BIRU
biogas rumah

Annual Report 2009

Indonesia Domestic Biogas Programme

Activity Number: 19565

15 February 2010

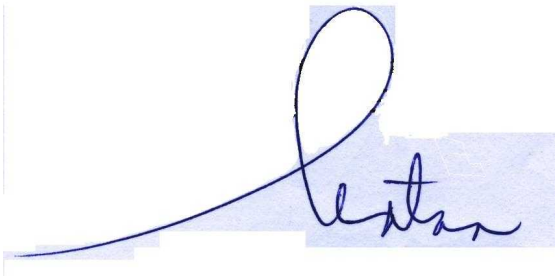
Foreword

Almost 40% of Indonesia's people suffer from poor energy access. Various efforts are ongoing to achieve a shift from the use of traditional mineral resources like coal, oil and gas to sources of renewable energy. In addition to hydropower, geothermal energy, solar- and wind power, biomass (biofuels and biogas) forms an attractive renewable energy alternative.

Biogas offers a very concrete answer to the need for affordable energy at household level, especially for cooking. At the same time it reduces the pressure on the environment by reducing GHG emissions and the use of fuel wood. Biogas also reduces environmental pollution by processing cow manure (instead of the manure ending up in rivers) and making it more suitable for organic farming. Biogas also contributes to a reduction of respiratory ailments of women and children through a cleaner indoor environment.

Responding to a request from DGEEU the Dutch government invited the Dutch development organization SNV to undertake a feasibility study in 2008 to assess the potential for the large-scale dissemination of biogas in Indonesia. The results of this study resulted in the development of the Indonesia Domestic Biogas Programme, popularly called BIRU (Biogas Rumah). This national programme, implemented by the Dutch NGO Hivos with technical assistance from SNV and in close cooperation with DGEEU, started in May 2009. BIRU aims at developing a sustainable, market-based biogas sector. This Netherlands Embassy funded programme shows that through coordinated action of government, the private sector and development organizations, it is possible to engage the private sector in the search for and provision of renewable energy in rural areas.

The Directorate General of Electricity and Energy Utilization welcomes this Annual Report 2009 which reflects the initial results of the BIRU programme and looks forward to a successful continuation in the following years.



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Contents

Abbreviations

AC	Advisory Committee
BIRU	Biogas Rumah (domestic biogas)
BoQ	Bill of Quantity
CDM	Clean Development Mechanism (under the Kyoto protocol)
CPO	Construction Partner Organization
CSR	Corporate Social Responsibility
DGEEU	Directorate General for Electricity and Energy Utilisation (MEMR, GoI)
DME	*Desa Mandiri Energi* (Self-reliant Villages)
FMO	Netherlands Finance and Development Organization
GIS	Geographic Information System
Hivos	Humanistic Institute for Cooperation with Developing Countries
IDBP	Indonesia Domestic Biogas Programme
ILO	International Labour Organisation
JEW	Joint Organisation Week
JEWG	Join Organisation Working Group
KLH	*Kementerian Lingkungan Hidup* (Ministry of Environment/MoE)
KPSP	*Koperasi Peternak Sapi Perah* (Dairy Cows Cooperative)
LPTP	*Lembaga Pengembangan Teknologi Perdesaan* (Institute for Rural Technology Development)
MEMR	Ministry of Energy and Mining Resources
MFI	Micro Finance Institution
MIS	Management Information System
MoA	Ministry of Agriculture (GoI)
MoU	Memorandum of Understanding
NBPSO	National Biogas Programme Support Office
NGO	Non Governmental Organization
PBPO	Provincial Biogas Programme Office
PID	Programme Implementation Document
R&D	Research & Development
RNE	Royal Netherlands Embassy
SOG	Standard Operational Guidelines
SME	Small and Medium Enterprise
SNV	Netherlands Development Organization
SMK	*Sekolah Menengah Kejuruan* (Vocational High School)
TEDC	Technical Education Development Centre
ToT	Training of Trainer
UNDP	United Nations Development Programme

Output summary

Programme start: 15 May 2009
Programme finish: 31 December 2012
Programme duration at end of reporting period (31 December 2009): 7.5 (of 43.5) months (17.2%)

SN	Activities	Achievement	Remarks/target
1	No of plants constructed	62	Behind on original schedule of 150 units
2	No of masons trained	52	Planned: 50
3	Other training	Internal IDBP staff training IDBP introduction for CPOs (Construction Partner Organizations)	User training to start in 2010.
4	No of promotion activities	Programme brochure Malang road show Production of promotion poster, brochure and wallclock Programme launch 3 December 09	
5	No of workshops organized	May 09: technical workshop September 09: stakeholder workshop Dec 09: MFI workshop Bandung	
6	No of plants inspected	30	48% coverage (scheduled: 24 of 150 = 16% coverage)
7	Subsidy disbursed	Actual disbursement lower (Euro 5,925) because not all construction subsidies have yet been claimed.	62 plants constructed x 2 million = 124 million Rupiah = Euro 9,538
8	No of construction partners	4	These can be seen as 'pioneer' partners
9	No of cooperatives involved	5	Two cooperatives are also construction partner
10	Number of provinces and districts	4 (West Java, Central Java, East Java and Yogya), 5 districts	Yogya and Central Java seen as one unit. According to schedule.
11	Bio-slurry activities	Not running yet	Not scheduled for first year
12	MFI development	Draft agreement Rabo available Involvement Bank Mandiri in Pasuruan, Boyolali and Bandung	
13	No and % of hh using credit	57 of 62 (92%) using credit	3 demo sites, 2 sites paid directly by owner
14	Knowledge exchange	Biodigester design (June) Renewable Energy Conference (Aug) Nepal biogas conference (Nov) TEDC TOT (Nov) Joint Energy Working Group (December) Partner capacity building (Sept, Oct) Internal capacity development (once every month)	

1. Introduction

The Indonesia Domestic Biogas Programme (IDBP), funded by the Royal Netherlands Embassy and implemented by Hivos with assistance from SNV, started on 15 May 2009 and will run under the current contribution agreement until 31 December 2012. This Annual Report 2009, consisting of a narrative and a financial report, is prepared in accordance with reporting requirements as included in that agreement.

A Lembang farmer stirring cow dung-water mixture for biogas digester

2. Programme objectives

Overall Objective

As its overall objective, the Indonesia Domestic Biogas Programme aims to disseminate domestic biodigesters as a local, sustainable energy source through the development of a commercial, market oriented sector in selected Indonesian provinces. This means that the project not only intends to construct biodigesters in order to provide clean energy and improved living condition for households, but also to develop a sustainable domestic biogas sector in Indonesia which also leads to job creation and a new biogas business sector (contractors, masons, training institutions, input suppliers). Sector development implies the close cooperation of all relevant stakeholders (Government, Non-Government and private sector) in the sector at all levels and that those stakeholders are sufficiently equipped to fulfil the necessary functions.

A complete digester in Lembang, Bandung.

Specific Objectives and Output Indicators

To support implementation of provincial biogas programmes and increase the number of quality domestic biodigesters with 8,000 in maximum eight provinces, of which 2,000 installations will be outside Java.

Output Indicators of this specific objective are the number of digesters construction and project areas. The proposal mentioned the following yearly

targets: 150 plants in 2009, followed with 1,150 plants in 2010, 2,600 in 2011, and 4,100 in 2012.

To ensure the continued operation of all biodigesters installed under the programme.

This objective entails not only sound construction works and after-sales services provided by qualified masons and construction firms. Quality control and enforcement, fully functioning extension services to provide information on operation and maintenance for users, and adequate trainings are also essential parts of the programme. Trainings provided by this programme are divided into two types being: a. Training for the CPO (Construction Partner Organizations) staff (mason training, Supervisor training, Management training, training of trainers) and b. Training for users (Users Operation and Maintenance training, Slurry utilization training and Biogas orientation training).

As an indicator, this objective is considered accomplished if 90% of all digesters built in the previous years are by the end of the programme period still in operation.

To maximise the benefits of the operated biodigesters, in particular the optimal use of digester slurry (agri- and horticulture, ducks and fish rearing). Extension service and users training are an important part in realizing this objective.

Indicator: A minimum of 50% of digester owners are applying bioslurry to agri- and horticulture and/or fish and/or duck rearing in a proper manner.

To develop the capacity of existing organizations and institutions and to facilitate establishment of organizations and institutions (farmer's organizations, local governments, SMEs, MFIs, NGOs) for the continued and sustained development of the biodigester sector in selected Indonesian provinces.

Indicator: Sufficient, qualitatively effective local organizations are involved to achieve the various objectives of the programme at national and provincial level.

To develop financial services to enable poor farmer households to participate in the biogas programmes.

Indicator: Poor farmer households have sufficient access to appropriate financial services to be able to purchase a biodigester (minimum 45% of digesters financed by households through loans).

To effectively exchange knowledge between all relevant actors in the programme and with relevant international actors.

Indicator: Linking and learning knowledge exchange events have been organised in and between each province, at national and international level to inform the relevant actors in the biogas programmes of opportunities and constraints. (Reports of these meetings and follow-up activities will be produced; appreciation of the participants will be measured).

3. Institutional setting

Four cows' dung is sufficient to fill a 6 M3 digester.

The feasibility study for the Indonesia Domestic Biogas Programme was undertaken at the request of the Indonesian Directorate General for Electricity and Energy Utilization (DGEEU), which is a directorate under the Ministry of Energy and Mining Resources (MEMR). This Directorate has now become the counterpart organization for the programme. In implementing IDBP, Hivos receives technical support from SNV. The Indonesian government counterpart of Hivos is the Ministry of Social Affairs.

IDBP together with DGEEU will establish an Advisory Group with a monitoring and endorsement mandate towards the programme. The Advisory Group will include representatives of relevant government agencies, DGEEU, civil society, and the Netherlands embassy. A Technical Committee will provide technical inputs and will assist in preparing Advisory Group meetings. The development of an Expertise Centre within DGEEU by utilizing the biogas expertise within the IDBP is under discussion with DGEEU.

The programme has established a National Biogas Programme Support Office (NBPSO), which supports - still to be established - Provincial Biogas Programme Offices (PBPO). The provincial offices are responsible for local implementation, and are tasked to synchronize and liaise with provincial and district Energy agencies and cooperate with Bappeda (the local development planning branches) and other government agencies at province and district levels. Other tasks of the PBPO include: biogas promotion, capacity building, development of the biogas sector, quality control, slurry extension and gender mainstreaming.

As a part of institutionalizing the biogas sector, IDBP had started discussing about the possibilities of developing biogas construction curriculae for Sekolah Menengah Kejuruan (medium technical school) with the Technical Education Development Centre (TEDC) in Bandung, West Java. TEDC works together with SenterNovem (now called NL Agency) to establish regular renewable technology modules for the SMK in Indonesia. As a start, in November 2009, IDBP undertook ToT and built a biogas mock up unit at the TEDC campus. Further engagement between TEDC and IDBP (masons training and assistance in developing biogas modules) will take place in 2010.

During the initial phase the IDBP targets the dairy sector through a number of dairy cooperatives, which are 'soft' targets because of their strong relation with the individual farmers, previous knowledge of biogas, high level of organization, existing

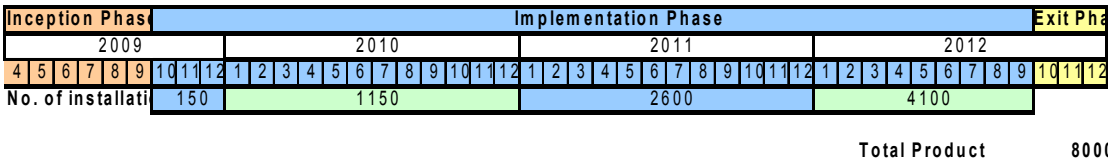
channels with credit providers and the - not unimportant - fact that repayment of the farmers' investment in biogas can relatively easy be realized by automatically deducting these from milk payments made by the cooperatives to their members. Credit providers only need to make loans available to the cooperatives, after which the repayment arrangements with the individual farmers are the responsibility of the cooperative.

4. Short overview of 2009 activities

Activities of the Indonesia Domestic Biogas Programme were planned to be carried out in three phases i.e. an inception phase taking a maximum of six month; an implementation phase of approximately 36 months (October 2009-September 2012); and a three-month administrative exit phase (October -December 2012).

