK.

Most of the TPKK and PK appointed by village chiefs are close to the chief, for example the village chief's son, relative of the village chief, or ex-village official that originally came from the more powerful clan.

Box 4.1
Examples of Interventions by Village Elites

In one village in Boven Digoel, the discussion process involving the community tended to become an arena to "sanction" decision that had already been made by the village chief, *Bamuskam* and village officials in the meetings they conducted before the discussion. In the planning and decision-making for 2009 PNPM RESPEK for example, the community members suggested water infrastructure for the Rp 50 million in fund. They complained about the difficulty of accessing clean water which was far (500 meters) from the residential area. However, in a closed meeting among the village chief, Bamuskam, TPKK, and village officials, it was already decided that the fund would be allocated to build asphalt road from the village chief's house to the main road exiting the village.

In one village in Manokwari, PBM decided to select housing development. This is closely related to the role of TPKK (activist group) and the village chief at that time, who also wanted housing development. Meanwhile the decision on who should be the beneficiaries was determined through a closed meeting attended by village elites only. Related to this choice, the PD assigned to the village in 2008 and 2009 admitted that they already suggested using the fund to build public facilities that would benefit more people. However, the suggestion to build housing was very strong and could not be influenced especially by outsider such as the PD.

In one village, from socialization to proposal generating and planning processes, the implementation phases were conducted relatively in accordance with the PTO. However, after the fund was disbursed and handled by TPKK, the program implementation was no longer in accordance with the agreement in the budget. The TPKK and village chief held a meeting after the fund disbursement to show the community that the promised fund has been received accordingly (IDR 55 millions and IDR 45 million). After that, TPKK and PK along with the village chief handled the fund and the utilization is no longer based on the agreement with the community.

Although in general participation is still limited, there are 4 villages in which the decisions were made by experienced activist groups. PNPM RESPEK started to create opportunity for activist groups that wanted to initiate change. These activists were usually active in the Posyandu, education (teacher), or were cadres at church. This group was able to force the village elites to pay more attention to the needs of broader groups. For example, in Jayawijaya, PNPM opened way for youth and midwife groups to participate in decision-making process at the village level. The presence of the youth groups made the village chief, who is generally very dominant, followed the suggestions of the activists. In this village, the infrastructure selected benefited a lot more people.

Box 4.2
***Pustu* Honelama : Opening Opportunities for Activist Groups**

PNPM RESPEK opened up opportunity for marginalized groups to participate in development process and realize their needs. In Honelama village, the politically marginalized groups generally consisted of women and widows (politically and economically marginalized). Since PNPM started in 2008, the women groups have been participating in directing the decisions. The building of the *pustu* is a manifestation of the combination of wishes from women ('mid wives' and 'nurses'), village chief, as well as some community figures in the *tim tiga tungku*. In 2009 the capacity of the women group was getting stronger, reflected in their efforts to get funding for productive economic activities.

The request for health services came from midwife and nurse who have been working in Honelama Village for a long time. As members of the community in Honelama, they wanted to enhance the quality of services. At first the health services (pregnancy examinations, integrated health post, etc.) were conducted in the midwife's house. She thought that it was not appropriate and thus she expressed the need to have dedicated health post to the village chief. The suggestion was then supported with assistance from the PNPM RESPEK program.

With limited participation of community groups beyond the elites, the expectation that PNPM RESPEK could build community's capacity has not been realized. The learning process for capacity enhancement through participation process could not reach the majority and poor population. However, the process to enhance capacity has already happened for the implementation teams (TPKK, PK, PD), which are usually the activist groups in the community (see below explanation).

4.3 PNPM RESPEK Implementation Team Capacity: The Improvement of Administrative Capacity and Challenges to Improve the Quality of Facilitation.

In accordance with the findings for PNPM Rural (AKATIGA, 2010), this study showed that even though **TPKK are not yet able to make their own report, there is an increased administrative capacity of the TPKK in 10 villages in the form of documentation of activity phases and cash flow.** TPKK recorded every phase of activity in hand writing. The documentation consisted of activity schedule and notes from assemblies, discussions, and meetings. Additionally, TPKK kept written notes on the purchasing of goods and costs of labor.

