RWEDP Report No. 54

REGIONAL WOOD ENERGY DEVELOPMENT PROGRAMME IN ASIA
GCP/RAS/154/NET

DEVELOPMENT AND IMPLEMENTATION OF ICS PROGRAMMES

NATIONAL WORKSHOP

Mataram, Lombok, Indonesia

27 November - 5 December 1996

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
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FOREWORD

In many countries including those in Asia, the need for improved cookstoves (ICS) is still very great. This situation is expected to remain so as for the next few decades wood and biomass will continue to be the main source of energy for many people in particular in rural areas. Furthermore, notwithstanding the great advances made in this field in China and India, not even half of the households in Asia have adopted improved cook stoves. For that reason continuous efforts from both GOs and NGOs to disseminate improved cook stoves are still required to improve the situation.

The socio-economic and environmental benefits of ICS and their benefits in terms of improved health and relief of drudgery, particularly for women and children, may be obvious. However, the complexities associated with the design, production and introduction of improved stoves are not always appreciated. Outsiders often find it difficult to understand why the dissemination of such a simple commodity meets so many obstacles. Unfortunately, also quite a few people who are personally involved in stove activities are not fully familiar with the intricacies of building and disseminating improved cook stoves.

To rectify this situation the Regional Wood Energy Development Programme (RWEDP) and the Asia Regional Cookstove Programme (ARECOP) jointly developed training modules (consisting of manuals for use by trainers and trainees which preferably should be translated into the national language) for use in national training courses to be held throughout the region. The national training courses are envisaged as being highly participatory and aim to transfer the relevant design and dissemination skills by hands-on training. Such courses, it is believed, will lead to better quality control and more effective strategies for meeting users' needs and overcoming any obstacles to stove adoption.

In order to test out these training modules, a national training course was organized in Indonesia and this report describes the outcome of the training course as well as provides recommendations for follow-up national training courses to be organized jointly by RWEDP and ARECOP.

Thanks are due to the team of ARECOP, who were instrumental in organizing and guiding this first national training course, for their tireless efforts to help improve the household energy situation in Asian countries.

Auke Koopmans
Chief Technical Adviser/
Wood Energy Conservation Specialist
FAO-RWEDP

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PART I. PROCEEDINGS

1. INTRODUCTION

The Indonesian Training Course on the Strengthening of ICPs (Improved Cookstove Projects) Technical Skills and Programmatic Knowledge was held in Mataram, Lombok, from November 27 - December 5, 1996. The training course was the first of five training courses to be held throughout the Asia region using a training module developed by ARECOP (Asia Regional Cookstove Program).

The Indonesian training was organized by ARECOP in partnership with a local NGO, Pusat Studi Pembangunan (PSP) and FAO-Regional Wood Energy Development Programme (FAO-RWEDP). The training was made possible through the support of FAO-RWEDP.

The entire training team consisted of eight persons: three trainers, three organizers from ARECOP, and two observers. The trainers were Mr. Aryanto Soedjarwo and his assistant Mr. Sunarno from Yayasan Dian Desa, and Mrs. Emma Wibowo. Mr. Soedjarwo has been involved in Indonesian ICPs since their inception and has acted as a trainer on cookstove design and construction on a number of training courses. Mr. Sunarno has also been involved in technical training and in the implementation of ICPs. Mrs. Wibowo is a professional trainer with experience in participative methods and expertise in issues of environment and gender in addition to project planning. The organizers from ARECOP were Mrs. Christina Aristanti, (ARECOP Manager), Ms. Michelle Schulein, and Mrs. Maria Beata Asih Pratiwi. The observers were Ms. Lydia Braakman, a training expert from the Regional Community Forestry Training Center (RECOFTC), and Mr. Auke Koopmans, FAO-RWEDP.

The 20 participants came from 11 of the 27 Indonesian provinces. Participants working on the islands of Sumatra, Java, Madura, Lombok, Flores, Kupang, Kalimantan, Irian Jaya and Sulawesi attended. The training was designed for field workers involved in ICPs. Participants came from diverse backgrounds including NGOs, government institutions and research institutions.

1.1 Background of the Indonesian Training Course

Indonesian ICPs were initiated more than fifteen years ago by a few organisations and individuals. Since then many training courses have been held, organised by individuals, the government, NGOs and artisans producing ICs (improved cookstoves), primarily in provinces where fuelwood is scarce. As a result, communities in some areas where traditional stoves were used have experienced the benefits of ICPs.

However, many ICPs have not met with success, mainly because the communities targeted were not satisfied with the designs, or because the designs where not appropriate for their style of cooking or the types of food and fuel used.