BIRU Programmeme participated in the 14th JEWG in Jakarta, December 2009.

Figure 1 Programme Phasing



Due to the late programme startup due to delays in issuing the contribution agreements between RNE and Hivos (15 May instead of 1 April 2009), the start of the Implementation Phase also got somewhat delayed. Therefore the outputs for 2009 were slightly lower than foreseen. The Programme will catch up in 2010. The programme was, however, able to start immediately on 15 May as the programme manager was available from day one.

The actual programme started with an inception phase that ran from 15 May to 15 November 2009, during which the national programme office was established and core staff was recruited. Programme guidelines were written, a structure was put in place. The following represents an extensive overview of the activities undertaken in 2009.

The establishment of the National Biogas Programme Support Office and formulation of national annual plan & budget (5.2.1)

Hivos entered into a subcontract with SNV for the provision of international technical expertise to the programme (the SNV contract is not financed from the RNE contribution, but from other Hivos resources). A suitable office was found and furnished. Core programme staff was recruited (see section 6 for details). Likewise, SNV recruited an international chief technical biogas advisor, who made a first visit to Indonesia in May 2009 and then joined the team full-time from the 1st of August 2009. A simple annual plan and budget was developed to be used as guidance during the inception phase of the programme. The Programme used the services of a design firm to come up with an attractive brand name. This name, BIRU (Biogas Rumah, Domestic biogas) and logo are used to promote the programme, mainly to cattle farmers organized in dairy cooperatives.

The BIRU logo

The BIRU logo represents the dome shape of the digester at the bottom of the logo and a flame in a house to indicate that the biogas is used for household cooking needs. The blue color indicates the color of a healthy, well-burning blue flame.

At the end of November 2009 the annual plan and budget for 2010 were submitted to RNE.

Selection of the most appropriate technology for Indonesia (5.2.2)

After field visits to potential target areas, experts and relevant stakeholders came together in a workshop on technology in June 2009 to determine the most suitable biogas design for Indonesia (details on the selected model are discussed in section 5.4.2. on the Indonesian biogas plant design). Then, the National BIRU Office prepared a bill of quantity and the overall estimates for the construction of biogas digesters, including the subsidy component, which was included in a technical report of the workshop results. It is worth mentioning that, while at the beginning of the programme (workshop in July 2009) there were still many advocates of the plastic bag digester, a planning workshop held with stakeholders on 11 September 2009 indicated already that opinions were changing in favor of the fixed dome model proposed by the SNV expert mission and decided during the July workshop. Reactions from various stakeholders after having seen the digesters in working condition are very positive in all three target area clusters. The mission and workshop report together with the technical design and bill of quantity were circulated in July 2009.[1]

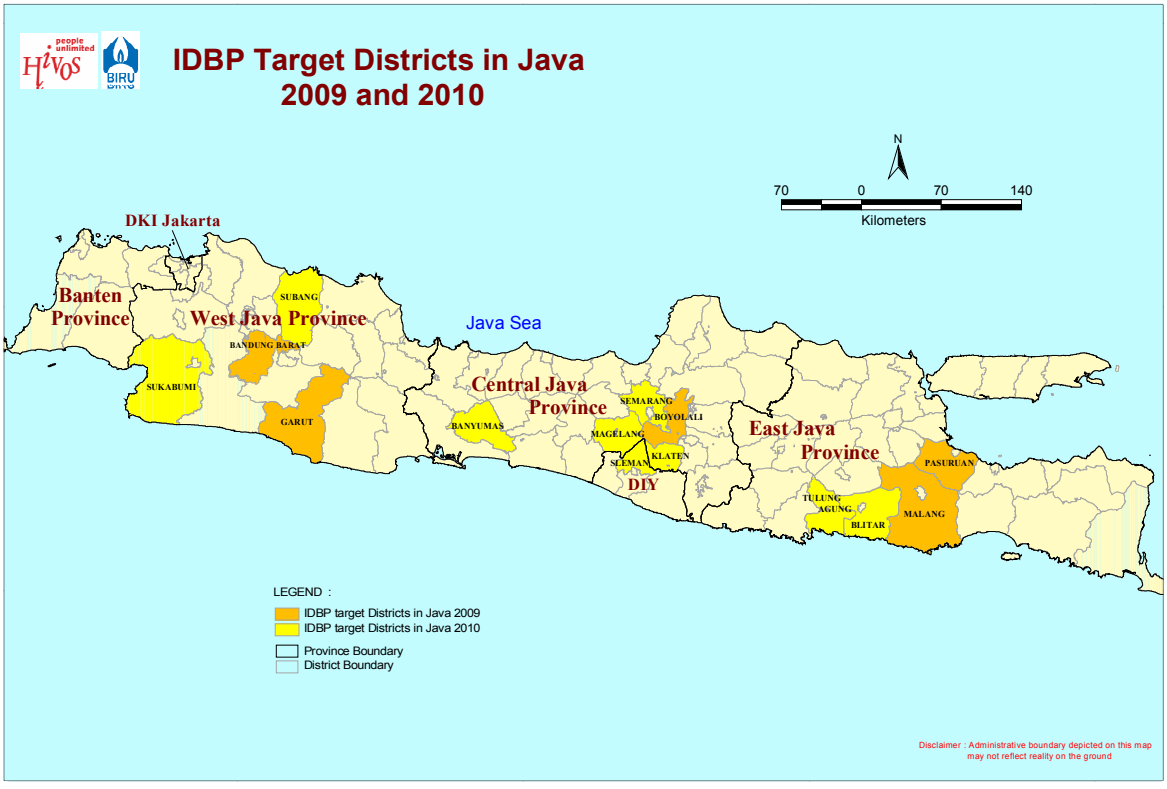
Selection of programme working areas (5.2.3)

[1] Mission Report on Selection of Biodigester Design and Fomulation of Quality Control of Framework and Certification Procedures for Biogas Constructors, prepared for Indonesia Domestic Biogas Programmeme (IDBP), Ifnu Setyadi and Prakash C. Ghimire, June, 2009.

The SNV Feasibility Study recommended that the programme starts implementation in West-Java, Central Java, Yogyakarta and East Java. During the Inception phase, a number of 'pockets of market opportunities' were identified in each of these provinces through surveys and field visits. With the support of a GIS Specialist, the IDBP selected high-density cow areas, especially areas with milk cows. More specifically, the following areas were selected:

Nr	Province	District	Sub-district
1a	West Java	West Bandung	Lembang
1b		Garut	Bayongbong
2	Central Java	Boyolali	Mojosongo
3a	East Java	Malang	Jabung
3b		Pasuruan	Tutur

During 2009 the IDBP has paid ample attention to area and beneficiary targeting, making use of the services of a Database/GIS specialist. This has resulted in the selection of a limited number of potential districts and partners. Maps of each of the target areas were prepared (see the maps in annex 3). By the end of the inception period (November 2009) an upscaling plan was presented for 2010 with a special focus on the three dairy clusters (see map below).



Apart from more intensive activities in the 2009 target provinces (more districts and sub-districts), several provinces outside were considered for selection. Based on cow/pig density data Bali and South Sulawesi have become the focus outside Java. A final decision on the incorporation of these new provinces will be based on further data gathering by consultants, the results of which are expected by March 2010 and will be submitted to the Advisory Committee. In case the AC is not yet in place, Hivos will consult DGEEU and RNE directly on this decision.

Commence the mobilisation of potential credit suppliers (5.2.4)

During the Inception Phase a consultancy was commissioned to assist the national programme in identifying financial institutions interested in working with the programme in credit provision to farmer households to cover biogas investment costs. Hivos has given high priority to exploring the options of establishing a partnership with the Rabo Bank Foundation for the biogas programme, but during the Inception phase a number of other options also deserved attention. In addition to the Rabo Bank Foundation in Utrecht and Indonesia, various meetings have taken place with other banking institutions, including: (The Hague-based) FMO (facilitated by the Netherlands Embassy), Bank Mandiri Syariah (facilitated by KLH – The Indonesian Ministry of Environment), Bank Mandiri (facilitated by Friesland Foods), Bank Tabungan Pensiunan Nasional (partner of FMO). Also the company Nestlé has become a potential credit supplier through its CSR-programme in cooperation with the Rabo Bank Foundation.

During 2009 access to credit for the biogas users has had a preliminary character. In 2010 the access to credit will be consolidated in a number of key target areas through cooperation with one or more of the above mentioned financial institutions. It has become clear that many banks are in fact very interested in providing loans to dairy cooperatives, since these cooperatives are often willing to take the responsibility for repayment, loans can be provided in bulk (reducing administrative hassle) and the repayment rate is automatically high because repayments can be deducted from regular milk payment by the cooperative to the individual farmer/member. In a later stage, when the BIRU programme will extend to non-dairy areas, the need for access to credit for non-dairy farmers will probably become a challenge.

Develop guidelines for programme implementation (5.2.5)

The IDBP Programme managed to produce a considerable number of outputs needed for smooth programme implementation: a technical workshop resulting in the selection of the most appropriate technology (including Bill of Quantity), the selection of target areas using GIS, the production of a Construction Manual, the production of draft Standard Operation Guidelines, preliminary subsidy level and procedures for disbursement (which will be done through the construction partners), monitoring protocols and the basis for an MIS, standard contracts for partners and a PID outline for the provincial offices. A PID for the national office has also been drafted but has not yet been endorsed.

Assessment of potential actors in priority provinces (5.2.6)

A preliminary assessment was conducted to identify 'pioneer partners' in four provinces. The areas were scanned for potential partners, leading to the selection of four partners assigned with the construction of biodigesters. This resulted in partner agreements with these four so-called CPOs (Construction Partner Organizations), each of which is active in a different district in three provinces. These CPOs have selected a number of masons (50 in total), who have been given construction training during the month October and were ready to start their work at the beginning of November 2009.

The selection of local counterpart organizations, working with Hivos to lead the programme at the provincial level had to be postponed, because a proper methodology to do this was not found. In order not to loose momentum, and to avoid the establishment of Hivos offices instead of using local organizations, Hivos decided to start a recruitment process for Provincial Consultants (who if performing satisfactory may later be appointed as Provincial Coordinators), which resulted in the selection of three candidates, to be followed soon by two consultants to undertake surveys and liaison activities to support expansion to two provinces outside Java. Additional staff will also be recruited to ensure that the various functions of the biogas programme (coordination, promotion, training, extension, construction etc.) can take place as planned. The proper embedding of these persons in local institutions will be an important discussion during the first half of 2010, as to ensure a strong institutionalization process. However, if no such organization is available, the National BIRU Office will set-up its own Provincial BIRU Office, starting from July 2010.

Stakeholder workshop launching the national programme (5.2.7a)

During the Inception Phase a stakeholder workshop was scheduled to launch the national programme. In September 2009 this stakeholder workshop took place together with DGEEU/MEMR and served to provide full information about the implementation arrangements of the programme. Similar launching workshops will be conducted at provincial level at a later stage. The official programme launch took place on 3 December 2009 during the Indonesian-Dutch Joint Energy Week with a field visit to Lembang (biogas training site also functioning as demonstration site). Participating in the launch were the JEW participants, local government representatives, other cooperatives and the masons trained by the programme. Apart from that, the launch was also covered by local and national media, which later brought more attention from wider public, particularly local NGOs that work in sustainable production issues and dairy companies.

Advisory Committee (5.2.7b)

At the end of the Inception Phase the various technical documents prepared were meant to be submitted to the Advisory Committee and DGEEU for feedback and/or endorsement. Even though the Advisory Committee is not established yet (pending an the overall Indonesian-Dutch agreement on energy which will hopefully be signed in 2010), with the concurrence of RNE and DGEEU it was decided that the programme will move to its implementation phase. The official endorsement of the documents is

expected to ensure once the Advisory Committee has been established. Discussions with DGEEU on this Advisory Committee are ongoing and will continue in January 2010.

Annual Plan and Budget (5.3.1)

An Annual Plan and budget covering the activities of the year 2009 was submitted at the end of November 2009. By the end of November 2010 the annual plan and budget 2011 will be submitted.