Although it seems simple, this capacity improvement is important considering that most of the TPKK and PK have limited capacities in counting and writing. The highest education for most of TPKK is elementary school graduate. The capability to write and count for the TPKK is usually very limited, especially for villages with low accessibility with the exception of several TPKK in Jayawijaya and

Bintuni. They came from intellectual communities that have a minimum education at high school level and were involved as church cadres.

Significant administration capacity improvement happened at the PD level. Most of the financial and activity reports are done by PD, not TPKK. Majority of PD initially did not have skills and experience in administrative and financial reporting and thus involvement in PNPM RESPEK gave them significant improvement in administrative capacity. PDs often chose to make the reports themselves due to pragmatic and technical reasons. PDs have huge responsibility to guide many TPKKs. They often do not have time to do so. In addition to that, the funds disbursement is highly dependent on the timeliness of financial and activity reports. Hence PDs chose to make the reports themselves rather than asking the TPKK. Should the reporting be given to TPKK, PDs would need more time to facilitate and supervise the TPKK and it could cause delay in report submission and funds disbursement.

In community driven development process, the important skill is actually the facilitation skill. **The study found that facilitation capacities of TPKK, PK, and PD are still limited.** The study shows that in many villages PNPM REPEK implementation processes are directed and controlled by the village chief. TPKK and PKs do not have enough capability in making suggestions or voicing concerns for the majority and the poor, and they lack communication strategies to limit domination of village elite.

Three reasons behind the limited facilitation capacity of TPKK and PK are as follows:

First, weaknesses in the planning phase (incomplete process). PNPM RESPEK has regulated a number of processes to ensure participative planning. However, the study found that not all of the phases are well-conducted, especially the socialization and planning stage in which potential interventions from the more powerful parties in the community prevented the institutionalizing of participation. The planning phase was conducted only to produce administration documents needed to disburse the funds.

Socialization was only conducted formally, usually through consultation to appoint TPKK and PK which tended to be attended by certain groups only. They did not conduct informal information dissemination to various community groups. The knowledge on PNPM RESPEK is already relatively weak for TPKK and PK, let alone for the community groups (beyond the elite group) who do not know about the program and its mechanism and could not tell the difference between PNPM

RESPEK with other special autonomy fund programs that they received.

In the planning phase, the participatory planning (PBM) was often conducted only once with certain groups (usually village elite groups, i.e. village chief and elders from the most powerful clans in the village) without the preliminary process of social mapping, identifying various groups in the village, and getting suggestions from various community groups. In some places, there were only two meetings conducted: before and after the fund disbursement.

The incomplete process mentioned above is closely related to the lack of facilitation and accessibility (explained below). In some places (2 villages), the reason behind this was that community groups do not want to hold too many meetings, especially when there is no hard evidence of disbursed fund/cash.

Second, limited mentoring and support for facilitators. PK and TPKK are program actors who are closest to the community and largely determine the success of a community-program. In order to increase the facilitation capacity of PK and TPKK, PNPM RESPEK has capacity building programs through trainings and assistance conducted by PDs. The formal training material given, however, is sometimes not enough to cover the needs of TPKK and PKs, and without any assistance/support it is hard to enhance the facilitation capability of TPKK and PKs. The training is usually conducted between 2-3 days and usually prioritizes aspects of administration like reporting and fund utilization (they also receive several books on this). So far the TPKK and PKs did not have regular interaction with PDs; they only meet 3-5 times during the period of the program, sometimes even 1-2 times for remote villages.

The problem of minimum interaction with PDs is due to technical and non-technical problems. The technical problems related to the imbalance between number of PDs and number of villages and the difficulty to reach village location. For example, the average number of active PDs in every sub-district is only two persons. PDs supposedly consist of 3 facilitators, 2 empowerment facilitators and 1 technical facilitator. The facilitators often have to work in 15-30 villages and not all of the villages can be reached by cheap public transportation. Sometimes the furthest villages can only be reached on foot over 2-3 days. On top of that, the time available to process documents from the socialization, planning, and preparation of fund disbursement plan is relatively limited, only 2-3 months (September-November). Additionally, PD has to attend coordination meeting in the district every month. The condition worsens when there is a delay in fund disbursement, which often occurs

especially in Papua Barat Province.