These failures can be partly attributed to the fact that the training courses held over the past fifteen years have been limited to one or two technical stove designs, whilst Indonesia is a country which consists of many diverse tribes with various cultures, habits and geographic conditions. ICPs have not addressed the needs and preferences of specific target groups, precisely because project staff have not been equipped with the skills and knowledge necessary

to do so. The ability to construct stoves based on only one or two designs has been the weakness of many ICP field workers.

The lack of understanding of basic principles of ICPs and the dearth of technical skills have led to ICP staff being unable to:

- Collect and analyze the information needed to assess communities' needs;
- modify traditional stoves and/or develop new stove designs, resulting in only one stove design being introduced to various user groups with different habits and patterns of cooking;
- understand the many benefits a cookstove offers, resulting in ICPs which are not integrated with other development programs;
- analyse the results of an ICP and the influences on its target group.

Because of low project success rates donors have lost confidence in the integrity and benefits of ICPs, despite the large amounts of time, funds and energies invested in them.

Many organisations are aware of a need to strengthen their skills and knowledge to overcome the problems they face in the field and have requested training.

In answer to these needs and requests of organisations and individuals involved in ICPs, ARECOP and FAO-RWEDP, Bangkok, Thailand embarked on a co-operative effort to develop a training module and to organise a training course (based on the module) which not only offered training in the construction of a specific stove design but also transferred basic technical skills involved in stove design. The hope was that after the training course participants would be better equipped to develop their own stove designs or stove design modifications which are based on the needs and preferences of their target groups. In addition, the training was designed to transfer non-technical skills, which are necessary to ensure that the designs are appropriate, and reach their target groups.

1.2 Objectives of the Training Course

The objectives of the training course were twofold:

- To transfer the technical skills and knowledge to ICP field workers to ensure that an appropriate stove model is selected/designed.
- To improve the acceptance rate of ICs in Indonesia.

It should also be noted that as this Indonesian training was the first of five national training courses planned by ARECOP and FAO-RWEDP and it was therefore the first trial of the training module developed by ARECOP.

1.3 The Training Module

The module, which essentially consists of a model training course, comprises 2 manuals:

1. A Trainee Manual which contains information related to the model training course promulgated by the module and handouts used during the training course. It includes chapters on biomass use in Asia; assessing the community context, the kitchen, and the

stove user; gender analysis; stove design; stove construction; stove dissemination; monitoring and evaluation; stove selection as a socio-technical process. There are also a number of annexes consisting of assessment tools, samples of assessment information, various IC designs, a pre-training assessment form and a list of references and contacts. This manual is for distribution to participants before the start of a training course.

2. A Trainers Manual which is divided into three parts. The first part, which is the briefest, provides a framework for a 10 days training course and introduces a four stage model of the stove selection process; the second part, comprising the bulk of the manual, presents the 40 sessions which comprise the model training course (a list of these sessions can be found in Appendix 2); the third part of the manual gives advice and guidance on formulating a training agenda.

The goal of the training module is to increase the acceptability of improved stoves within the countries where the training is held. The targets of the training are ICP field workers. The training aims to transfer skills so that ICP field workers are able to:

- evaluate current stove designs based on combustion and heat transfer concepts, knowledge of raw materials and technical stove parts in addition to the needs, wants and conditions of the target group;
- determine appropriate modifications/improved stove designs based on the needs, wants and conditions of the target group in addition to technical knowledge;
- become familiar with construction techniques for a selection of different stove designs;
- determine an appropriate dissemination strategy based on existing technology dissemination channels and the improved stove design to be disseminated;
- incorporate gender analysis into stove design selection and introduction; and
- monitor the progress of a stove program and troubleshoot where necessary.

Essentially the model training course is designed to develop the trainees' understanding of the four stage stove selection process (see Figure 1). Practically, this is to be achieved by means of the trainees determining an improved cookstove design for a case study area, and then, during the final day of the training course, determining an improved cookstove design for the area in which they normally work. The training is highly participatory in nature.

1.4 Opening Ceremony

The opening ceremony was attended by the organisers, trainers, participants, invited guests and the Provincial Vice Governor. The program was as follows:

Welcome Address and Course Introduction *by Ms. Christina Aristanti, Manager, ARECOP*

Welcome Address *by Mr. Eng. Endro Utomo Notodisuryo, Director of Energy Development, Dept. of Mining and Energy*

Keynote Address *by Dr. Willem S. Hulscher, Chief Technical Advisor, FAO-RWEDP*

Innaugural Address and Opening *by Mr. H. Lalu Azhar, Provincial Vice Governor, Nusa Tenggara Barat*