Project Implementation Documents, Annual Work Plans and Budgets (5.3.2)

A draft national level Project Implementation Document has been developed on the basis of the feasibility study undertaken in 2008 and the IDBP proposal of April 2009. This PID contains detailed plans and work plan schedules for the project implementation over the lifetime of the programme. Still to be established provincial offices will have to make provincial Project Implementation Documents, Annual Work Plans and Budgets based on this overall PID. A special outline was designed for the provincial offices to be used as reference. Before the end of November 2009 the IDBP has submitted an Annual Work Plan 2010 (including budget plan 2010 and forecast first semester 2010), which has been approved by RNE.

Compilation of complete SOGs (5.3.4)

In the last few months of 2009 the IDBP has developed Standard Operation Guidelines, which will be submitted to the Advisory Committee for endorsement. The SOG is a set of guidelines which the national office and the provincial offices are supposed to adhere to in undertaking the programme. The dissemination of the document will be accompanied by training sessions to make the provincial offices staff familiar with the regulations (scheduled in the first week of February 2010). Final versions have not been produced yet, but will be available in February 2010.

Establishment of the provincial biogas programme offices (5.3.6)

Preparations have been made for the establishment of Provincial PBPOs (or Provincial BIRU Programme offices) to be set-up preferably in locations close to target areas. The first PBPO is expected to be in place around February 2010. During 2010, 5 PBPOs will be established in West Java (Bandung), Central Java/Yogyakarta (Solo or Yogyakarta), East Java (Malang). Market surveys are planned in two provinces outside Java (South Sulawesi and Bali) which will result in recommendations on biogas dissemination in these areas to the Netherlands Embassy and DGEEU.

Provincial Implementation Activities (5.3.7)

In 2009 activities have started in dairy clusters in three provinces (West, Central, and East Java). The programme found four suitable partners in the form of two cooperatives, one local NGO and one private enterprise. As provincial offices were not in place yet, the NBPSO did all the liaison work in three different areas and dealt not only with all the partners directly but also undertook networking and liaison with Government agencies at the provincial and district level. Partner identification

activities for both construction partners and lending partner organizations were also conducted in a number of new potential target regions.

The BIRU programme also had intensive communication and coordination with companies in the dairy sector (Friesland Foods and Nestlé), both in Jakarta and at the local level, with the Ministry of Environment, the Rabo Bank Foundation and with Bank Syariah Mandiri in East Java and West Java to find the most suitable arrangement for financing cooperatives as construction and microfinance partner organizations.

The Ministry of Environment, currently provides a green loan to one of the cooperatives (channeled through Bank Syariah Mandiri), which also acts as construction partner organization. This cooperative is KPSP Setia Kawan in Pasuruan District, East Java.

Coordination and liaison has been started with local government in Central Java through one of the IDBP partners in Solo (LPTP), with a focus on the districts Klaten, Boyolali and Wonogiri.

Recruitment of Provincial consultants (who later may be elevated to the position of Coordinator) was initiated in December, with intensive biogas and programme management training planned in February 2010. The province-level activities will take a faster course as soon as the Provincial consultants/coordinators are in place and the provincial offices start to run.

Promotion (5.3.8)

The – relatively modest - 2009 promotion campaign was aimed at providing a comprehensive information package (technical services, subsidy and a credit mechanism) to pioneering dairy cooperatives, willing to work with IDBP. It has become obvious that dairy cooperatives will become the main intermediary to reach dairy farmers, which are the first targets of the biogas programme.

> While during 2009 an initial modest promotion campaign was undertaken for the 'pioneer' target areas to ensure sufficient demand, a more thorough and elaborate campaign will be developed for the current and new target areas in cooperation with the Provincial consultants/coordinators.

Promotion activities in 2009 consisted of three parts: production of the promotion materials (brochures, calendars, wall clock, a video profile in Bahasa Indonesia with English subtitles, and a souvenir package for the Joint Energy Working Group Week, JEWG), direct meetings with dairy farmers and expositions. The promo materials produced were chosen based on practicality and durability considerations. Most materials were distributed to all four partners in West, East and Central Java, but the JEWG souvenirs were given only to the attendees of the IDBP launch.

Information dissemination to dairy farmers was conducted by making use of cooperative meetings and also via individual meetings with Heads of Farmer Groups, usually at nights because that is the only time available for dairy farmers who work around the clock. IDBP attended such meetings in Pasuruan, East Java in October 2009.

National and international level exposure was undertaken in 2009, starting with IDBP's involvement in the Renewable Energy Conference in August 2009, where the Hivos regional director presented the IDBP, while brochures were printed and disseminated in the Holland Pavillon stand of the energy expo held in the adjacent hall of the Convention Center. In December 2009, IDBP participated in two expositions: 'The 14th Joint Energy Working Group Week' in Jakarta and the ILO-funded 'Gelar Karsa Poncokusumo' in Malang, East Java. IDBP was officially launched during the JEWG Week. At the 'Gelar Karsa Poncokusumo', IDBP supported one of the partner cooperatives, KAN Jabung, to promote biogas digesters. Exposure of IDBP took also place during a stakeholder event of the DME (Desa Mandiri Energi, Energy Self-reliant Villages) programme, in November 2009 in Bandung.

Training (5.3.10)

Training was one of the key activities of the programme. There were several trainings planned under the programme, however, mason and supervisor training was the most urgent one, therefore conducted immediately after signing the agreement with CPOs.

a. Mason training

IDBP foresees the need of around 350 masons to be trained for the programme to end up with ca. 230 masons who will be able to construct at least 8,000 units by the end of 2012. In October 2009 the programme undertook training for the first batch of 50 masons. 52 people in three target clusters (Pasuruan, Boyolali and Lembang) were trained as mason and supervisors of which currently 42 are engaged in construction work. Each training duration was for 7 days during which one plant in each location was constructed as part of practical training. The participants were selected based on their prior construction experience and other key criteria (age, health, ability to read a construction drawing).

The services of an experienced mason trainer from Nepal were used to make sure that IDBP developed optimal skills among local masons and IDBP staff. After this first series of mason trainings local resources are now available to provide additional training.

b. Internal training

The IDBP has done internal trainings for IDBP staff to prepare them for the tasks ahead. These bi-monthly trainings took one half to a whole day and took place three times. This process will be continued, including also provincial consultants/ coordinators (starting in February 2010).

c. Partner training

IDBP has done several training sessions with the 'pioneer' partners. These sessions, which took place in Jakarta as well as in the target areas, were not only useful for the partners but also for the IDBP staff to better understand the constraints of partners in organizing and implementing construction activities. For partners it was important to obtain a better idea of their obligations and rights in working with IDBP.

Quality control and Enforcement (5.3.11)

Quality of construction is one of the success factors of the programme. Therefore, enforcement of quality standards and quality control system was developed. An engineer has already been recruited and he is responsible for quality control of the constructed biogas plants. So far total 62 plants have been inspected and over all quality was found good. All the constructed plants are functioning well and users are found satisfied with the biogas plants. Plants were inspected during as well as upon completion of construction. Proper advice on improvements was given immediately in case the mason made mistakes while constructing biogas plants. Technical training on quality control was also provided to CPO staff.

R&D and standardization (5.3.12)

R&D activities have been carried out on a limited scale and were mainly focused on the development of a decent stove (testing and improvement), the production of a mixer and the selection of other proper appliances. Two companies were advised to produce new biogas stoves which are expected to be more efficient, durable, user-friendly and attractive. Stove testing took place in December by LIPI (Lembaga Ilmu Pengetahuan Indonesia), the government institution of sciences, a report of which was submitted to IDBP in January 2010. The report indicates that one stove complies with the national standard and has an efficiency of about 52%. Other stoves need some improvements to comply with the national standards. Further improvement is on-going.

Besides stoves, biogas mixers are designed and produced locally. Use of these mixers is new in Indonesia. Users are quite happy with the mixer which makes the operation of the biodigester easier.

Biogas lamps are being imported from China since the interest in local production of this kind of lamp initially seemed to be low. However, more recently local companies start showing an interest in producing biogas lamps locally.

Institutional support (5.3.14)

The programme is expected to seek the involvement of existing provincial and district government agencies, NGOs, financial institutions and private enterprise. The potential role of these organizations needs to be assessed to ensure optimal use of these organizations as resources. During 2009 institutional support has not been the main focus of the IDBP, since priority was given to gaining momentum in construction of biodigesters. However, the programme already successfully undertook training at TEDC Bandung, a learning institution targeted by SenterNovem for develop expertise in the field of renewable energy. IDBP undertook Training of Trainers and provided extensive input for the development of biogas training modules. Additional training is currently being discussed to develop capacity within TEDC to provide mason training services for the IDBP.

IDBP has provided an institutional incentive of Rp. 3,500,000 (Eur 269) to the 'pioneer' construction partners and an advance on the subsidy of Rp. 20 million (Eur 1,538) to make the startup of the construction activities easier. IDBP will evaluate the cooperation with the construction partners in January 2010. Other incentives may be considered for inclusion in the following agreement.

NBPSO tasks during implementation (5.3.16)

During the inception phase the programme worked with 4 'pioneer' organizations. With new partners, no provincial offices in place yet and still trying to get a grip on the programme, this was not an easy task (see also challenges and lessons learned). On the other hand the availability of a Senior Advisor of SNV considerably reduced the risks of mistakes and allowed the programme to start up relatively smooth and fast. Even though the IDBP completed only 62 digesters by the end of 2009 (out of the 150 planned in the proposal), the programme is fully ready for upscaling and reaching the target of 1,150 additional digesters in 2010 with more partners and more target areas. As soon as the provincial offices are in place, the role of the NBPSO will change considerably: instead of trying to implement activities, the focus will be on supporting the provincial offices in implementing their activities.

5. Overview of scheduled activities 2010

Annual Plan and Budget

This Annual Plan covers the activities of the year 2010. The annual budget has already been submitted. By the end of November 2010 the annual plan and budget 2011 will be submitted. See the Gantt chart as annex 1.

Selection of Programme working areas

During 2009 the IDBP has paid ample attention to area and beneficiary targeting. This has resulted in the selection of a limited number of areas and partners. In 2010 additional targeting will be done and extensive liaison activities will be undertaken in the first months of 2010 to introduce the IDBP in new districts.

Mobilise potential credit suppliers

The IDBP has already undertaken discussions with a number of potential credit suppliers in Indonesia and Holland. During 2010 the financial assessment will be continued, resulting in recommendations which partners to select and which credit mechanism is most suitable for the IDBP programme and the farmers. The initial credit arrangements in use during 2009 will be reviewed and adjusted according to needs and recommendations.

Compilation of complete SOGs

In the last few months of 2009 the IDBP has developed Standard Operation Guidelines, which will be submitted to the Advisory Committee for endorsement. The

SOG is a set of guidelines which the national office and the provincial offices are supposed to adhere to in undertaking the programme. The dissemination of the document will be accompanied by training sessions to make the provincial offices staff familiar with the regulations.

Additional data collection

The IDBP will in each selected programme area undertake a scan to find the best possible partners in the area. This will be done in cooperation with local cooperatives and local governments.

Establishment of the provincial biogas programme offices

Provincial PBPOs (or Provincial BIRU offices) are to be set-up in the beginning of the implementation phase, preferably in locations close to target areas. This can only be done after the institutional assessments undertaken during the inception period are finalized. Once an organization has been contracted for the role of provincial PBPO, it will (in coordination with the NBPSO) start contracting staff and setting up its office. Alternatively the NBPSO will set up its own PBPO. The first PBPO is expected to be in place around February 2010. During 2010, 4 or 5 PBPOs will be established in West Java (Bandung), Central Java (Solo or Semarang), East Java (Malang or Surabaya), Yogyakarta (possibly only a small post) and in at least one province outside Java.

Provincial Implementation Activities

Each PBPO will develop its own PID and concomitant budget during the first two months after establishment. An outline for the PID has been developed during the Inception Phase. Each PBPO will also prepare annual work plans and budgets for its working area based on the PID and guidelines by the NBPSO. These work plans and budgets will be consolidated by the NBPSO, together with its own work plan and budget and annually be submitted to the RNE before the end of November of each year. Before submitting the work plan to RNE, the NBPSO will solicit inputs from DGEEU and other key actors where appropriate.

