PNPM GENERASI: IMPACT EVALUATION

In mid-2007, the Indonesian Government launched a highly innovative pilot program, PNPM Generasi Sehat Dan Cerdas (usually referred to as “PNPM Generasi”), to test an incentivized, participatory block grant system to meet the specific needs of women and children and to facilitate the Government’s achievement of the Millennium Development Goals. Performance under the program is measured in terms of the achievement of specified health and educational indicators, which are defined as follows:

**HEALTH INDICATORS**
- Pregnant women attend prenatal care sessions at least four times
- Women take iron tablets during pregnancy
- Delivery of babies is assisted by a trained professional
- Women attend postnatal care at least twice after giving birth
- Children received a complete set of immunizations
- The monthly weight of infants increases according to an established scale
- Children under three are weighed monthly, while under-fives are weighed biannually
- Children under five receive vitamin A supplements twice a year

**EDUCATION INDICATORS**
- All children 7 to 12 years old are enrolled in primary school
- The attendance rate for enrolled primary school-aged children is at least 85 percent
- All children 13 to 15 years old are enrolled in junior secondary school
- The attendance rate for enrolled junior secondary school-aged children is at least 85 percent

Testing the use of community-based targeting mechanisms and performance bonuses to provide incentives, the program operates on the basis that communities themselves identify common and pressing problems and develop their own solutions, appropriate to their specific situation. Facilitators with specific training and background in health, education and related issues assist women with formulating and proposing such solutions. Under the incentivized program, if the interventions implemented through this system result in improved health and educational outcomes in terms of the defined indicators, high-achieving villages receive a share of a bonus block grant.

First implemented in five provinces selected by the Indonesian Government (West Java, East Java, North Sulawesi, Gorontalo, and Nusa Tenggara Timur), the PNPM Generasi pilot program was designed to facilitate a rigorous evaluation to evaluate the effectiveness of both a participatory, community-level program specifically intended to improve health and educational outcomes and the incentivized approach. The PNPM Generasi pilot was launched at the same time and in the same provinces as the Hopeful Family Program (Program Keluarga Harapan, or PKH) pilot. Unlike the PNPM Generasi program, which provides incentivized grants to communities, the Hopeful Family Program incentivizes grants to individual poor families. While the PNPM Generasi program is intended primarily to address community-level constraints to accessing health and educational facilities and services, mainly in rural areas, the Hopeful Family Program is intended primarily to benefit families who face constraints in accessing such services and facilities, even when the supply of services may be adequate, such as in many urban areas.

In 2011, PNPM Generasi was operating in 2,401 villages in 231 sub-districts across six provinces, with the addition of West Nusa Tenggara (NTB) to the five provinces originally included in the program. In 2012, according to the PSF Progress Report for 2012, initial reports indicated that under PNPM Generasi, approximately 443,375 women and children received counseling and support related to nutrition; the number of underweight children was reduced by approximately 44,965 through supplementary feeding interventions; and approximately 55,129 community health volunteers received training and operational support. The relative proportion of funds invested in health and education initiatives can be seen in Figure 1 and 2.

**PNPM GENERASI IMPACT EVALUATION**

**RESEARCH QUESTIONS AND METHODOLOGY**

The PNPM Generasi Impact Evaluation was designed primarily to evaluate the impact and effectiveness of PNPM Generasi in achieving improved outcomes in terms of the 12 health and education indicators set out in the preceding section. The pilot project was also designed to evaluate the effectiveness of an innovative, community-level, participatory and incentivized approach to improving these health and educational outcomes. To enable it to serve this purpose, the program was deliberately implemented to facilitate randomized evaluation techniques, which have been described as “the gold standard for impact evaluation of clinical and public health interventions.”

To facilitate a rigorous evaluation of PNPM Generasi, the Indonesian Government incorporated randomized assignment into the selection of PNPM Generasi locations. Within the districts selected by the Government for the program, entire sub-districts were randomly allocated to either receive PNPM Generasi or to be in a control group. The control group, although not participating in the PNPM Generasi program, received an equivalent amount of funding under the PNPM Rural program. Each PNPM Generasi location was further randomly allocated to one of two versions of the program: one “incentivized” treatment with the pay-for-performance component (treatment A), and a second, otherwise identical “non-incentivized” treatment without the pay-for-performance incentives (treatment B). To assess whether financial incentives encouraged communities to achieve better outcomes, villages in sub-districts in which treatment A was applied and which achieved higher than average results were rewarded with a share of a bonus block grant.