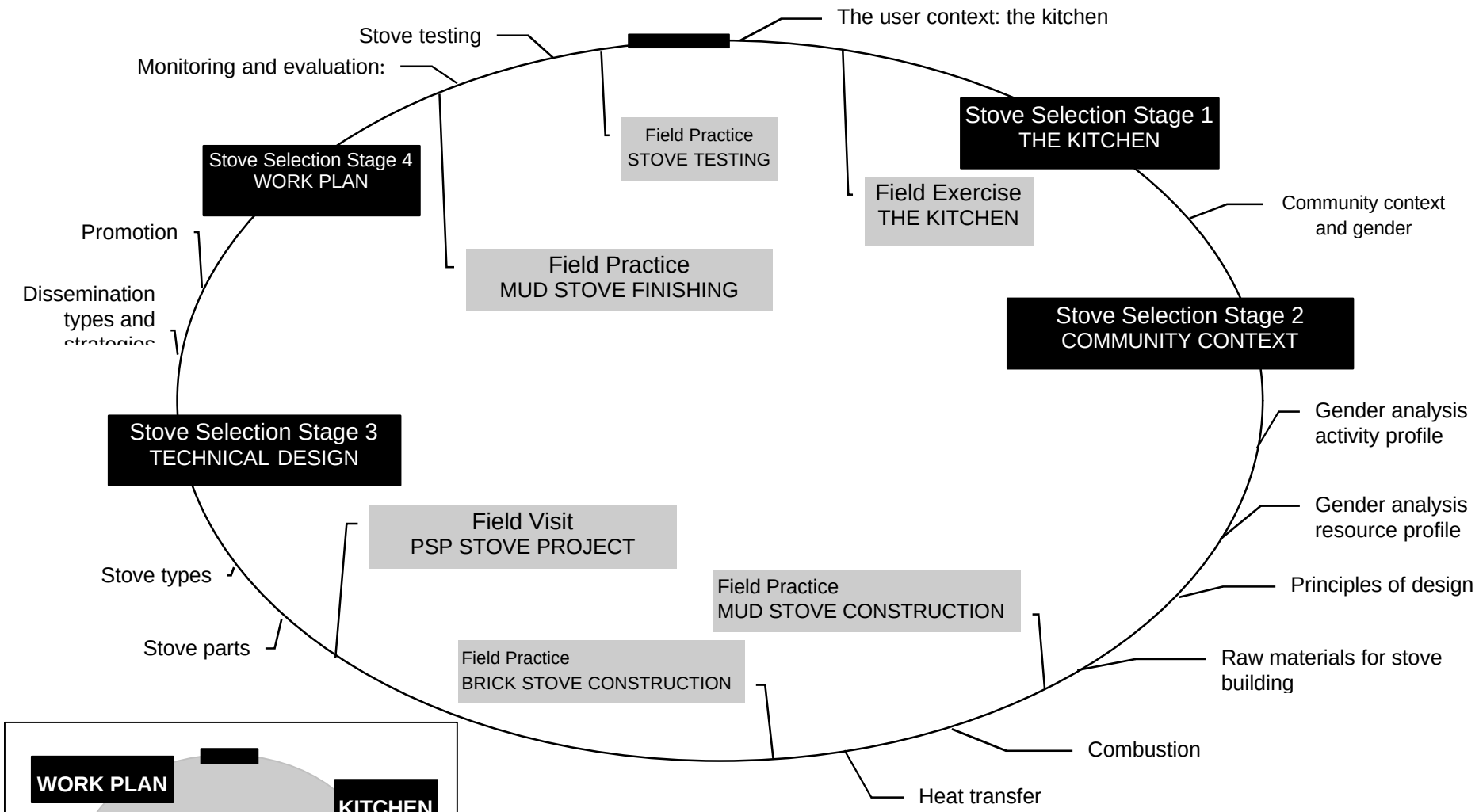


Figure 1: Model of National Training Framework

2. THE TRAINING COURSE

The training course was designed to allow the participants as much opportunity as possible to develop and analyse stove designs and dissemination strategies as well as to assess if the stoves would suit the target communities. These aims were reflected in each of the training sessions (where participatory methods were used), in the field exercises (where the participants analysed the prospective recipient community group and developed the most appropriate design), in the stove building and stove testing sessions, and in the session devoted to action plan development.

To make the training useful for all participants, they were asked to list their goals and expectations before the training started. They were also asked to discuss the tasks that they are responsible for in their professional work with ICP, and to state the knowledge and skills they expected to gain from the training. A summary of the results of this exercise are presented as follows:

Tasks	Knowledge	Skills
1. organisational development 2. improve community conditions 3. encourage the use of ICs 4. promote and apply IC technology 5. organise and conduct awareness raising, training and demonstrations related to ICs 6. program development 7. develop IC technology 8. educate rural communities on the importance of healthy kitchens	1. program development 2. ability to identify problems and needs of potential target groups 3. stove dissemination strategies 4. types of mud and other raw materials 5. marketing techniques 6. assessment of local social, cultural and economic conditions 7. knowledge of the qualities of raw materials' 8. management of stove dissemination process	1. social skills to understand and deal with communities 2. design and construction skills, including skills to modify ICs according to the needs of the target group and to make a multifunctional clay stove which can use various fuels

In general the training course consisted of the following stages:

Stage	Assessment	Technical	Dissemination	Monitoring and Evaluation	Application
Steps	1. user context 2. community context 3. gender	4. basic principles 5. stove construction	6. type of dissemination 7. dissemination strategies	8. monitoring and evaluation	• steps 1-8 used again • 5 stove selection stages also introduced

A case study which incorporated the community context and gender assessment steps, and field activities which incorporated user context assessment and stove construction, dissemination and testing were important elements of the training course.