Promotion

While during 2009 an initial modest promotion campaign was undertaken for the 'pioneer' target areas to ensure sufficient demand, a more thorough and elaborate campaign will be developed for the current and new target areas. It has become obvious that dairy cooperatives will become the main intermediary to reach dairy farmers, which are the first targets of the biogas programme. The 2009 promotion campaign, which was aimed at providing a comprehensive information package (technical services, subsidy and a credit mechanism) will be evaluated and adapted for new campaigns. For those who have taken the decision to invest in a digester, training will be organised to provide the necessary knowledge and skills for the proper operation and maintenance to use the plant efficiently and effectively. An effective after sales service will keep the plants in good function which in turn will serve farmer-to-farmer promotion. Various communication means will be used and a limited number of additional demonstration units will be installed, one in each new district.

The IDBP is aware that promotion activities will need to ensure that both men and women farmers will be targeted and involved in informed decision making at the household level. Research, training and awareness raising activities will be undertaken to make sure this aspect is not neglected.
The lead organisations for the promotional activities are those carrying out the programme at the provincial level, i.e., the PBPOs, optionally working with local agencies, including the livestock services branches and local cooperatives, and with continued support from the NBPSO.
Biodigester promotion at the national level will remain a task for the central team, which will attend events, seminars, exhibitions and will maintain a website and develop a communication strategy.

Extension

Extension is focused on activities - apart from after sales - after installation. Proper training of - especially female - users on operation and maintenance will be key, while the use of biodigester effluent will be seen as an integral part of the plant's overall use. Around 50 user training sessions will be held post-construction (min. 15, max. 30 participants per session). Where deemed socially acceptable, cooperation will be sought with existing sanitation programmes, in popularising the use of biodigesters also for human waste.

Training

Based on an increase from 4 to around 12 (max. 15) target districts in 2010, there will be a need to undertake training for at least another 7 to 11 mason teams (each consisting of ca. 5 masons and 1 supervisor). IDBP will therefore undertake at least 4 training sessions to train between 42 and 66 new masons in 2010 to ensure that each target district has at least one team of masons. Training locations will depend on actual needs. Refresher training or additional training in current (2009) target areas may be undertaken if deemed necessary.
Not only masons and their supervisors, but also staff of provincial offices, extension personnel of other participating organisations as well as the actual users will receive appropriate training courses in synchronization with programme development during up-scaling of the programme to more provinces, districts and sub-districts. Awareness and skills development towards slurry processing will become more and more important. Cooperation with the Indonesian Ministry of Environment in this field has already taken shape.
Even though training masons will not be the key activity of SenterNovem, IDBP will seek continued synchronization with SenterNovem in developing renewable energy initiatives, not only regarding training but also biogas trials, awareness raising and knowledge exchange, etc.

Quality control and Enforcement

Companies and mason teams are subject to a series of strict conditions on the design and size of the biodigesters, use of quality materials and appliances, proper instructions to the users, guaranty provision, etc. These conditions will be put down in an agreement between the programme and the biodigester companies and mason

teams. Since quality control on plants in operation and under construction is a key aspect of quality enforcement and the long-term success of the programme, in each province quality control teams will be established by the NBPSO. Registered plants will be inspected by these teams both during construction and during operation. This will also help in enforcing proper after sales services.
Quality control will take place at the constructor's and PBPO level as follows:
Constructor: Biogas Supervisors (of the quality control teams) will visit each newly completed installation to check the quality of construction against agreed standards (100% check). Biogas Masons or Supervisors will subsequently visit plants that have been in operation at least 1 year for two subsequent years annually for the contractual maintenance visit (100% cumulative check). For 2010 this entails only a limited number of maintenance visits (only the less than 100 sites built in 2009).
-PBPO: Biogas Technicians, employed by the PBPO, will visit randomly selected biogas plants to check the quality of the services as provided by the constructors against agreed service standards (ca. 5% of all plants, but more during the initial phase). Biogas Technicians will visit plants under construction, plants recently completed, and plants under the contractual maintenance scheme. During 2010 the visit frequency will likely be higher.

R&D and standardization

R&D activities will be carried out on a limited scale and mainly be focused on the development of a decent stove (testing and improvement), evaluation of the Indonesian digester, slurry use and marketing research, and the manufacture, standardisation and improvement of other appliances such as mixers and lamps. In principle research and development activities will be contracted to research institutes and consulting firms on the basis on ToRs elaborated by the NBPSO.

Monitoring and evaluation

In addition to more technical R&D, monitoring of the programme activities and evaluation will be conducted. It will focus on: CDM baseline study (once decided the C/B ratio is positive), user surveys (including effects on women's workload), effluent use, ability to pay, why farmers do not install a biodigester, evaluation of the performance of financial institutes in the credit provision, quality of the after sales service and training. During 2010, priority will be given to the development of a reliable MIS which contains the field reports (pre-construction-, construction finalization-, inspection- and maintenance reports). Systems currently in use in other countries will be used as reference for development of the MIS.

Institutional support

The programme will seek the involvement of existing provincial and district government agencies, NGOs, financial institutions and private enterprise. The potential role of these organisations will be assessed to ensure optimal use of these organisations as resources. If there will be a structural and long-term involvement of these parties, support –both financial support as well as advice– will be provided by the programme to enhance the capacity of the involved parties if needed.

Emission reduction marketing and fund raising for follow-up phase

During this programme period of 3.5 years, the construction of at least 8,000 digesters has been targeted. A baseline survey will be undertaken and recommendations will be obtained to determine whether marketing of the carbon emission reduction levels justify application of the CDM mechanism. The application of Gold Standard certification will require elaborate monitoring systems, for which funding has not been made available. The final decision on the use of Gold Standard certification will depend on buyers' desires and other criteria, which will also be investigated in 2010.
During 2010 the programme will undertake a slurry extension programme, the development of a fairly sophisticated MIS to monitor the construction of the 8,000 digesters, a proper Quality Control system and a strong biodigester maintenance system, activities which are all aimed to be a basis for future reduction emission marketing.
Participation in fairs and expo's on this issue may be part of the marketing activities of the programme, but may not be needed if negotiations with a number of potential buyers is finalized successfully and approved by RNE. The precise mechanism for emission reduction marketing and the use of the related income will be developed in close consultation with the Advisory Committee, DGEEU and RNE.

NBPSO tasks during implementation

The year 2010 represents the first stage of the implementation phase of the programme. While in the inception phase the programme already carefully worked with 4 'pioneer' organisations, 2010 will show a serious process of upscaling: more partners (at least 6 additional partners), more target areas (at least 9 additional districts), more construction activities (targeting the construction of ca. 1,300 additional digesters).
The national NBPSO will need to support the participating organisations in the provinces as follows:

- define rules and procedures, including procurement and accounting
- develop contracts and agreements
- facilitate the development of communication strategies and materials
- orient the design of training arrangements
- orient the PBPO and other users in the use of the programme's monitoring system
- define reporting arrangements
- coordination through regular meetings and communication

- prepare lessons learned documentation and facilitate international comparative learning

- trouble shooting

Several events for knowledge sharing and knowledge creation will be organised in the course of the programme. The issues for knowledge management will include at least: promotion methodologies for end users (women); promotion methodologies for politicians, government departments and towards credit providers; training for contractors, training for masons, use of slurry; quality control and enforcement; credit arrangements; and, emission trading. The programme is also expected to share its experience abroad, especially through the SNV biogas knowledge network.

The NBPSO will support the establishment of an Expertise Centre at DGEEU if the Directorate General is sufficiently equipped to do so and can make the resources available.

6. Resource allocation

Females often hold the roles of caretaker: feeding the cattle and cleaning the stable.

During 2009 the IDBP team looked as follows:

No.	Position	Starting date	Remarks
	National level		
1	Programme Director (part-time int)	May 2009	
2	Programme Manager (int)	May 2009	
3	Senior Advisor (SNV, int)	August 2009	
4	Programme Administrator	October 2009	
5	Biogas Technical Officer	July 2009	
6	Promotion and PR Officer	October 2009	
7	Financial Officer	June 2009	
8	Office Manager	August 2009	
9	Office Assistant	August 2009	
10	Driver	August 2009	
	Consulting inputs:		
11	SNV Technical specialist (int)	June 2009	Finished

12	Mason trainer (int)	October 2009	Finished
13	Technical Specialist	June 2009	Finished
14	Gov liaison and policy advisor	June/Dec 2009	Ongoing
15	Promo and PR assistant	Oct-Dec 2009	Ongoing
16	GIS / Database Specialist	August-Dec 2009, Jan 2010	To be recruited again in 2010
17	Financial Services Specialist	Nov 2009/Jan 2010	Ongoing

Planned recruitment for 2010:

No.	Position	Starting date	Remarks
A	**National level**		
18	Baseline Specialist	February 2010	To be recruited
19	Policy Advisor	March 2010	To be recruited
20	Slurry Advisor/trainer	May 2010	To be recruited
21	Management trainer	April, October 2010	To be recruited
22	SNV inputs	T.b.d.	T.b.d.
B	**Provincial level**		
23	Provincial consultants (5)	Jan/Feb 2010	Recruitment ongoing
24	Biogas Technicians (5)	March/April 2010	To be recruited
25	Promo and PR officers (5)*	March/April 2010	To be recruited
26	Training/Extension officers (5)*	May/June 2010	To be recruited
27	Fin/Adm Administrator (5)	March/April 2010	To be recruited

* This may be a combined position (nr 25 and 26)

7. Reporting obligations

A way of exposing BIRU programmeme: by participating in a event such as Self-sustain-Village National Meeting in Bandung, November 2009.

The following reports and other outputs were submitted by the programme to the Royal Netherlands Embassy in Jakarta and DGEEU during 2009:

- Mission Report on Selection of Biodigester Design and Formulation of Quality Control Framework and Certification procedures for Biogas Constructors, prepared by Ifnu Setyadi and Prakash C. Ghimire (June 2009).
- Programme update (September 2009).
- Construction Manual (October 2009, in Bahasa Indonesia)
- Annual Work Plan and Budget 2010 (November 2009).
- Semi-annual liquidity forecast for the period January-June 2010, November 2009.
- IDBP promotion materials (3 December 2009)
- Set of 2 disks, one of IDBP in the news after 3 December 2009 and one disk with a film presenting a profile of the BIRU programme (28 December 2009).

8. Monitoring and Evaluation

The IDBP can draw on international resources for the development of a suitable Management Information System. The biodigester database will be the core of this system, which will accurately maintain construction, inspection and quality control data of all biodigesters built. The IDBP obtained an excellent MIS application from the SNV biogas programme in Cambodia. This system has been integrated into a completely new system for Indonesia and was finalized at the end of December 2009. Training will be given to a number of selected users in the national IDBP office. IDBP will investigate the possibilities to link the biodigester data to a Geographic Information System allowing to provide maps with relevant digester data and user-friendly presentations.

Involving women in biogas construction in Kaliandra, East Java.

9. Budget requirements

The IDBP-budget for 2010 has already been submitted to RNE as part of the liquidity projection for January-June 2010. During the Inception Period it has become clear that the original budget may require adjustment. If deemed needed, a budget revision request may be submitted which will allow the programme to make better use of the available funds.

A well-functioning biogas stove must have a blue (BIRU) flame.

10. Challenges and lessons learned

62 BIRU units were built until the end of 2009. 7,938 more to go.

The IDBP is progressing positively, however, there are still some challenges which can be summarized as follows:

- Identification of biogas implementation potential and institutionalization of the biogas programme with the partners at the provincial level has proven to be a challenge, which has caused some delays in startup of construction activities.
- The costs of the plants vastly differ from one place to another which was not anticipated when formulating the proposal. The differences mainly come from labor costs and costs of sand. In some places availability of good quality sand is a problem leading to high prices.
- Credit is not yet accessible to all potential users. It seems that credit will be relatively easily available to the dairy cooperative members through cooperatives in 2010, but it is still unknown how other – non-cooperative member households - will have access to loans.
- Plant construction is confined mostly within areas with members of cooperatives, no construction service providers for areas without cooperatives have yet been identified.
- Institutionalization of training activities seems to be another potential challenge. Since the programme locations are far away from each other, one training institute can not serve all target locations. It is not feasible to work with more than one training institution since there is only a very small market for each training institute within the framework of the current programme.