To enable effective evaluation, sub-districts were randomly assigned to the following groups:

**GROUP A: INCENTIVIZED GENERASI GRANTS**
- 30 percent of next year’s funding depends on progress made, relative to other villages in the same sub-district
- Incentivizes communities to identify the biggest problems and seek the best solutions

**GROUP B: NON-INCENTIVIZED GENERASI GRANTS**
- All villages in the sub-district receive basic allocation, regardless of their past progress relative to other villages

**CONTROL GROUP: NO FUNDING UNDER THE GENERASI PROGRAM**
- These villages serve as a comparison for the villages which receive funding under the Generasi program

The main data for the PNPM Generasi Impact Evaluation is derived from a set of surveys. The first round of surveys was conducted from October to December 2008. The surveys were conducted in three waves, as follows:

1. **Wave I:** The baseline round, was conducted from June to August 2007 prior to the implementation of PNPM Generasi.
2. **Wave II:** The first follow-up survey round, was conducted from October to December 2008.
3. **Wave III:** A longer term follow-up survey round, was conducted from October 2009 to January 2010.

The final evaluation is based on data collected through the Wave I, Wave II, and Wave III surveys. The evaluation series also included a qualitative component. To the extent possible, the report has incorporated findings from the complementary qualitative study in 12 villages.
in two provinces; this qualitative component was conducted in 2007 and 2009. The qualitative study (using focus group discussions, in-depth key informant interviews, and direct observation) provided deeper insights into processes, causal chains, and villagers’ values, motivations, and reactions.

**KEY FINDINGS**

The Evaluation shows that PNPM Generasi has a significantly positive impact on health and educational outcomes reflected by the 12 indicators upon which the assessment was based.

**IMPACT ON HEALTH**

The most significant impacts of the PNPM Generasi program in terms of the health indicators are as follows:

**AN INCREASE IN THE FREQUENCY OF WEIGHT CHECKS FOR YOUNG CHILDREN:**

One of the main challenges in detecting malnutrition is that more than half the children in the developing world are not weighed regularly throughout infancy. The strongest impact of PNPM Generasi over the period of the pilot was in terms of increased participation in growth monitoring (weight checks), with children attending on average 0.15 more growth monitoring sessions over the previous three months, a 6.8 percent increase over the baseline level in control areas.

Surprisingly, the Evaluation showed that in Java, which on average has a lower baseline rate of malnutrition than many other regions of Indonesia, the rate of stunting and malnutrition was higher in areas where PNPM Generasi was implemented than in control areas. This is most likely because areas with lower baseline malnutrition rates have a higher capacity to respond to interventions intended to address this problem. In NTT province, underweight rates were reduced by 8.8 percentage points, a 20 percent decline compared to control areas; severe underweight rates were reduced by 5.5 percentage points, a 33 percent decline; and severe stunting was reduced by 6.6 percentage points, a 21 percent decline compared to control areas.

**AN INCREASE IN THE NUMBER OF PREGNANT WOMEN RECEIVING IRON SUPPLEMENTS:**

PNPM Generasi resulted in significant increases in the number of pregnant women receiving iron supplements. Over the two-year implementation period, pregnant women in areas where the program operated received on average 0.08 more sachets of iron tablets (containing 30 tablets in one sachet) during pregnancy, a 4.7 percent increase over the control level. Up to 4 to 5 billion people may suffer from iron deficiency and an estimated 2 billion are anemic. Women and young children are most vulnerable: 50 percent of pregnant women and 40 to 50 percent of children under five in developing countries are iron deficient.3

A DECREASE IN THE RATE OF MALNUTRITION:

Over the period of its implementation, PNPM Generasi resulted in a substantial reduction in malnutrition, with a 2.2 percentage point reduction overall, representing a 10 percent decline in malnutrition rates compared to control kecamatan.

The impact was most significant in NTT, a province with an extremely high rate of malnutrition that has historically not responded well to interventions intended to address this problem. In NTT province, underweight rates were reduced by 8.8 percentage points, a 20 percent decline compared to control areas; severe underweight rates were reduced by 5.5 percentage points, a 33 percent decline; and severe stunting was reduced by 6.6 percentage points, a 21 percent decline compared to control areas.

Child malnutrition is the single biggest contributor to under-five mortality due to greater susceptibility to infections and slow recovery from illness. Scientific evidence has shown that beyond the age of 2–3 years, the effects of chronic malnutrition are irreversible.5

**IMPACT ON EDUCATION**

In the final wave of PNPM Generasi, the Evaluation shows that the program had a positive impact in terms of the defined educational indicators. In particular, it may have facilitated the achievement of universal enrolment of children of primary school age. Specifically, the Evaluation notes that in Wave III, PNPM Generasi facilitated an increased rate of school participation of 7–12 year olds by 0.8 percentage points. Since the control group had a participation rate of 98.5 percent, this implies that Generasi resulted in almost all 7–12 year-old children being enrolled in school. The impact on the rate of participation was strongest in areas with the lowest baseline rate of participation. In particular, the most significant rate of increase in Wave III was in NTT, where the rate of enrollment amongst 7–12 year-old increased by 3.8 percentage points, a 4 percent increase over control areas.