To ensure that the participants really learned how to collect information from the community and to translate the users' needs into an appropriate stove design and program plan, the course was structured such that the participants followed the steps as presented in the training framework (see Figure 1).

Stove Design and Formulation of Dissemination Strategy: Field Exercises

The participants were divided into four groups for the field exercises. Each group worked in one village and each group was supervised by one of the training team. The four groups and their villages were as follows:

Group I Bedugul	Group II Mapak I	Group III Merembu	Group IV Mapak II
Prianti Utami	Herculana Ersinta	A. Dauri	Mawardi Gupran
Dothor Panjaitan	Anggawasita	Bambang Supardi	Murni
Laode A. Monianse	Sahirsan	Marlina	Ambo Masse
Muliadi	Ibnu Singgih Pranoto	John D. Reda	Augustinus Hartono
Suroso	Nicolaus Sega	Deddy Sugiarto	Sutrisno
Facilitators			
Michelle Schulein	Aryanto Soedjarwo	Emma Wibowo	Sunarno

To enable them to work effectively in the field, the participants were provided with guidelines on the type of information they needed to gather and on from whom they should get it.

The results of the field exercises are assessed through group discussion and by going through the four different stove selection stages. At the end each group was expected to come up with one design suggestion for the target community in their field exercise area.

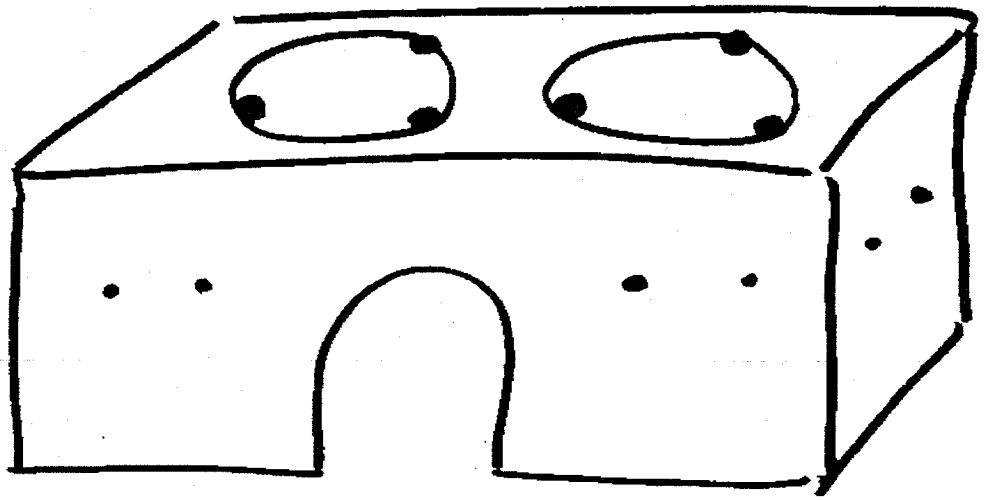
In between executing the stove selection stages, the participants were provided with technical knowledge as well as non-technical knowledge on such topics as gender, dissemination strategies, etc (see Appendix 2).

The stove designs formulated by the participants and the rationales given by them show that they learned how to effectively integrate technical and non-technical considerations. They also show an ability to think critically about the stove designs and program choices. These results suggest that the training module is highly successful.

The following figures and accompanying texts show the final results of the stove selection stages as developed by the participants, based on their analyses of the information collected during the field exercises and on the application of the knowledge and skills they gained in the training sessions.

Group I – Bedugul

Stove Design



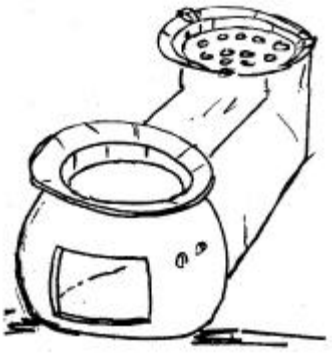
Gender Analysis Framework Workplan

Program Activities	Involvement of men and women	Steps necessary to achieve this involvement
stove modification	housewives, older stove building women	meetings of PKK (family welfare program)
training	older stove building women, cadres	stove builders' group
promotion	housewives, older stove building women	PKK
Dissemination		
Intervention	Target	Objective
stove modification	housewives, older stove building women	to make an efficient and easily operated stove
training	older stove building women, local cadres	increase technical skills
promotion	housewives, older stove building women	to review the benefits of the IC and its use