Annex 1: IDBP Work Plan 2009

		2009								
		Inception								Deviation from planning
Activities	Proposal	**M**	**J**	**J**	**A**	**S**	**O**	**N**	**D**	
Establish NBPSO	5.2.1									
Rent office (including office search)										
Enter into contract with SNV										
National Annual Plan and Budget										
Recruit Jakarta core staff										Final in January 2010
Programme structure in place										
Internal structure established										
Advisory Committee established										Postponed to early 2010
Technical Committee										Postponed to early 2010
Coordination mechanisms established										Postponed to early 2010
SOG for area/partner selection and contracting										Ready in January 2010
Selection of most appropr. Technology for Ind.	5.2.2									
Field visit technology expert SNV (incl. user survey)										
Technology workshop resulting in report										
Finalize Bill of Quantity and Design										
Research "risk factors"										
Selection of Programme working areas	5.2.3									
Identification of "pockets of opportunity"										
Submit recommendations of priority areas to AC										Postponed to early 2010
Selection of Target provinces										
Liaise with stakeholders in fine-tuning										Needs continuation in 2010
Gather feedback on demand and subsidy levels										Done through user survey 2010
Prepare Provincial PID Outline										
Mobilise potential credit suppliers	5.2.4									
Identification of financial institutions										
Assess interest in providing credit for biogas										Report in January 2010
Explore options for coop with Rabo Bank F and FMO										To be finalized early 2010
Roll-out credit arrangements										
Development of guidelines/training modules	5.2.5									
Guidelines:										
a. National PID and Provincial PID Outline										Draft available
b. Staff selection/province jobdescriptions										Ready in January 2010
c. Tender and procurement procedures										Ready in January 2010
d. On documenting biogas technical specs/BOQ										Ready in January 2010
e. On subsidy rates and disbursement procedures										Ready in January 2010
f. On (gender-specific) monitoring/quality protocol										Ready in January 2010
g. On development of MIS										Ready in January 2010
h. On accounting and financial reporting										Ready in January 2010

Activities	Proposal	2009 Inception M	J	J	A	S	O	N	D	Deviation from planning
Training modules:										
a. Production of construction manual										
b. Production of user manual										Ready in January 2010
Compilation of complete SOGs:										
Production										Ready in January 2010
Dissemination										Pending
Submit to Advisory Committee										Postponed to early 2010
Additional data collection	5.2.6									
a. Area selection										
b. Target group selection										
c. Institutional assessment and selection										To be continued in 2010
d. Technical selection and selecting most appr techn										
e. Demand, subsidy level, costing (bill of quantity)										User survey 2010
f. Identify pockets of market opportunities										
h. Gender mainstreaming plan										Ongoing
Meetings, networking, workshops, synergy										
Advisory Committee meeting										Postponed to early 2010
Embassy meeting										
Plannning workshop										
End of Inception workshop/launch	5.2.7									
Link with DGEEU, MOA, UNDP and other actors										
Link to Senter Novem to discuss vocational training										TOT undertaken Nov 09
Explore opportunities to engage fund providers (MF)										
Preparation of promotion materials										
International level promotion (broch/website)										
National level promotion										
Provincial level promotion										
Programme planning										
Formulate national level plan (in fact this is the PID)										
Formulate budget 2009										
Forecast 2010										
Formulate overall provincial plans and budgets										Early 2010
Undertake risk assessment										
Training activities										
Various technical training (incl ToT)										
Promotion and marketing training for partners										
Gender mainstreaming training										
ToT as required										

Activities	Proposal	2009 Inception M	J	J	A	S	O	N	D	Deviation from planning
Contracting										
Contract Embassy-Hivos										
Contract HIVOS-SNV established										
Contract technical mission consultants										
Contract institut mission consultants										
Contract microfinance consultants										
Contract first local partner and more										
Provincial setup										
Establish provincial offices	5.3.1									
Event										
Provincial Implementation Activities	5.3.2									
Provincial PID and budget										
Annual Provincial workplans										
Workplans consolidated by NBPSO to submit to RNE										
Promotion	5.3.3									
Provincial (gender sensitive) promotion activities										
Biodigester user training										
Extension	5.3.4									
Effluent user training										
Promoting digester for human waste treatment										
(Other) training programmes	5.3.5									
Mason training										
Assessment of coop with SenterNovem SMK programme										
Business development/management training										
Quality Control training										
Loan Officer training										
Promotion training										
Various other training workshops										
Quality Control and Enforcement	5.3.6									
Quality Control activities (supervisors)										
Quality Control activities (PBPO Biogas technicians)										Still done from national level
R&D and standardization	5.3.7									
Development of local appliances										
Develop local appliances business										

		2009 Inception		Deviation from planning

Activities	Proposal	M	J	J	A	S	O	N	D	
Monitoring and Evaluation	5.3.8									
Establishment of Monitoring systems										
Development of MIS/GIS										
User surveys										
Construction/after sales services quality surveys										
Financial services/ability to pay/subsidy survey										
Effluent use survey										
External evaluation/mid-term review										
Institutional Support	5.3.9									
Seek involvement of prov and district gov'ments										
Engage with other partners: NGOs, FMIs, private sect										
Provide support as required to ensure cooperation										
Emission reduction marketing and follow-up	5.3.10									
CDM Baseline preparations and implementation										
Implement methodology studies as required										
Develop carbon credits marketing mechanisms										
Participate in fairs and expo's										
Discuss carbon credit issues with RNE and DGEEU/AC										
NB PSO tasks during implementation	5.3.11									
Define rules and procedures										
Facilitate the development of communication strat										
Orient the design of training arrangements										
Train users in the use of monitoring systems										
Define reporting arrangements										
Collect and disseminate lessons learned, learning act										
Exit phase activities	5.4									
Quality control exit strategies										
Extension services (slurry) support										
Ensure after care mechanisms										
Final payments and reporting										
Ensure continuity by knowledge transfer to successor										
Phase II arrangements with government and other actors										

Annex 2: IDBP upscaling schedule 2010

Current situation (Dec 2009)

	Malang	Pasuruan	Boyolali	Bandung	Total

Cooperatives	1	1	1	2	5
CPOs	1	1	1	1	4
Sub-districts	1	1	1	2	5
Targeted units	25	25	25	25	100
Expected by Jan 2010	28	25	16	10	79
Dairy factory	Nestlé	Nestlé	FFI	FFI	

Targeting 2010 (tentative)

	East Java	Central Java	West Java	Total
Cooperatives	12	1	6	19
CPOs	6	4	4	14
Districts	Malang Pasuruan	Boyolali Klaten (Yogya) Semarang	Garut Bandung Barat Sumedang	9
Sub-districts	7 (total) Tutur Jabung Ngantang, Pujon and Dodoliri (all Malang), Blitar and Tulung Agung	5 (total) 3 (Boyolali) Mojosongo 1 (Klaten) 1 (Yogya) 1 (Semarang)	4 (total) (Lembang, Bayongbong, Pangalengan, Parompong	15
Targeted units	53 (2009) 225 (Pasuruan) 250 (Jabung) 100 (Malang) 50 Blitar 50 Tulang Agung	16 (2009) 50 Mojosongo 50 Klaten 50 Yogya 50 Boyolali 75 Semarang	10 (2009) 100 Lembang 50 Bayongbong 4 x 50 = 200 200 for additional coops FF	1,300 + 79 = 1,379
Target 2010	675	275	350	1,300
Dairy factory	Nestlé /FFI	FFI/Danone	FFI/Danone	

(proposal target: 2009= 150 units, 2010 = 1,150 units, total 1,300 units)

Capacity building requirements (organizations and persons)

	East Java	Central Java	Bandung	Total
Coops	12	1	6	19

CPO	5	5	4	14
Training sess	3	3	3	9
Trainees	50	25	25	100
Masons trained	72	37	41	150
Masons pool	56	25	32	113
Prov coord	1	1	1	3
Other staff	2	2	2	6