**HOW EFFECTIVE WAS THE INCENTIVIZED APPROACH?**

As stated earlier, an important goal of the PNPM Generasi program was to evaluate the effectiveness of providing incentives to reward communities for making measurable progress towards the achievement of specified health and educational outcomes. Thus, the project was specifically designed to facilitate such an evaluation, by making it possible to examine the effect of the incentivized approach in direct comparison to a non-incentivized approach.

The Evaluation showed that the incentivized approach resulted in significantly better outcomes in terms of improved health indicators. Specifically, through a comparison of sub-districts in Group A and Group B, the Evaluation shows that, on average, between 50–75 percent of the total impact of the block grant program on health indicators can be attributed to the performance incentives.

However, the same effect was not seen in terms of improved educational indicators, where there was no statistically significant difference in performance between the two groups over the period of the Evaluation. The Evaluation suggests that this may have been because of time lags in the implementation of educational interventions under the program, resulting in weaker incentives just when the program was beginning to have an impact on education. The Evaluation also suggests that with the indicators referring to enrolment rates, these rates were already high, at an average of 98.5 percent, making further improvements difficult to achieve. This contrasted to the indicators for maternal health, where the baseline levels were relatively low. This might have made it easier to achieve gains in health in terms of the defined indicators.

In light of this, the Evaluation suggests that the Indonesian Government might consider revising or adding to the indicators used to focus on issues other than universal primary school enrolment, such as the quality of education provided or on the quality and extent of early childhood development facilities. Another explanation was that education targets involved a higher proportion of the population in a more intense process than health targets, requiring the enrolment of all children and daily attendance at school, compared to the participation of pregnant women and mothers with infants in mainly once-a-month interventions.

Finally, the Evaluation suggests that communities tended to favor educational interventions that benefited all children, including those already enrolled, rather than merely the out-of-school group. Generasi was intended to mitigate against the achievement of increased enrolment rates in a context where the rates were already high.

WHERE WAS PNPM GENERASI MOST EFFECTIVE?

As the Evaluation makes clear, there is no simple one-to-one correspondence between districts and regions with low levels of economic productivity and average incomes and those that perform badly in terms of the defined health and educational indicators. It is true that some very poor provinces, such as NTT, Papua and West Papua, are also characterized by a low level of achievement in terms of the defined health and educational indicators. However, some relatively prosperous
provinces, such as West Java, also have a lower than average level of achievement in these terms. Similarly, at the district level, a number of relatively prosperous districts also record lower than average levels of achievement in the areas of health and education. The Evaluation finds that PNPM Generasi had its most significant impact in areas with low baseline health and education indicators, regardless of whether they were also poor. For future iterations of the program and for other programs, this has significant policy implications: specifically, it suggests that for maximum impact, PNPM Generasi and similar programs should prioritize areas where health and educational indicators are lagging, rather than those identified as poor.

HOW AND WHY DID THE GENERASI PROJECT WORK?

In order to determine how PNPM Generasi achieved the impacts it did, the Evaluation examines various channels through which the program could have such impacts on basic health and education services. Specifically, the Evaluation explores the impact of the program on the provider supply side in terms of (1) the quantity of education and health providers; (2) the inputs used by providers such as facilities and medical supplies; and (3) the level of effort by education and health providers. Secondly, it explores the impact of community efforts in terms of service provision, outreach, monitoring, and participation in various education and health programs.

The Evaluation states that in these terms, the greatest impact of PNPM Generasi was on increasing community efforts. It adds that this result might be expected, given that community mobilization is a key feature of PNPM Generasi’s participatory approach. Specifically, the Evaluation looks at (1) community involvement in the direct provision of services (such as the number of active village health post sessions and the number of cadres at the village health post), (2) community efforts at outreach (such as health screenings to make sure everyone in the village obtains service and school committee meetings with parents), and (3) community effort at monitoring (such as the number of school committee meetings).

In these terms, the Evaluation found that PNPM Generasi resulted in increased direct community involvement in the provisions of services, particularly in the number of cadres at village health posts, in the level of participation at meetings related to health education, and in the number of junior secondary school committee meetings with teachers during the year.

The Evaluation found that the impact on the provider supply side was less significant. However, it noted that PNPM Generasi had a significant impact on the quantity of education service providers and facilities. Specifically, Generasi led to a 3.2 percentage point increase in the probability of a junior secondary school being located in the village, representing about a 6.5 percent increase over the baseline level. This could have been due to the provision of additional class extension facilities (kelas jauh) for junior secondary schools under Generasi. The number of teachers at junior secondary, including teachers receiving honoraria (guru honor), also increased by about 0.5 teachers on average (about a 2.2 percent increase).