Group II – Mapak

Stove Design

- no chimney
- a grate for the second pot hole, baffle
- a two pot hole, portable design
- pot holes are made according to cooking equipment, the second pot hole to bake fish, the sides of the pot hole slope inward
- stove is used to cook, bake and preserve fish
- stove is made of clay and sand
- stove uses fuelwood

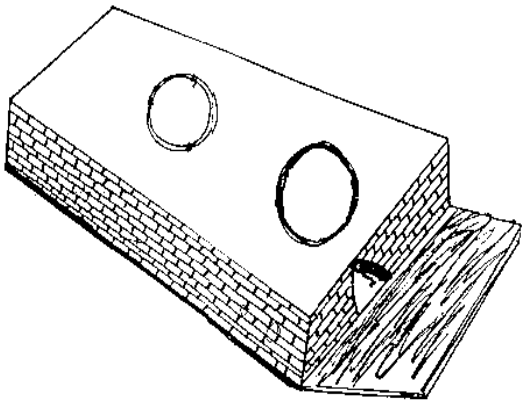


Stove Dissemination

- artisans produce stoves
- dissemination by the market and house-to-house direct selling
- price from Rp. 2000 - Rp. 2500; a credit system can be applied
- program integrated with the department of health, department of fishing and department of mining
- stoves promoted as serving the needs of the fisher families (to bake and preserve fish)
- stoves promoted in the market and with fisher groups
- promotion uses pamphlets, the IC

Dissemination/ Gender Analysis Workplan

Intervention	Target	Steps necessary to achieve this involvement
problem, potential and real needs identification	fisher group PKK youth group	arrive, live and mix with the people
awareness raising	fishermen's group PKK youth group	collect people/create a forum
training	local cadres and artisans	technical stove construction
dissemination	potential users	demonstration plot market cadres

Group III – Merembu Stove Design
• no chimney • two pot holes • wood and agricultural residues as fuel • raw materials of clay, bricks, sand and rice husks • permanent stove • cook sits on a low bench while cooking • stove functions for cooking and drying fuelwood and crops   

Dissemination / Gender Analysis Workplan		
Intervention	Target	Steps necessary to achieve this involvement
assessment	men and women	approach through the village head
stove construction and training	local stove builders (women)	training
stove testing	training attendees	demonstration
stove dissemination	users	community meetings for social community groups, young people and old people; dissemination activities to be incorporated into religious and cultural activities

Group IV - Mapak II Stove Design		
• raw materials of mud, bricks • two pot holes, no chimney • stove functions for cooking		
Gender Analysis Framework Workplan		
Program Activities	Involvement of men and women	Steps necessary to achieve this involvement
assessment	men for information on the availability of raw materials women for information about the operation of the traditional stove	community meeting
stove modification	women to decide on the stove design which meets their needs men to collect the needed materials	community meetings
stove promotion	men and women in awareness raising and demonstrations	community meetings

Stove Construction Practicum

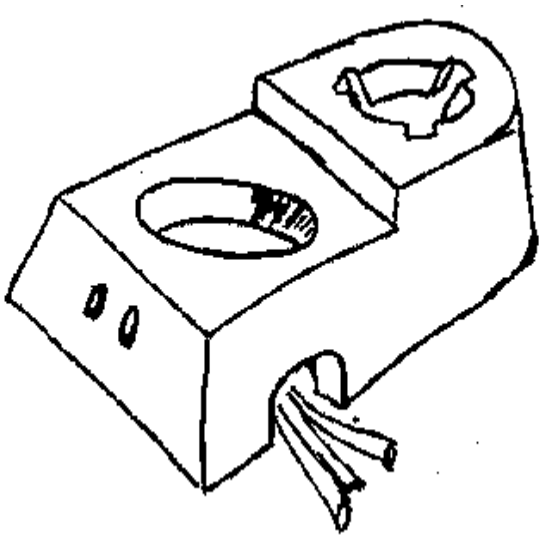
To give the participants hands-on experience, knowledge and skill in stove building, a stove construction practicum was offered. This involved constructing a mud stove and a brick stove. To construct the mud stove the participants learned about the materials needed, how to mix the materials, the best mixture suitable for stove making and how to shape and construct the stove itself. To construct the brick stove, they learned how to build it up layer by layer and fix the layers using cement.

The participants were divided into four groups and each group was given the task of constructing one mud stove and one brick stove. The following figures show what the final results looked like.