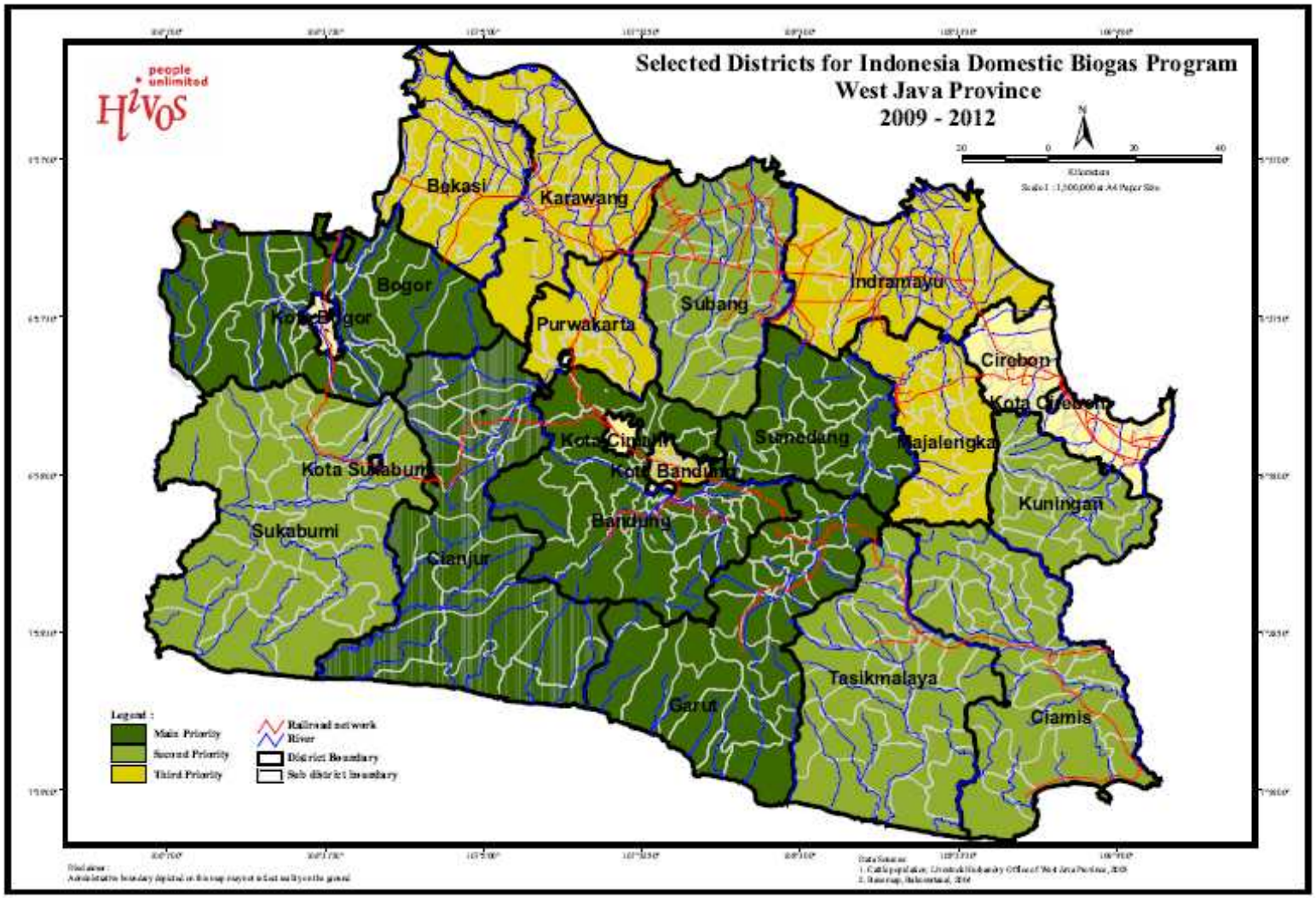
Cycles of 4 months

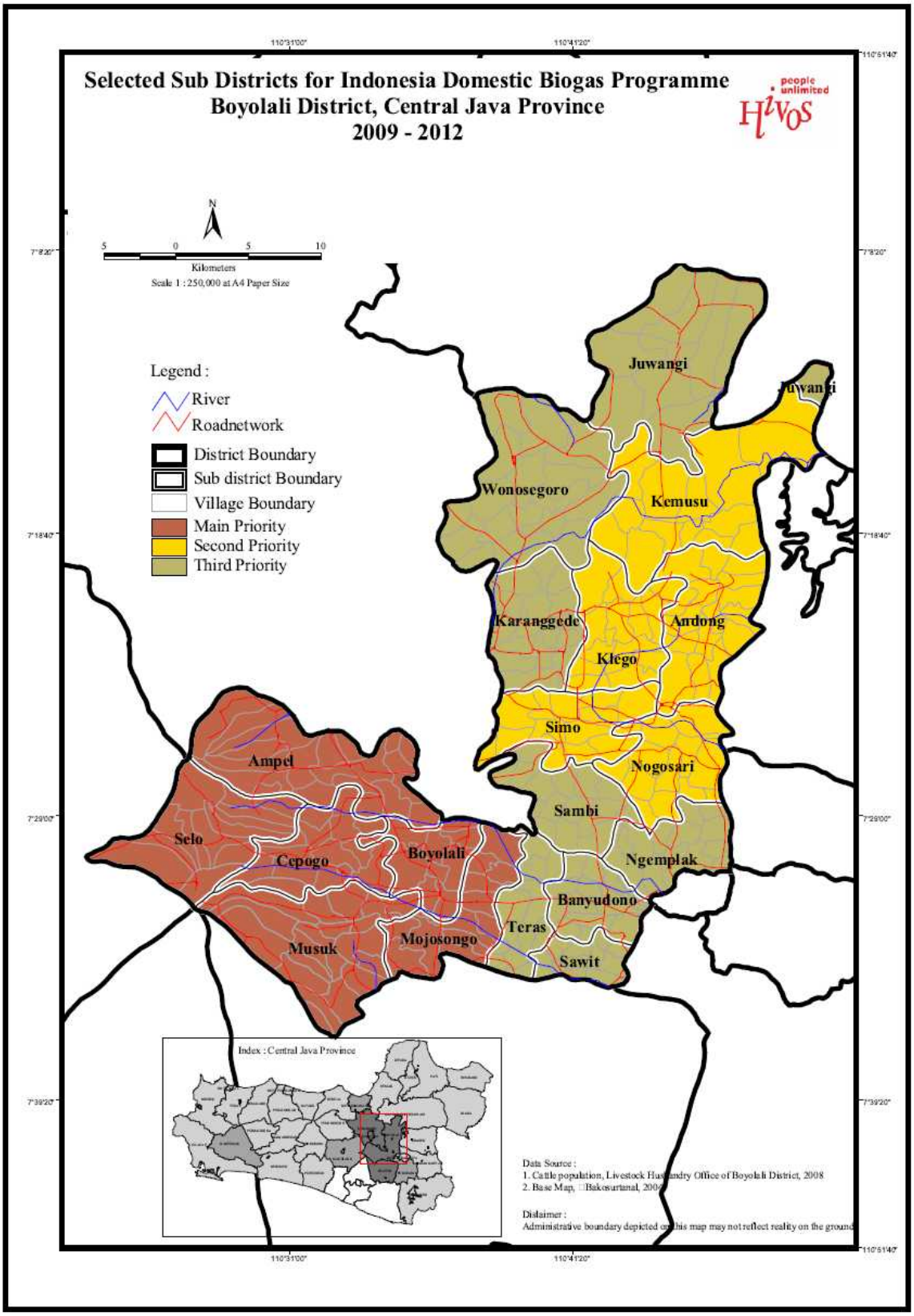
	Batch 1	Batch 2	Batch 3	Total
Time	Jan-April	May- Aug	Sept-Dec	
Coops	5	5	5	19 (15 new)
CPO	4	3	3	14 (10 new)
Training sess	3	3	3	6
Trainees	35	35	35	105 (100)
Masons pool	76	102	127	127
Prov staff	3	3	3	9

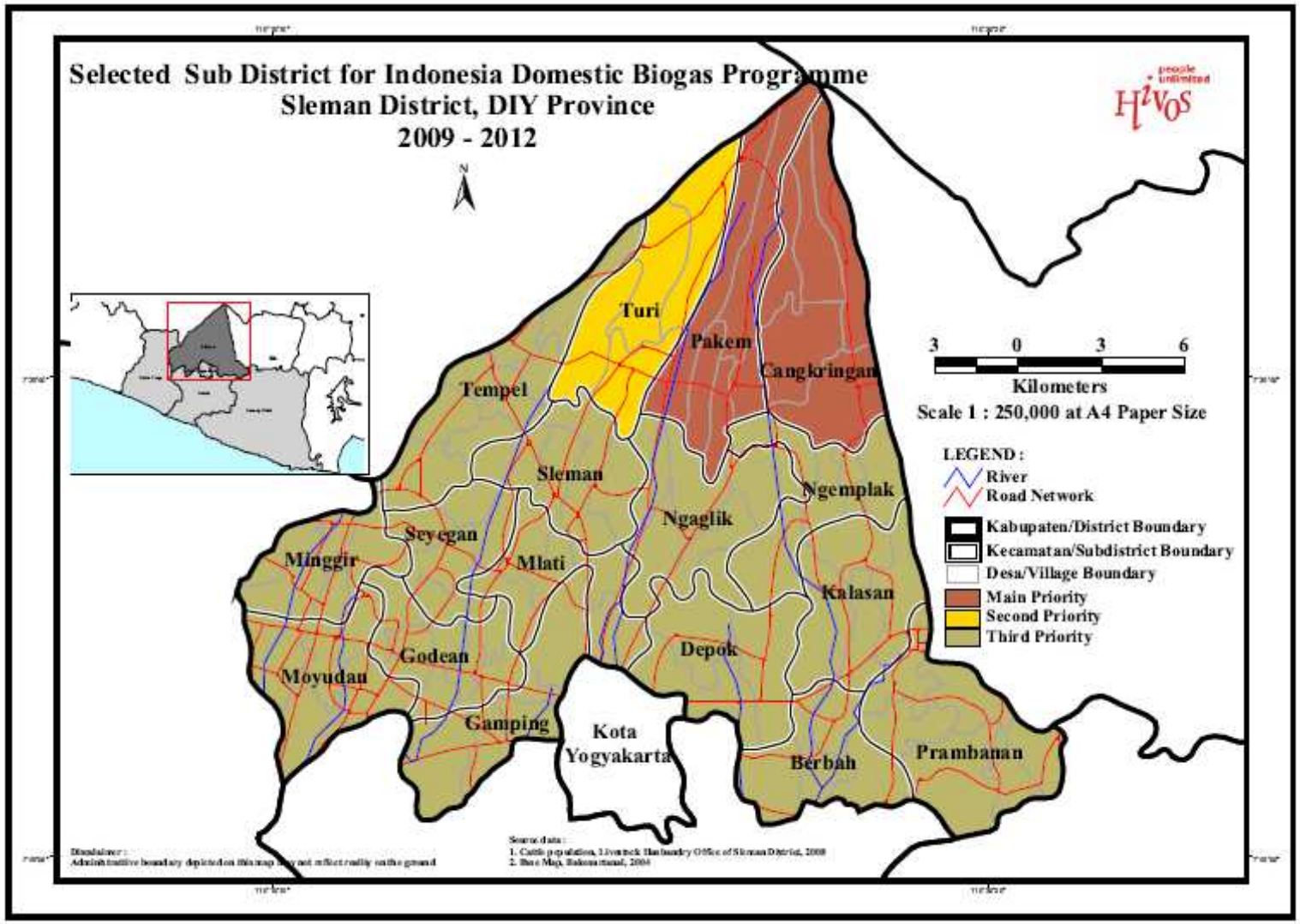
Additional outside Java (optional for 2010)

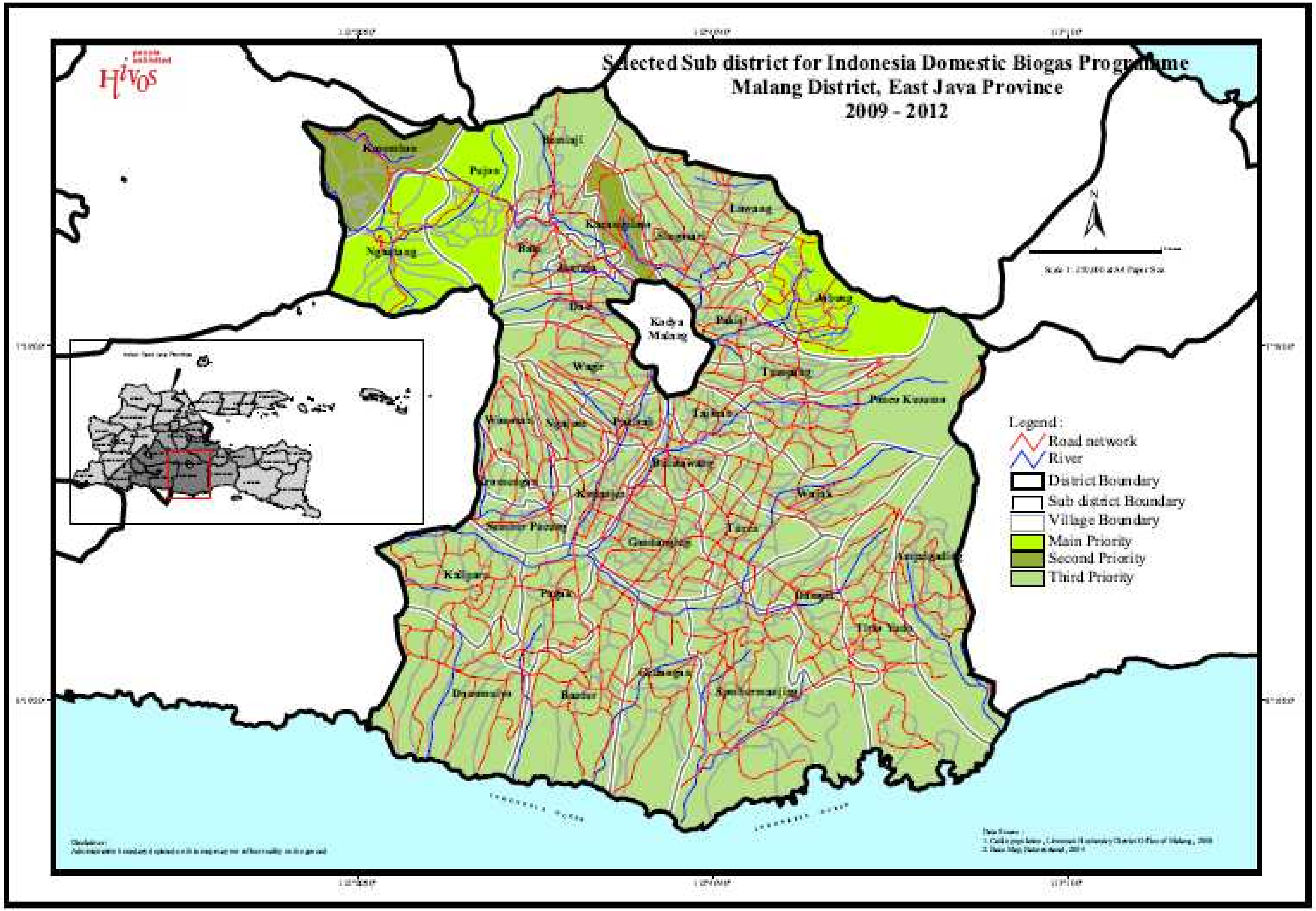
Survey/investigate	Bali	Sulawesi	Sumatra	NTB	Total
CPO	1	1	1	1	4
Sub-districts	1	1	1	1	5
Masons trained	10	10	10	10	40
Targeted units	50	50	50	50	200
Prov staff	1	1	1	1	4