From the non-technical factor, the difficulty in giving support is closely related to the lack of qualified technical as well as empowerment facilitators. According to one of the consultant[28], it is very difficult to find qualified technical facilitators (See Sub Chapter 2.3). It is estimated that there are about 200 vacancies unfilled for both technical and empowerment facilitators. The facilitator problem is made worse by the high turnover because facilitators often quit their jobs, do not want to work in difficult area, or get employed as civil servants.

Third, the design and mechanism of PNPM RESPEK. Ideally, an empowerment program should be conducted on a small scale to ensure intensity of facilitation. PNPM RESPEK was implemented in all villages in Papua and West Papua and at the moment reaches about 4000 villages. Because of this large scale, the facilitation cannot be done in an ideal manner. Moreover, PNPM RESPEK monitoring and evaluation is heavily emphasizing administrative aspects (fund disbursements are released following submission of accountability and activity reports). This is good to enhance accountability but it makes it difficult to emphasize the facilitation aspect. The evaluation on facilitation needs a different mechanism that emphasizes more on quality of the process and participation. In addition to that, strong institution is needed to monitor the process and end result. At large scale, this becomes a huge challenge for the program.

[28] According to the interview with Mr. Radhie Soetjahya, Papua Province Work Unit (previously worked in West Papua), 18 December 2010.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

Chapter 3 reveals how PNPM RESPEK has succeeded in creating high quality infrastructure equally across all villages. The infrastructure made by PNPM was even 60 percent cheaper than similar regional government infrastructure units. From the technical perspective, the buildings were considered to be in a good condition. Of those built, 33 percent of the infrastructure units were utilized by most of the community, including the majority and the poor populations. 50 percent of the infrastructure was only utilized by a small group of the community (usually the village elite group). The rest were not utilized at all.

Three main reasons were identified as the causes for low utilization by the majority. The main reason identified was that the village institutions related to the existing social structures was not handled well by facilitators because of limited facilitation quality. The second reason was the weakness in infrastructure management systems, especially those that require operational test, such as generator house and infrastructure that requires common maintenance (MCK, PAH). The third reason was technical: most of the wet infrastructure built had functional problems (leakage and insufficient water resources) which decreased infrastructure utilization (Chapter 3).

From the institutional side (Chapter 4), at the moment, PNPM RESPEK has succeeded in building accountability potential within village government institutions, as well as increasing the administration capacity of local implementation team (PD, TPKK). The challenge is that, similar with PNPM Rural (PNPM *Mandiri Perdesaan*), PNPM RESPEK has yet to be able to achieve meaningful community participation. PNPM RESPEK design and mechanism that prioritize administration and accountability improvement help increase administrative capacity (i.e. documentation and reporting) of the implementers, but not the facilitation capabilities needed to address the domination of the program by village elite. The limited capacity for facilitation influenced the implementation of program's processes and thus lowered the quality of participation/empowerment. The limited facilitation is also closely related to geographical obstacles and the lack of qualified facilitators at the sub-district level (Chapter 2).

RECOMMENDATIONS

PNPM RESPEK is expected to be able to reach the two objectives of building effective infrastructure and strengthening village institutions. These two objectives require significant effort because of the

large program coverage. In general, in order to effectively strengthen institutions, the program should be relatively small in scale and the effort to strengthen institution is initiated in locations that already show potential for empowerment (AKATIGA, 2010). We do not, however, recommend decreasing the number of beneficiaries receiving PNPM RESPEK because PNPM RESPEK funds may have provided the only opportunity for the villages to have their own development funds. Hence, this report provides several recommendations that can be realistically achieved without changing the basic design of PNPM RESPEK and the program scale.

We have divided our recommendations into three parts. **The first part** is to increase the level of community participation and strengthen village institutions. **The second part** is to improve infrastructure utilization through the enhancement of functional aspects of wet infrastructure from the design and technical implementer's side. **The third part** is to develop operational and maintenance system for the built infrastructure.