(a) Mud Stove Construction

Group I

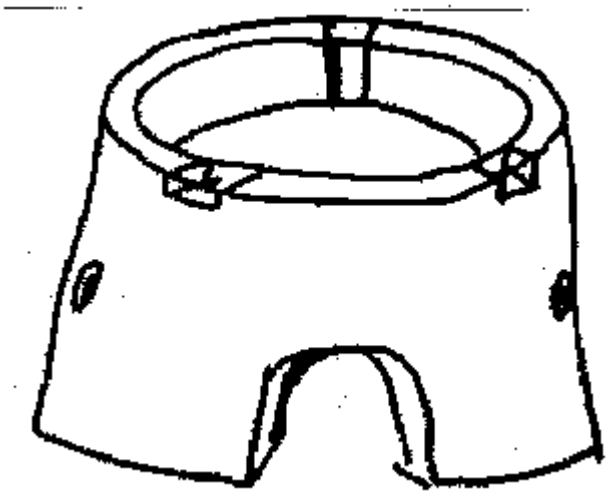
- two pot holes
- fuel hole at the side
- no chimney
- mud mixed with rice husks
- size: 80 cm. length, 40 cm. width, 30 cm. height



- Anggawasita
- A. Dauri
- Deddy Sugiarto
- Herculana Ersinta
- Sahirsan

Group II

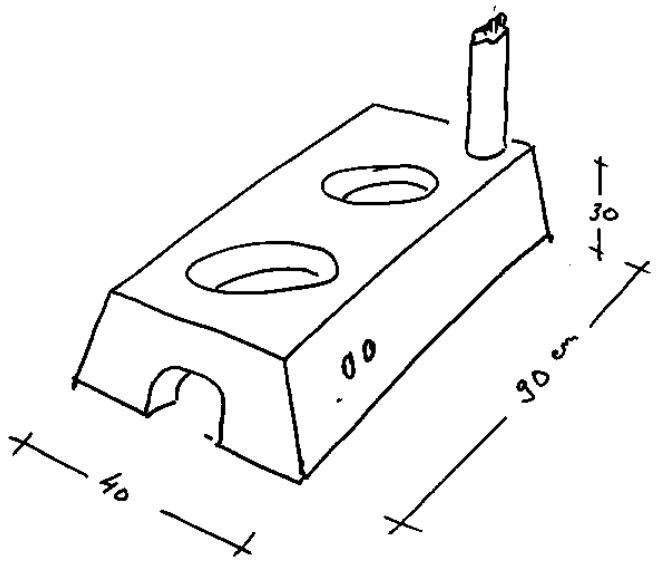
- one pot hole
- no chimney
- mud mixed with straw
- size: 40 cm. diameter, 30 cm. height



- Nicolaus Sega
- Laode A. Monianse
- Ibnu Singgih Pranoto
- Suroso
- Marlina

Group III

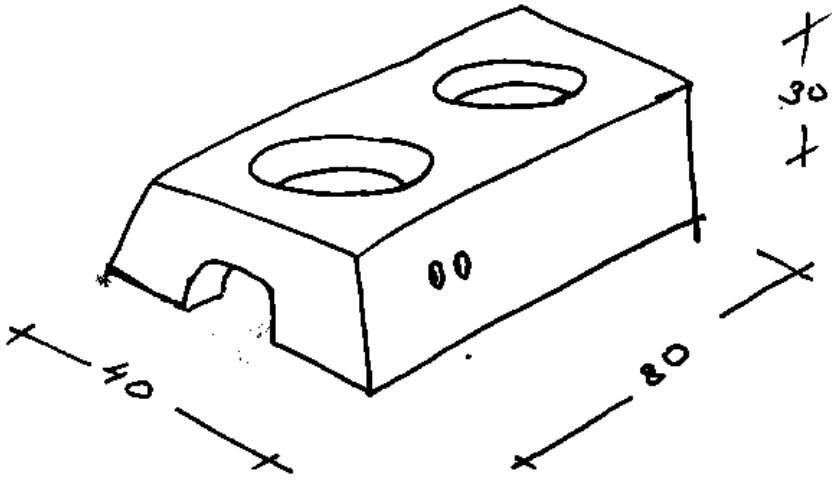
- two potholes
- fuel hole at the front
- chimney
- mud mixed with sawdust
- size: 90 cm. length, 40 cm. width, 30 cm. height



- Ambo Masse
- Dothor Panjaitan
- Augustinus Hartono
- Bambang Supardi
- Murni

Group IV

- two potholes
- fuel hole at the side
- no chimney
- mud mixed with rice husks
- size: 80cm. length, 40 cm. width, 30 cm. Height



- Prianti Utami
- Mawardi Gupran
- John D. Reda
- Sutrisno
- Muliadi

(b) *Brick Stove Construction*

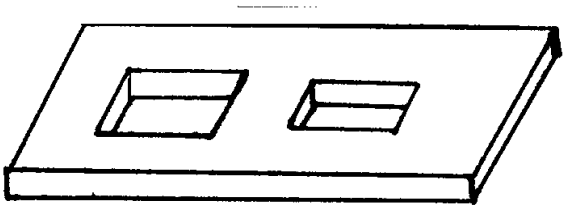
To practice brick stove construction the participants were divided into two groups

Under the supervision of the technical trainers the brick stoves were finished in one afternoon session and the results were highly satisfactory.