Annex 3: IDBP 2009 target areas

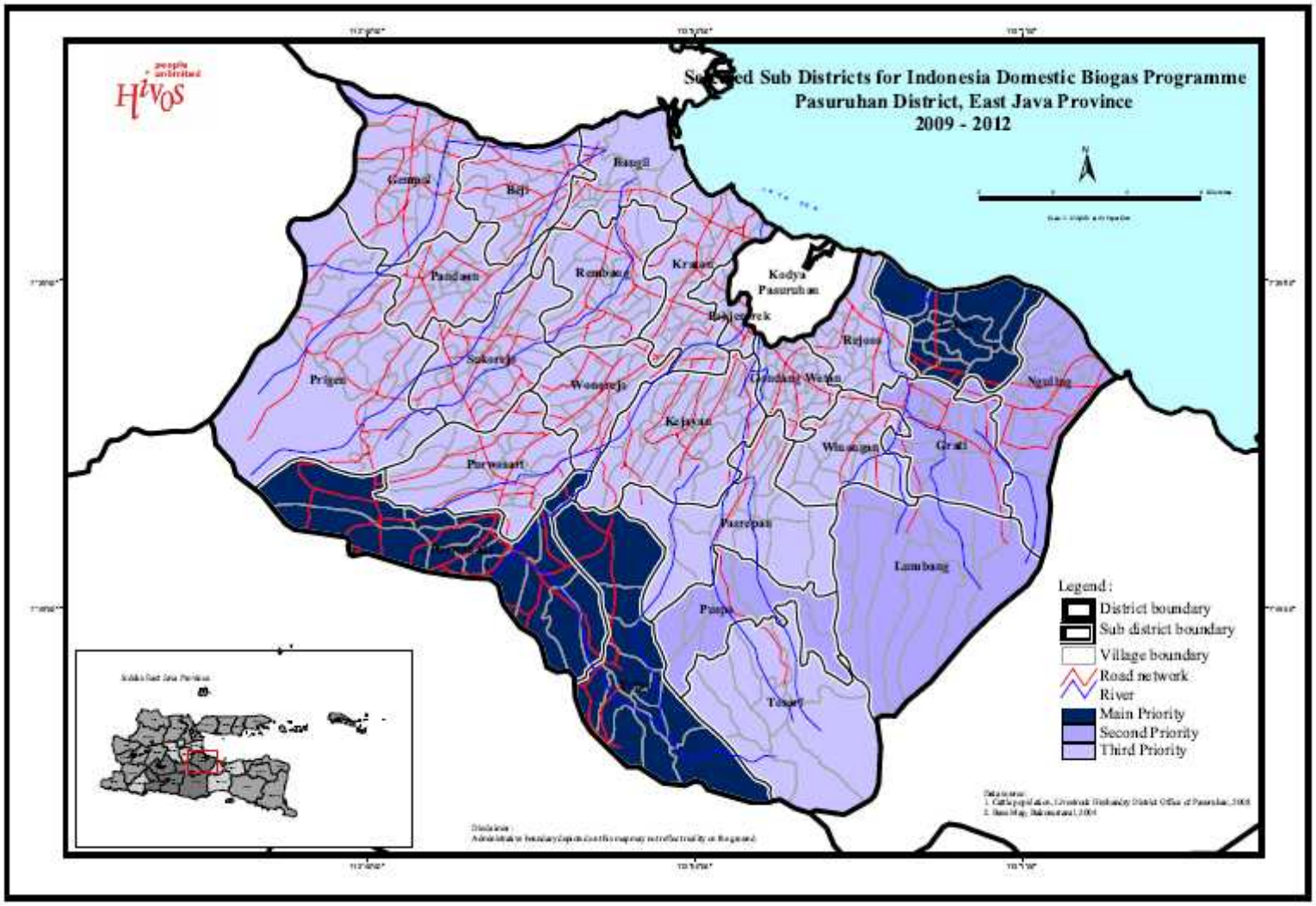



Selected Sub Districts for Indonesia Domestic Biogas Programme
Boyolali District, Central Java Province
2009 - 2012
people unlimited
HIVOS
N
5 0 5 10
Kilometers
Scale 1 : 250,000 at A4 Paper Size
Legend :
River
Roadnetwork
District Boundary
Sub district Boundary
Village Boundary
Main Priority
Second Priority
Third Priority
Juwangi
Wonosegoro
Kemusu
Karanggede
Andong
Klego
Simo
Nogosari
Sambi
Ngemplak
Banyudono
Teras
Sawit
Ampel
Selo
Cepogo
Boyolali
Musuk
Mojosongo
Index : Central Java Province
Data Source :
1. Cattle population, Livestock Husbandry Office of Boyolali District, 2008
Disclaimer :
Administrative boundary depicted on this map may not reflect reality on the ground


Selected Sub District for Indonesia Domestic Biogas Programme
Sleman District, DIY Province
2009 - 2012
N
Turi
Pakem
Cangkringan
Tempel
Sleman
Ngemplak
Ngaglik
Seyegan
Minggir
Mlati
Kalasan
Depok
Godean
Moyudan
Gamping
Kota Yogyakarta
Berbah
Prambanan
3 0 3 6
Kilometers
Scale 1 : 250,000 at A4 Paper Size
LEGEND :
River
Road Network
Kabupaten/District Boundary
Kecamatan/Subdistrict Boundary
Desa/Village Boundary
Main Priority
Second Priority
Third Priority

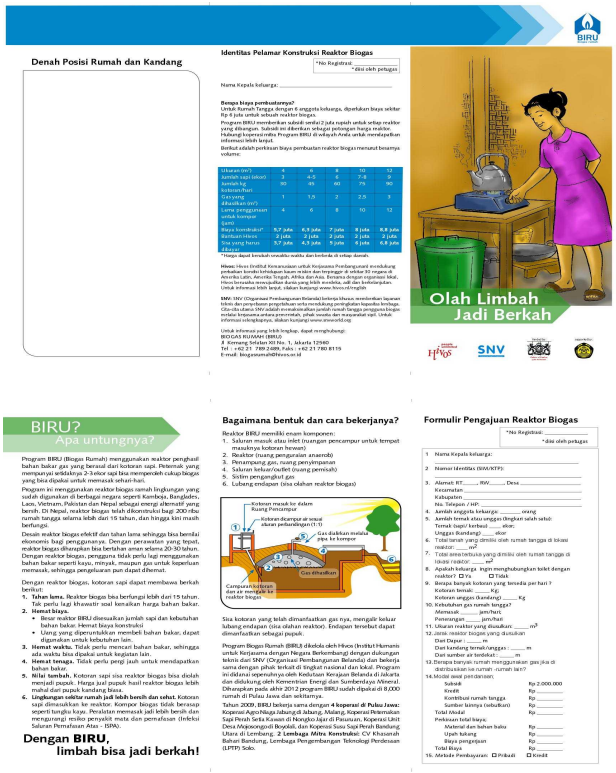


Selected Sub district for Indonesia Domestic Biogas Programme
Malang District, East Java Province
2009 - 2012
Pujon
Lawang
Kodya Malang
Wagir
Wajak
Turen
Kalipare
Pagak
Bantur
Legend :
Road network
River
District Boundary
Sub district Boundary
Village Boundary
Main Priority
Second Priority
Third Priority


Suggested Sub Districts for Indonesia Domestic Biogas Programme
Pasuruhan District, East Java Province
2009 - 2012
Gempol
Beji
Bangil
Pandaan
Rembang
Kraton
Kodya Pasuruhan
Rejoso
Sukorejo
Prigen
Winongan
Grati
Purwosari
Pasrepan
Lumbang
Puspo
Tosari
Legend :
District boundary
Sub district boundary
Village boundary
Road network
River
Main Priority
Second Priority
Third Priority

Annex 4: Photos documentation IDBP 2009

(1) Left-right: BIRU Poster calendar & BIRU wall clock.



(2) BIRU brochure in Bahasa Indonesia.

(3) Souvenirs for the programme launch, 3 December 2009

Gas "Kohe" Dinilai Lebih Aman dari Elpiji

PENGGUNA sumber energi minyak bumi saat ini sebanyak 48 persen. Padahal cadangan sumber energi minyak bumi saat ini diperkirakan hanya mampu bertahan hingga 20 tahun yang akan datang. Sementara itu, gas bumi tersisa untuk 60 tahun, sedangkan batu bara akan habis dalam kurun waktu 100 tahun lagi. Perkiraan waktu tersebut akan lebih cepat apabila pengguna energi terus bergantung dan boros dalam pemakaiannya.

Penggunaan sumber energi terbarukan menjadi alternatif terbaik di tengah krisis energi yang melanda dunia saat ini. Biogas, biomassa padat, panas bumi, *biofuel*, tenaga surya, tenaga angin, dan tenaga samudra (arus, gelombang) merupakan salah satu bentuk energi terbarukan itu.

Seperti dikatakan Ratna Ariati, Direktur Energi Terbarukan dan Konservasi Energi dari Departemen Energi dan Sumber Daya Mineral, biogas adalah salah satu energi terbarukan yang telah memasyarakat. Dia ditemui di sela-sela kegiatan peluncuran "8.000 Biogas Rumah untuk Enam Provinsi" di kediaman Dedi Setiadi Ketua Peternak Susu Bandung Utara (KPSBU), Jln. Kol Masturi, Kp. Pamecelan, Desa Sukajaya. Kec. Lembang, Kab. Bandung Barat, Kamis (3/12).

Menurut Ratna, penggunaan kotoran hewan (kohe) ternak untuk menghasilkan gas (biogas) cocok dikembangkan di wilayah sentra peternakan sapi seperti di Jawa Barat, Jawa Timur, dan Bali. Sementara itu, untuk daerah perkotaan, kotoran manusia sudah mulai digunakan sebagai penghasil biogas. Hal itu telah diterapkan sebagian warga di Jakarta.

Ratna menuturkan, beralihnya penggunaan energi pada sumber energi terbarukan itu diharapkan akan tercapai pada tahun 2025 sesuai dengan target pemerintah.

Untuk biogas dari kohe, teknisi biogas Teja Hatjaya menuturkan, gas yang dihasilkan dari kohe terbukti lebih aman dibandingkan dengan gas elpiji karena struktur kimia yang berbeda. Meskipun elpiji mempunyai daya bakar lebih kuat, tetapi justru lebih berbahaya karena mudah terbakar api. Biogas dinilai lebih aman karena tekanannya lebih rendah.

Dia menjelaskan, untuk mendapatkan energi itu, khususnya penduduk di desa yang memiliki ternak sapi, akan lebih mudah dan murah. **(Novianti Nurulliah/-"PR")***

SEORANG pekerja mengaduk kotoran sapi di mesin pengaduk penghasil energi biogas, di Kampung Pamecelan, Desa Sukajaya, Kecamatan Lembang, Kabupaten Bandung Barat, Kamis (3/12). Energi Biogas adalah salah satu pilihan energi terbarukan yang memiliki potensi untuk dikembangkan, sebagai pengganti bahan bakar kayu yang sudah minim dan harga minyak tanah yang semakin mahal."

8.000 Rumah Biogas Dibangun

Reaktor Memanfaatkan Kotoran Sapi

BANDUNG, KOMPAS — Pemerintah Kerajaan Belanda melalui kedutaan besarnya di Indonesia memberikan bantuan Rp 16 miliar untuk pembangunan 8.000 unit reaktor biogas rumah. Biogas rumah atau "biru" tersebut memanfaatkan kotoran sapi.

Pembangunan biogas rumah yang ramah lingkungan tersebut untuk mendorong penggunaan energi terbarukan, sekaligus mengurangi konsumsi bahan bakar fosil.

Programme Manager Indonesia Domestic Biogas dari Hivos, lembaga swadaya masyarakat yang mengoordinasi pengembangan program "Biru di Indonesia", Robert de Groot, mengatakan, biogas rumah tersebut sasarannya adalah para peternak sapi perah di Lembang, Kabupaten Bandung Barat, Jawa Barat.

"Setiap peternak yang mau membangun biogas rumah akan mendapat subsidi Rp 2 juta," kata Robert de Groot.

Kepala Divisi Ekonomi dan Perdagangan Kedutaan Besar Belanda Renate Th Pors menambahkan, peternak menjadi sasaran program karena bahan bakunya yang berupa kotoran sapi melimpah. Sebagian kotoran dimanfaatkan untuk kepentingan mereka sendiri.

"Pemberian subsidi diharapkan bisa mendorong minat peternak untuk membangun biogas rumah serta merawatnya dengan baik," ujarnya.

Kubah beton

Robert mengatakan, program Biru dikembangkan menggunakan reaktor kubah beton karena lebih kokoh dan tahan dibandingkan plastik yang sudah banyak digunakan selama ini. Desain tersebut sudah diaplikasikan di Nepal dan mampu bertahan di iklim subtropis hingga 20 tahun.

> **Karena telah disubsidi Rp 2 juta, peternak tinggal menambah Rp 4,3 juta saja dan dapat dimanfaatkan selamanya.**
> Robert de Groot

Biaya pembuatan reaktor bervariasi tergantung dari jumlah kepemilikan sapi. Untuk peternak dengan kepemilikan sapi 3-4 ekor, misalnya, dapat membuat reaktor biogas berkapasitas 6 meter kubik dengan biaya Rp 4,3 juta.