In terms of the level of effort of service providers, the Evaluation found that the most significant impact was an increase in the number of hours worked by midwives (increase of 1.724 hours worked over the previous three days providing public services). In the terms defined above, the most significant difference between incentivized and non-incentivized areas was that midwives in incentivized areas spent more hours working during the three days prior to the survey date.

POLICY RECOMMENDATIONS

On the basis of its findings, the Evaluation presents a number of conclusions and draws attention to several policy implications:

PRIORITY AREAS WITH LOW LEVELS OF MATERNAL HEALTH AND EDUCATION:

The Evaluation shows that PNPM Generasi was most effective in areas with poor health and/or educational outcomes. This was true regardless of whether they were poor. For maximum impact, the program should therefore use maternal and/or health status to determine inclusion in a program, rather than their economic status.

MONITOR AND EXPERIMENT WITH COMMUNITY INCENTIVES:

The Evaluation shows that community-level incentives may work well in some contexts. However, it also shows that results are variable and highly dependent on the indicators used. Specifically, it shows that under the PNPM Generasi pilot, these incentives had a greater impact on health than on educational outcomes in terms of the specific indicators defined for the pilot. The Evaluation suggests that the Indonesian Government should consider conducting another evaluation of its impacts, with random assignment incorporated into the selection of the locations together with control groups to test both the impacts of incentivized and non-incentivized versions of the program.

CONSIDER CONDUCTING A FOLLOW-UP EVALUATION:

As described earlier, the PNPM Generasi program was specifically designed in order to facilitate a rigorous evaluation of its impacts, with random assignment incorporated into the selection of the locations together with control groups to test both the impacts of incenti­

OPTIMIZATION OF TARGETS:

Since the evaluation findings were that midwives in incentivized areas spent more hours working during the three days prior to the survey date, the Evaluation suggests that the Indonesian Government should consider conducting another evaluation in a few years time to determine if the impacts of this program are indeed sustainable over time and if additional progress can be made on learning and health outcomes in the longer term. This could serve as an extremely valuable input for the design and implementation of similar or related programs, both in Indonesia and elsewhere in the world.
The Generasi locations were selected through the following procedure. First, 300 target sub-districts were identified, targeting poor, rural areas that had an existing community-driven development infrastructure. Each sub-district was then randomly assigned by computer into one of three equal-sized groups: treatment A, incentivized (100 sub-districts); treatment B, non-incentivized (100 sub-districts); or control (100 sub-districts). Within a sub-district, all villages received the same treatment. The randomization was stratified by district (kabupaten), to ensure a balanced randomization across the 20 different districts in the study. The tests for balance confirm that the three groups of sub-districts appear similar on pre-period characteristics.

The Generasi surveys were designed to ensure adequate coverage of key demographic groups: mothers who recently were pregnant or gave birth, children under age 3, and children of school age. Within each village, one hamlet (dusun) was randomly selected, and a list of all households was obtained from the head of the hamlet. Five households were randomly sampled from that list to be interviewed. These households were stratified so that two selected households had at least one child under age 2; two selected households had a child under age 15 but no children under age 2, and one household had no children under age 15. Health facilities and schools were also contacted again to form a panel. For midwives, a randomly selected 75 percent of the midwife sample was re-contacted to form a panel, and 25 percent of the midwives were newly sampled in each wave to ensure the sample captures potential in-migration of midwives in response to Generasi.


http://www.unicef.org/nutrition/23964_iron.html

http://motherchildnutrition.org/malnutrition/about–malnutrition/impact–of–malnutrition.html#ULFsURKmr4


A major stated goal of the PNPM Support Facility (PSF) is to serve as an objective platform for the review, sharing and application of lessons across poverty programs and for fostering debate on solutions to poverty problems. As such, PSF facilitates the implementation of analytical work and applied research to optimize the design of community-based programs for increased poverty impacts and to better understand social dynamics in Indonesia and their influence on development and poverty reduction. This research and analytical work is intended to provide the Indonesian government with a strong basis for the planning, management, and improvement of the Indonesian government’s poverty-reduction programs. It may also facilitate south-to-south and other learning exchanges, serving as valuable input for academics, government agencies and development actors who are implementing community-driven development programs elsewhere in the world.

In order to publicize and propagate the findings, conclusions and recommendations from this research and analytical work amongst wider audiences, including academics, members of the press, parliamentarians and others with an interest in community development, the PSF is publishing a series of summaries of these works.