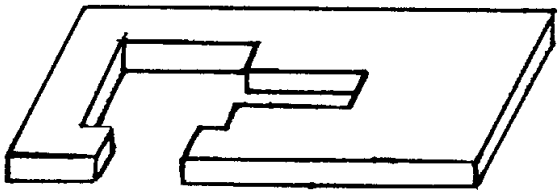
Unlike the mudstoves that need to be left to dry for several days before making the holes, the brick stoves can immediately shaped and finished.

However, to prevent cracking the users must wait several days for the stove to dry before using it.

The accompanying diagrams shows built-up stoves layer by layer.



Lapisan 5



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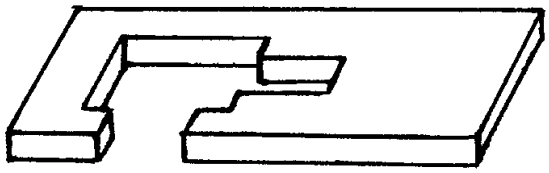
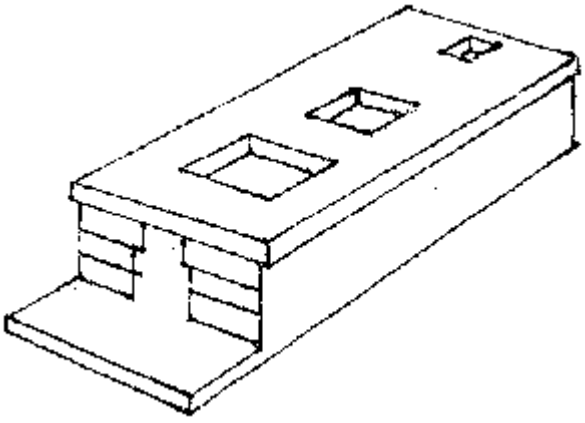
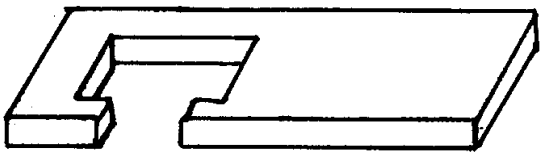
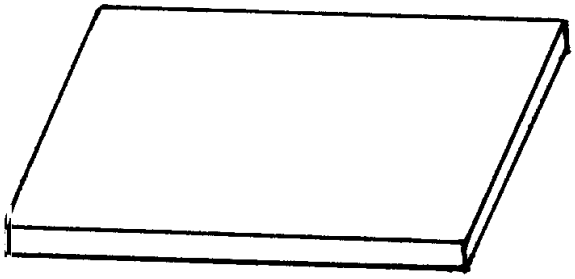


Lapisan 3





Lapisan 2



Lapisan 1 (ACAS)

Field visit

It was not possible to directly instruct the participants how to make a ceramic stove. So, a visit was made to the Pusat Studi Pengembangan (PSP) project where they observed SAE stoves in various stages of completion. In the field participants observed the stove production process, the promotion and dissemination strategy of the ICs and the community's acceptance. Discussions were held with the PSP staff and the participants were able to provide some useful inputs to PSP which could help them improve their project.

Individual or organizational stove designs and work plans

On the final day of the training course participants were asked to formulate a cookstove designs for the area in which they normally work and a brief action plan for disseminating the design. These were generally done individually or in pairs. This exercise enabled the participants and the trainers to gauge the extent to which the training material had been absorbed by the participants. The designs and workplans are presented in Appendix 3.

3. COURSE EVALUATION

The participants were asked to fill out three cards: for things they liked best, things they did not like, and suggestions. The results of the course evaluation can be summarised as follows:

Training Venue and Accommodation

Positive
- Good, clean and nice environment
- Training venue facilitated togetherness among participants and training team

Negative
- No microphones
- Local participants were not accommodated in the hotel, they had to go home
- Food was good but lacked variety
- Pocket money was too little

Training Materials

Positive
- In general they were good and clear
- Nice looking with different colours

Negative
- Too many books, would have been better if combined into one binder
- No table of contents, difficult to find specific items.

Training Team

Positive
- Good training team
- Training team were close to participants
- Training team members were open
- Ibu Emma was great and made the training lively

Negative
- Sometimes the training team did not eat together with the participants

4. RECOMMENDATIONS

The following recommendations are primarily based on the inputs of members of the training team. Most of these were discussed during an evaluatory meeting held on December 6, 1996.