5.1 Enhancing Community Participation and Strengthening Village Institution

The improvement of local institutional capacities and community participation to build and plan useful infrastructure can be done by enhancing participation of community groups beyond the village elite. To ensure wider community participation, four things are needed: (1) the development of facilitator capacity through capacity building program, (2) the development of PNPM mechanism that provides incentives to enhance facilitation capacities, (3) the creation of space for community participation beyond the village elite as well as strengthening the village elite to be more pro-poor, and (4) efforts to synchronize program planning with the Provincial Government plan. The four recommendations are explained below.

5.1.1 Facilitator Capacity Building Program

The key factor to increase community's participation is to develop local facilitator's capacity as development agent that is closest to the community (AKATIGA, 2010). Ideally the community participation can be enhanced through the improvement of facilitation quality of TPKK, PK, and PD.

Considering education challenges that limit the availability of qualified facilitators (Chapter 2), **PNPM RESPEK needs to establish serious and long-term efforts to increase availability and quality of local facilitators.** One example of this effort is the "Barefoot Engineers Program" that the World Bank conducted together with Cendrawasih University in Jayapura to enhance quality of technical facilitators. The program is a 6-month intensive training for high school graduates on basic civil

engineering, construction and facilitation skills. After finishing the training, they will work as district technical facilitators for PNPM RESPEK. According to a PNPM RESPEK management consultant, the program is quite effective in producing technical facilitators that posses the basic skill needed to support the program.

Efforts like the "barefoot engineers program" can be seen as a model to improve availability and develop quality of empowerment facilitators in Papua and West Papua. Besides Cendrawasih University, the World Bank or PNPM RESPEK implementers at the provincial and district levels could collaborate with INGOs and NGOs that have worked on the empowerment side in Papua such as World Vision. It would also be good to involve qualified empowerment facilitator associations from PNPM Mandiri. The training program should focus on facilitation capacity: the ability to identify community groups - especially the poor, the ability to communicate well, the ability to use participation techniques and methods, understanding of core values needed to become empowerment facilitator, mastering of tips and strategies to approach and express aspirations of the poor as well as strategies for handling village elite (without eliminating their role). The program can embrace high school graduates, potential TPKK/PK (with recommendation from PDs) and even potential PD (with recommendation from the District Facilitator). Similar with the "barefoot engineers program", the funding support can be obtained through special autonomy fund or donors.

5.1.2 Developing PNPM RESPEK Design and Mechanisms that Support Facilitation Capacity Building and Institutional Strengthening

The efforts to improve facilitation quality will not be effective without incentives and monitoring and evaluation systems to ensure that the facilitators perform facilitation functions and institutional strengthening. Currently, the incentive system utilized by PNPM RESPEK (and PNPM Rural) prioritizes administrative aspect. It is not surprising then that all of the facilitators, who have large administrative burden, behave in accordance with the incentives provided by the system and prioritize administrative compliance. **If PNPM RESPEK wants to develop facilitation skills, the program needs to change the incentive and disincentive systems so that every institution moves towards developing facilitation capacity.** The example for incentives could include additional funds given to villages that demonstrate progress in building local institutions (using criteria such as active participation, good utilization of infrastructure, working operational groups and effective proposals). Another example is to create capacity building program (Sub Chapter 5.1.1) for recommended TPKK, PK and PDs who show seriousness in conducting planning process of PNPM RESPEK including

exploring the aspirations of various community groups, facilitating development for the poor populations, and maintaining infrastructure utilization and benefits.

Such kind of incentive efforts need to be supported by monitoring/supervision institutions that are capable of monitoring the ongoing process. Ideally, as part of the monitoring system, the monitoring institutions (government, provincial level consultant, NGO or external party) should be given incentive to go to the field and monitor the program. When they find good practices or violations, they should follow-up and provide incentives or disincentives according to agreed stipulations.