"Karena telah disubsidi Rp 2 juta, peternak tinggal menambah Rp 4,3 juta saja dan dapat dimanfaatkan selamanya," ujar Robert de Groot.

Untuk reaktor biogas berukuran 6 meter kubik, dibutuhkan kotoran sapi sebanyak 46 kilogram per hari. Ini dapat menghasilkan 1,5 meter kubik gas per hari atau setara dengan penggunaan kompor selama enam jam per hari tanpa henti. Dalam program ini, volume reaktor biogas terbesar yang ditawarkan berukuran 12 meter kubik dengan biaya konstruksi hingga sebesar Rp 8,8 juta.

Dalam kesempatan itu, Direktur Energi Baru Terbarukan dan Konservasi Energi Direktorat Jenderal Listrik dan Pemanfaatan Energi Departemen Energi dan Sumber Daya Mineral Ratna Ariati mengatakan, pemerintah sangat mendukung program Biru tersebut. Sesuai dengan Peraturan Presiden Nomor 5 Tahun 2006, pemerintah menargetkan penggunaan energi terbarukan pada tahun 2025 bisa mencapai 10 persen dari keseluruhan konsumsi energi nasional.

"Saat ini penggunaannya belum mencapai 1 persen. Kami berharap pemanfaatan energi terbarukan dapat dimulai dari skala masyarakat terkecil, yakni keluarga. Lembang merupakan salah satu potensi besar karena setidaknya terdapat 6000 peternak sapi perah di daerah ini," ujarnya.

Teja Harjaya, *biogas engineer* CV Khasanah Babari, yang menjadi pelaksana konstruksi program Biru ini mengatakan, setelah dikubah dalam reaktor, biogas yang dihasilkan dari kotoran hewan sama sekali tidak berbau seperti layaknya bahan gas pada umumnya. Pihaknya memberi garansi kelancaran konstruksi hingga tiga tahun pada para konsumen.

"Kami juga berharap, pembuatan konstruksi reaktor biogas rumah tangga mendapat Standar Nasional Indonesia (SNI). Dengan demikian, masyarakat bisa lebih percaya dan tertarik," katanya. (GRO)

(4) Two media coverage of BIRU Launch, December 2009.

Untuk informasi lebih lanjut, silakan hubungi:

Koperasi Peternakan Sapi Perah Setia Kawan
Bapak H. Hariyanto
Jl. Raya Nongkojajar 38
Kecamatan Tutur
Pasuruan 67165
HP. 0812 522 8446
dan 085 6464 55 889

Biogas Rumah (BIRU)
Rr. Agi S. Cakradirana
Jl. Kemang Selatan XII No. 1
Jakarta Selatan 12560
E-mail: biogasrumah@hivos.or.id
Telp: 021 – 789 24 89 Psw. 112

Diimplimentasikan oleh: Didanai oleh: Didukung oleh:

Daftar Kisaran Harga dan Cicilan Pembangunan Reaktor Biogas
KPSP Setia Kawan, Desa Wonosari, Kec. Tutur, Kab. Pasuruan
Jawa Timur – Indonesia
(Harga per Januari 2010)*

NO.	JUMLAH SAPI DEWASA YANG DIMILIKI PETERNAK	UKURAN REAKTOR	(DALAM RUPIAH)			
			HARGA TOTAL	SUBSIDI BIRU	HARGA SETELAH SUBSIDI	ANGSURAN PER BULAN
						5 TAHUN (60 BULAN)
1.	2 ekor	4 M³	5,700,000	2,000,000	3,700,000	82,304
2.	3 - 4 ekor	6 M³	6,100,000	2,000,000	4,100,000	91,202
3.	4 - 5 ekor	8 M³	6,400,000	2,000,000	4,400,000	97,875
4.	6 - 7 ekor	10 M³	7,100,000	2,000,000	5,100,000	113,446
5.	8 - 10 ekor	12 M³	7,700,000	2,000,000	5,700,000	126,793

(*) Harga dapat berbeda di tiap daerah dan dapat berubah sewaktu-waktu tanpa pemberitahuan terlebih dahulu.

Untuk informasi lebih lanjut, silakan hubungi:

Koperasi Agro Niaga (KAN) Jabung
Khoirul Huda
Jl. Suropati 4 - 6 Desa Kemantren
Kec. Jabung, Kab. Malang, 65155
Telp. 0341 791 227
HP. 0813 3476 4062

Biogas Rumah (BIRU)
Rr. Agi S. Cakradirana
Jl. Kemang Selatan XII No. 1
Jakarta Selatan 12560
E-mail: biogasrumah@hivos.or.id
Telp: 021 – 789 24 89 Psw. 112

Diimplimentasikan oleh: Didanai oleh: Didukung oleh:

Daftar Kisaran Harga dan Cicilan Pembangunan Reaktor Biogas
Di KAN Jabung, Kabupaten Malang
Jawa Timur - Indonesia
(Harga per Januari 2010)*

NO.	JUMLAH SAPI DEWASA YANG DIMILIKI PETERNAK	UKURAN REAKTOR	(DALAM RUPIAH)					
			HARGA AWAL	SUBSIDI BIRU	HARGA SETELAH SUBSIDI	ANGSURAN PER PERIODE		
						JUMLAH PERIODE**	ANGSURAN	JANGKA WAKTU
1.	3 - 4 ekor	4 M³	4,500,000	2,000,000	2,500,000	51	70,000	17 bulan
2.	5 - 6 ekor	6 M³	5,100,000	2,000,000	3,100,000	54	79,500	18 bulan
3.	7 - 8 ekor	8 M³	5,600,000	2,000,000	3,600,000	55	87,150	18 bulan
4.	9 - 10 ekor	10 M³	6,500,000	2,000,000	4,500,000	58	101,150	19 bulan
5.	11 - 12 ekor	12 M³	7,000,000	2,000,000	5,000,000	59	108,950	19 bulan

(*) Harga dapat berbeda di tiap daerah dan dapat berubah sewaktu-waktu tanpa pemberitahuan terlebih dahulu.
(**) JUMLAH PERIODE (Periode pembayaran susu setiap 10 hari sekali)

(5) Left-Right: Price brochures from Setia Kawan and Jabung Cooperatives. Prices are varied in each places, depending on, amongst others, construction materials availability and labour's fee.

(6) Biogas stove approved by BIRU Programme, manufactured by a local company.

(7) Experts and stakeholders had a two-day discussion to select the most appropriate biogas technology to be implemented by BIRU programme, June 2009.

(8) The technology selection result was discussed again in September 2009, together with the implementation strategy. Many people who were pro-plastic digesters in June opted for the fixed dome type during this workshop.

(9)Clock-wise: works to lay a digester's foundation, done during mason trainings in Boyolali-Central Java, Kaliandra-East Java and Lembang-West Java.

All photos are courtesy of BIRU Programme 2009.

Annex 5: Meetings during 2009

During 2009, the master plan team has had (amongst others) meetings with the following persons and/or institutions:

Provincial/Regional Government

1. Tomie Herawanto, Economic and Social Welfare Unit, BAPPEDA, Malang,East Java.
2. Government Representative/relevant agencies of BAPPEDA, Malang (Public Works, Husbandry and Energy), East Java.
3. Hedy, Research Advisory Board, Malang, East Java.
4. Aan, Directorate General of Electricity and Energy Utilization, Bandung, West Java.
5. H.A. Kholiq Arif, Head District of Wonosobo, West Java.
6. Aceng H.M. Fikri,S.Ag, Head District of Garut, West Java.
7. Participants of Desa Mandiri Energy Event.

National Government

8. Ratna Ariati, Director of New and Renewable Energi and Conservation, Directorate General of Electricity and Energy Utilization, Jakarta.
9. Fitria A. Firman, Head Division of Programme Energi Perdesaan, Directorate General of Electricity and Energy Utilization, Jakarta.
10. Dadan Kusdiana, Head of Sub Direktorat Energi Perdesaan, Directorate General of Electricity and Energy Utilization, Jakarta.
11. Ir. Tati Setiawati, Directorate of Ruminant Farming, Directorate General of Livestock Services, Ministry of Agriculture, Jakarta.
12. Damayanti, Head of Fund Division, Ministry of Environmental, Jakarta.

Donor

13. Marnix Segers, Renate Pors, Royal Netherland Embassy, Jakarta.

Non-Governmental Organizations

14. Sutiah, LPKP (Lembaga Pengkajian Kemasyarakatan dan Pembangunan), Malang, East Java.
15. Eric Kamphuis and Willem van Burgsteden, ETC Energi, Jakarta.
16. Suryanto, LPTP Yogyakarta, Central Java.
17. Fifi, Mellina and Daniel, CU Sawiran, Pasuruan, East Java.
18. Ir. Anggawira, MM, Vice Secretary Genderal of Indonesia Peasant Council, Jakarta.

International Agencies

19. Janti Gunawan and Steve Schmidt, ILO Surabaya Office, East Java.
20. Irfan Afandi, ILO Malang Office, East Java.
21. Clem Bibo, Bas Rekvelt, Senior Investment Officer, FMO, The Hague.
22. Harry Oppenoorth, Fleur de Bruijn, Eco Matsers, Allert van der Ham, Manuela Monteiro, Hivos Head Office.
23. Matthieu Cognac, ILO Jakarta Office.
24. Verania, UNDP Jakarta Office.
25. Participants of Asian Biogas Conference, Nepal.
26. Members of Joint Energy Working Group, Netherlands – Indonesia.

27. Jan Lam, Felix ter Heegde, Wim van Nes, SNV
28. Iris van de Velde and Sri Hartawan Indriadi, Rabobank Foundation, Jakarta.

Private Sector

29. Bambang Cahyono, CV. Khazanah Bahari, Bandung, West Java.
30. ABN Amro LOI, Jakarta.
31. Efi Lutfillah and Hendro H. Poedjono, Frisian Flag/Frieslandfood, Jakarta.
32. Agus B. Sutopo, KATAMA, Jakarta.
33. Puguh Iryantoro, Prajadwipa Profesional, Jakarta.
34. Dadak Retno Widjajanti, Senior Manager, Micro Business Group, PT. Bank Mandiri Tbk., Jakarta.
35. Peter Grogan and Ir. Anggawira, MM.; PT. Bumi Karya Artha, Jakarta.
36. Sentot, BTPN, Jakarta.
37. Lubnan, PT. Bank Syariah Mandiri, Solo, Central Java.
38. Deborah Tjandrakusuma, Nestlé Jakarta Office.
39. Manu Sharer, Nestlé Malang Office.

Education Institutions

40. Dr. Ir. Purwadi and Students of Brawijaya University, Malang, East Java.
41. Dr. Imam Permana, TEDC, Bandung.

Consultants

42. Ifnu Setiadi, Biogas Expert.
43. Arief Lukman Hakim and Wahyu Sutisna, ESP, Malang, East Java.
44. Michael Schultz and Maria Epik, Yogyakarta, Central Java.
45. Gerhard Fischer and Komarudin, PT. Entec Indonesia, Bandung, West Java.
46. Paul Osborn and Eriell, SenterNovem Book Writer.
47. Nico van der Linde, ECN (Energy research Center of the Netherlands)
48. Sinta Satriana, PID Consultant, Jakarta.
49. Delima Kiswanti, Financial Consultant, Jakarta.
50. Miki Salman, Iconic Island, Jakarta.
51. Ales Pachmann
52. Dewi Anggraini, GIS/MIS Consultant, Jakarta.
53. Rio, BISMA, Jakarta.

Cooperatives

54. Kusnan and Hariyanto, KPSP Setia Kawan, Pasuruan, East Java.
55. Khoirul Huda, KAN Jabung, East Java.
56. Darmanto, KSU Al-Mizan, Malang, East Java.
57. Uyung Pramudyanto, Raymond Obunga, Sue Marriott and Victoria Mack, Infront (Institute of Forest and Environment) and Landcare, Yogyakarta, Central Java.
58. Dedi Setiadi, Head of Koperasi Peternak Susu Bandung Utara, Lembang, Bandung, Central Java.
59. Santoso, Head of KUD Mojosongo, Boyolali, Central Java
60. Dede Rahmat, Chairman of KPPC Mulya Cooperative, Parompong, West Java.
61. Mustahid, Chairman of Bayongbong Cooperative, West Java.
62. Bambang, Secretary of Bayongbong Cooperative, West Java.

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