In addition to efforts to develop incentive system, intensive facilitation can be developed with some design changes in PNPM RESPEK, especially for the relatively difficult to access (remote) areas. The provincial consultant has actually categorized the areas in Papua and West Papua according to their accessibility, and this in turn can be made into a database to sort areas that require special PNPM mechanisms (changing the initial design). For remote areas, it is better to have longer period of activity with larger funds, for example, Rp 200 million for one phase of activity to be completed in 2 years. In remote areas, block grant in the amount of Rp 100million often is not sufficient to build infrastructure. Moreover, the PD also needs additional funds (through special autonomy funds) to enable them to access the remote areas.

Another consideration for remote areas is to utilize funds in more selective ways. For example, in several locations, roads and latrines are often not utilized. For these areas, it may be more important to prioritize developing food security or education and health services instead of the usual general public infrastructure

5.1.3 Creating Participation Space for the Poor Group

Besides the effort to create and develop quality of facilitators, community participation can be developed by: a) creating spaces for community group (beyond the village elite) to have a role and say in the decision making of PNPM RESPEK, and b) utilizing village elite to support the poor. The recommendation is not to eliminate the role of village elite, but rather to empower the village elite institutions to take side with the majority and the poor (to think outside of the village elite group's interest).

To allow for alignment of elite group interest with the needs of the broader village communities, the

first step is to **target a specific beneficiary group[29].** One potential way to do this is by focusing on the infrastructure suggestions provided by women or mothers' groups in the village. For PNPM Rural, the proposals are divided into general proposals (mixed group of women and men) and women proposals (through MPK: Women's Council). The village elite group will still be involved in the planning process but the group can be conditioned (through facilitation) to think about the important proposals made by the women groups.

Focusing on the women group also provides opportunity to increase the utilization of infrastructure. Several studies on the role of women in community-driven development programs have concluded that giving funds to women group can increase the effectiveness of the proposal made because women tend to select proposals that directly increase welfare and living quality of family members, especially children.[30] Although the numbers are still limited, this study found that proposals from women activist groups (e.g. Posyandu cadres) tended to produce effective benefits and were beneficial for more parties (examples include the Honelama Sub-community health center, kindergarten in Bangun Mulya Village and latrines in Iguriji).

In addition to determining a more specific beneficiary group, improvement in participation can be done by developing internal control mechanism and therefore, proposals which clearly only benefited a small group of the community can be rejected. So far, PNPM RESPEK mechanism has developed monitoring system through PD supervision and the regional government. However, the vertical supervision has not been fully able to overcome the problem of village elite domination. **It is advisable to form an internal control system by establishing small group of women at sub-district level (consisting of representatives from several villages) that will specifically be trained to check whether a proposal will benefit the majority, including the poor and marginalized.** The group will then be assigned to check village proposals and see if the criteria for utilization are fulfilled. And if the criteria are not fulfilled, the team will have the authority to reject the proposal. To overcome subjectivity concerns, village representative should not be allowed to check proposal from her own village. Such mechanism can also be used to strengthen local institutions at the sub-district and village levels. For districts with spread-out villages that are difficult to reach, transportation allowance should be provided for the group which can be supported through the special autonomy fund.

[29] The PNPM mechanism has tried to reduce elite domination by forbidding individual (private) infrastructure proposal. However in the implementation this is still happening and it is difficult for PD to report and prevent the individual proposal.

[30] Wong, 2002

5.1.4 Synchronizing planning with the Province and District Government

Considering the success of PNPM RESPEK in developing infrastructure units compare to other existing alternatives, there should be a joint effort with the regional government (district and province) to support the implementation of PNPM RESPEK. In the province of West Papua where this study was conducted, the provincial government issued policy that broadened the ability of village elite to control planning process at the village level by directly channeling special autonomy funds to the village chief. **We strongly recommend that West Papua Province Government maintain PNPM model and channel the fund through TPKK instead of village chief.**

Additionally, synchronization among other government funds through related departments and offices is needed. For example, the health department could develop institutional capacities like hygienic behavior or proper utilization of latrines/MCKs for areas that develop water infrastructure units through PNPM RESPEK to improve utilization of the infrastructure. Another example is providing capacity building for health providers in areas that are building Pustu or Posyandu.

5.2 Increasing the Functionality of Wet Infrastructure

As explained above, wet infrastructure is very popular in Papua and West Papua. However, the wet infrastructure units often faced functional problems such as leakage and insufficient water resources (sub Chapter 3.2.2). The high level of difficulty in implementing and utilizing these infrastructures was not described in the templates used by the technical facilitators. At the same time, they did not have capacity to deal with the higher level difficulty associated with wet infrastructure projects. Following are several recommendations to increase the functional (technical) quality of water infrastructure units.

For the planning phase, a system to categorize difficulty level of wet infrastructure based on the availability of institutional support (human resources – in the form of operational and maintenance organizations) and materials must be developed. For infrastructure with complicated design, additional requirement in the form of **sufficient water resource need to be added and verification of this water resource should be done before agreeing on proposal for wet infrastructure.** For every wet infrastructure unit, the district facilitator needs to make sure that all the requirements are fulfilled.

On top of that, a **special training on various aspects of building wet infrastructure for technical facilitators, especially at the district level,** needs to be conducted considering the high risk of failure

in the field. The substance of the training should cover:

- analysis of planning adequacy related to water resources
- understanding of water resources
- plumbing
- building mixed concrete
- handling leakages
- lessons-learned from past experiences handling wet infrastructure, especially on general mistakes and ways to handle them.

From the template side, provincial and district facilitators or consultants can formulate various specific templates for wet infrastructure. The alternatives should consist of technical plan scenarios that could accommodate local conditions, as well as the types and physical forms of the most optimally applicable wet infrastructure units. The alternatives templates should supplement the existing technical template. Some of the alternatives to be developed should include:

a. Installation of water reservoirs and distribution system for flat areas that require pump.
b. Installation of water reservoir and distribution system for hilly to mountainous areas that can utilize gravity.
c. Building latrines with various room sizes.
d. Public bath-wash-toilet units that have various user capacities.
e. Installation of toilets in areas with plenty water resources and in areas with limited water resources.
f. Building of water towers with various water-tank capacities.

These alternatives can be formulated given the rich experiences and data on the failures and successes of wet infrastructure development in various locations (geographical contexts) and is worth developing because wet infrastructure is one of the most frequently proposed infrastructure types in Papua and West Papua.

5.3 Developing Infrastructure Management System

So far, operational system (infrastructure management) has become one of the main obstacles to proper infrastructure utilization in Papua and West Papua, especially for infrastructure unit with relatively large operation fee such as generator house.

In the future, a maintenance mechanism needs to be developed to maintain the sustainability of the infrastructure built. Currently the average infrastructure unit built is less than 2 years old so there have not yet been any problems related to maintenance.

Ideally the program needs to develop institutional system or establish group responsible for managing the infrastructure units. For example, in Upyetetko village, the utilization of generator house can be continued because there is a small group in the community that has the capability to manage it. This group also developed a subsidy system for the poor. This did not happen with the generator house in Mawan.

The same issues happened with infrastructure units that need common maintenance such as MCKs. NMC[31] has provided solution to ensure operation and maintenance by suggesting that the community submit maintenance proposal to the regional government office to obtain operational fees through the special autonomy funds.

Another alternative that is often recommended is to develop incentive-disincentive mechanism to encourage infrastructure maintenance. Villages with good maintenance systems will be awarded additional PNPM RESPEK funds on the next project cycle. On the contrary, for villages with low maintenance systems, the funds will be deducted in the following year. To support this system, a strong institution will be needed to check the infrastructure management quality as well as to report and take action.

In terms of design, it is important to develop templates for infrastructure that require less complicated operational systems and minimal maintenance fees. It is quite possible to develop various simple designs, for example:

a. For the areas with limited water resources or where wet infrastructure has to be built far from water resources, the type of infrastructural design applied should be one that does not need plenty of water. Currently there are various technical designs (structural and material) for MCKs and latrines that do not require a lot of water, for example toilets with bigger disposal pits or using materials that do not need a lot of water.
b. To reduce operational fee, there is a need to introduce infrastructure that requires fewer resources such as fuel. For example, the generator house in Mawan experienced decreased utilization from month to month because of the limited supply of fuel. The development of

[31] Interview with Richard Gnagey, NMC on 7 June 2011.

micro hydropower system that meets operational needs using minimal resources could provide an alternative for supplying electricity, especially for areas that has sufficiently high water resources.

For infrastructure operation and maintenance, the World Bank has conducted a study on village capacity to manage and maintain rural infrastructure. More specific recommendations can be found in “Village Capacity in Maintaining Infrastructure: Evidence from Rural Indonesia” (November 2010).

References

AKATIGA, 2010, *Kelompok Marjinal Dalam PNPM* (The Marginalized group in PNPM), Final Report for the World Bank, AKATIGA, Bandung

The World Bank and UN *Kajian Kebutuhan Percepatan Pembangunan Papua* (Papua Accelerated Development Needs Assessment – PADNA)

Bergman, 1981, *Accountability – Definition and Dimensions,* Int. Nursing Review, Vol.28. No.2, pp: 53-59

Eka Chandra, Sri Wahyuni, and Rian Nurul Ihsan 2011, *Laporan Empat Kampung di Kabupaten Jayawijaya* (Report on Four Villages in Jayawijaya District), AKATIGA

Fauzan Djamal, Rizki Ersa Heryana, and Leonard Panjaitan, 2011, *Laporan Empat Kampung di Kabupaten Boven Digoel* (Report on Four Villages in Boven Digoel District), AKATIGA

Hendrawan H Saragih, Dyan Widhyaningsih and I Putu Gede Wijaya Kusuma, *Laporan Empat Kampung di Kabupaten Teluk Bintuni (Report on Four Villages in Teluk Bintuni District),* AKATIGA

I Putu Gede Wijaya Kusuma, Rian Nurul Ihsan, Rizki Ersa Heryana and Gusti Satria Putra, 2011, *Laporan Infrastruktur di 12 Kampung* (Report on Infrastructures in 12 Villages), AKATIGA

Kompas, 15 June 2011, page. 14, *Pendidikan untuk Semua: Kusutnya Pendidikan di Papua* (Education for All: The tangled Education in Papua).

Kompas, 4 April 2011 page. 4, *Konsolidasi Demokrasi Papua Barat (5): Dana Otonomi Khusus, Ibarat Hadiah dari "Sinterklas"* (Papua Barat Democracy Consolidation (5): Special Autonomy Fund, Like a Present from "Santa Claus").

Ratih Dewayanti, Gena Lysistrata and Gusti Satria Putra, 2011 *Laporan Empat Kampung di Kabupaten Manokwari* (Report on Four Villages in manokwari District) AKATIGA

Rietbergen McCracken, J., & Narayan, D. 1998. *Participation and Social Assessment: Tools and Technique*. Washington D.C: The World Bank

Slamet, Ina E., 1964, *Kehidupan Suku-Suku Irian Barat* (Life of West Papuan Ethnic Groups), Bhratara

Slamet. Ina E, 2005, *Yang Berkuasa, Yang tersisih, Yang tak berdaya* (The One with Power, The Marginalized, The Powerless), Akatiga 2005

Sudarman, Dea et. al, 1977, *Menelusuri Tanah Leluhur Orang Nawaripi: Dilema dan Tantangan Kebudayaan Dalam Pembangunan* (Investigating The Ancestral Land of Nawaripis: Dilemma and Challenge of Culture in Development), Jakarta, Yayasan Sejati

Wong, S 2002, *Do Women Make any Difference? KDP1 Gender Data Analysis*, Interim Report, KDP Monitoring and Evaluation Advisor

World Bank, 2010, *Village Capacity in Maintaining Infrastructure: Evidence from Rural Indonesia,* Jakarta

Slamet, Ina E., 1964, *Kehidupan Suku-Suku Irian Barat*, Bhratara

Slamet. Ina E, 2005, *Yang Berkuasa, Yang tersisih, Yang tak berdaya*, Akatiga 2005

Sudarman, Dea et. al, 1977, *Menelusuri Tanah Leluhur Orang Nawaripi: Dilema dan Tantangan Kebudayaan Dalam Pembangunan*, Jakarta, yayasan Sejati

Wong, S 2002, *Do Women Make any Difference? KDP1 Gender Data Analysis*, Interim Report, KDP Monitoring and Evaluation Advisor

World Bank, 2010, *Village Capacity in Maintaining Infrastructure: Evidence from Rural Indonesia*, Jakarta

APPENDIX 1

Area Coverage and Types of Infrastructures

No.	District	Sub-Distrik/Village	Type of Infrastructure	Unit infrastructure	Quality rating	Utilization rating
1	Teluk Bintuni	Bintuni/Iguriji	Family Latrine	12*	3	3
		Bintuni/Kali Tubi	Open Well	4	2	2
		Tembuni/Bangun Mulya	Kindergarten	1	3	3
		Tembuni/Tembuni	Clean Water Facility	1	2	3
2	Jayawijaya	Wamena/Hetuma	PAH	10*	2	2
		Wamena/Honelama	Community Health Sub-Center	1	3	3
		Yalengga/Taganik	PMA	1	2	3
		Yalengga/Wananuk	Untaved Road	1	3	3
3	Manokwari	Ransiki/Kobrey	Toilet	8*	2	2
		Ransiki/Nuhuwey	House	6**	3	2
		Hingk/Mbeigao	Toilet	4	2	1
		Hingk/Nggimoubri	Road Upgrading	1	3	3
4	Boven Digoel	Woropko/Kanggewot	Road Upgrading	1	3	3
			Integrated Health Post	1	3	3
			Water Tank and Pipe Well	1	2	1
			Water Tank	1	2	1
			MCK	1	3	3
			MCK	1	2	1
		Woropko/Upyetetko	Women's Meeting Hall	1	2	1
			Water Tank and Pipe Well	1	2	2
			Generator House	1	3	3
		Tanah Merah/Mawan	Road	1	3	3
			Generator House + Machine	1	3	2

		Tanah Merah/Sokanggo	MCK +Well (Conoco)	2	2	1
			MCK+well (Honai)	2	3	2
			MCK+ well (Mawar)	2	3	2
			Market (Conoco)	1	3	1
			Integrated Health Post	1	3	1
			Pipe Well	1	3	2

*The evaluation showed that the quality of toilets varied but they still fall within 1 (one) category. The reasons behind this are:

- Simple building structure
- There are only a few building items
- A very clear blue print/template that provides guidance
- The wet part of the building is a relatively small proportion

**Because every household has an interest in building good housing, the 6 houses are all of equally high quality.

Technical remarks:

3 = good condition

2 = moderate condition (there are structural or functional problems, but still useable)

1 = poor condition (cannot be utilized at all)

Usefulness remarks:

3 = effectively utilized (the users consist of all social levels of the community)

2 = limited utilization (serving only a certain group, usually the elite group)

1 = no utilization at all

APPENDIX 2

Example of Cost Efficiency Ratio (CER) Calculation: *Pustu* Honelama

The total cost for this project was Rp 149,261,500. The fund obtained from PNPM RESPEK was Rp 100 million and from community was Rp 33 million (Honelama Village Report). The rests were operational costs such as medical equipment and electricity. Structurally and functionally, the sub-community health center (*pustu*) should be able to sustain well for 5 more years. Hence the calculation of operational and other costs was accumulated for 5 years. Those were all quantitative data that could be collected from the field. Meanwhile, data on the number of cases handled by the *Pustu* cannot be obtained and thus it is difficult to quantify the economic benefit from decrease of illness incidents and other related benefits.

Honelama village has a population of 3,726 people in 800 households. From interviews and questioners conducted it is estimated that every family made an average 3.5 visits to the *Pustu* every 6 months. The users are not all originally came from Honelama because many villagers from outside Honelama came seeking medication at this *Pustu*. The number of illnesses that potentially could be handled by the *Pustu* thus can be considered as benefit of the Pustu existence and is used as denominator for the calculation of CER.

Using 5 years accumulation, we calculated a CER of 5,331. Simply put, the cost of handling illnesses in the *Pustu* is lower than IDR 6,000 per illness case. The CER showed a low figure when compared to *Pustu* built by the regional government, which reached a CER of 12,500.