(a) Training manual and content

Stove Selection Process

- Technical and non-technical information needs to be more broken up so that the flow reflects the integrated (technical with non-technical) nature of the stove selection process and so that trainers are alternated during the course of one day.

- Theory and practice should also be alternated. More practice should be included in the training.

- The concept of modification of the traditional stove should be emphasised. Problems of picking new stove designs should be outlined. Field practices in stove construction should reflect this focus on modification rather than on providing designs without a social context.

Trainee Materials

- The trainee materials should be combined in one binder with table of contents, bibliography, and a reading list.

- Pictures should be more effectively used by providing captions and getting rid of redundancy in text.

- Spacing and text size can be improved and standardised for ease of reading. This will decrease the thickness of the book also.

Trainer Materials

- The trainer manual should be in the form of a kit which includes all the necessary teaching aids for each session such as transparencies, cards, posters, slides, etc). This will also make it more practical and easier to use by future trainers.

(b) Training of Trainers Workshops

Timing

- It is important that trainers should be familiar with the detailed contents of the training manual to ensure that there will be no misinterpretation and misuse of the sessions and contents of the manual. Therefore a Training of Trainers workshop should be held before any national training course. Locally, the Training of Trainers should be held a few months before the training where trainers begin working as a team and try-out as much of the training material as possible. Immediately preceding the training, trainers should meet together for a few days to make final preparations at the training venue.

Trainers and Participants

- At least one of the trainers of a country training team should be a professional trainer with experience in participative methods. There should be expertise in stove technology and gender amongst the trainers. Other useful expertise includes: problem identification/assessment, monitoring and evaluation, promotion and dissemination strategies (not necessarily IC related).

- Trainers should be responsible for translating the training materials into their respective local languages to make sure that the contents stay intact and are accurately presented.

Duration

- Based on the Indonesian National Training Course, the duration of the training should be at least 10 full days, including a one day field visit or a day for relaxation, if the training goal is to be achieved and all necessary practice sessions are to be accommodated. It is therefore recommended that the opening ceremony be held in the evening before the actual training starts.

PART II. APPENDICES

Appendix 1: WELCOME ADDRESS AND COURSE INTRODUCTION

by

Christina Aristanti, Manager, ARECOP

Honorary: Mr. Lalu Azhar, Vice Governor, Nusa Tenggara Barat (NTB),
Dr. Willem Hulscher, Chief Technical Advisor, FAO-RWEDP,
Eng. Endro Utomo Notodisuryo, Director of Energy Development,
Dept. of Mining and Energy,
Invited Guests,
Organizers,
Trainers,
Participants:

First of all, I would like to welcome all of you to the opening ceremony of the Indonesian Training for the Strengthening of ICP Technical Skills and Knowledge which begins this morning of November 27, 1996 and will continue through December 5, 1996.

This training program is a result of the initiative of ARECOP (Asia Regional Cookstove Program) which represents one program of Yayasan Dian Desa, an NGO located in Yogyakarta. The training course received additional support from FAO-RWEDP (FAO-Regional Wood Energy Program). From its inception the development of the training course has been a co-operative effort between ARECOP and FAO-RWEDP where ARECOP developed the training module and training materials while RWEDP funded the training and provided expertise. The training course has been organised by ARECOP in co-operation with Pusat Studi Pembangunan (PSP), located in Mataram.

The initiative for a training course of this kind grew out of an awareness of the weaknesses of Improved Cookstove Programs (ICPs) in affecting successful outcomes, not only in Indonesia, but throughout the Asia region. One of the reasons for these project failures is a technical orientation which does not take into consideration the real needs of improved cookstove (IC) users. In addition, it is rare that ICP field workers have the skills to make more than one or two specific stove designs; this automatically limits the impact of ICPs in fulfilling the needs of different target groups. In turn this limitation results in the following situations:

- Limited ability of ICP field workers to collect and analyse assessment information;
- limited ability to modify traditional stoves and/or develop a new stove design, resulting in the introduction of one stove design to various user groups which have different habits and patterns of cooking;
- limited understanding of the many benefits cookstove technology offers resulting in ICPs which are not integrated with other development programs;
- limited ability to analyse the results of an ICP, including the dissemination of stoves and the influences of the stove on target groups.

This training aims to address these situations. The objectives of the training are to:

- transfer to ICP field workers the necessary technical skills and knowledge to ensure that an appropriate stove design is selected/designed; and
- encourage and increase the acceptance of ICs in Indonesia.

Mataram, Lombok was chosen as the training location with a specific objective in mind. A while ago NTB was targeted as an area for ICP development by the Department of Mining and Energy. At this time one stove design was introduced and the project was continued through the collaboration of ARECOP and PSP. This project was neither simple nor easy, and consequently PSP experienced some problems during its implementation. We hope that this training will also bring positive progress for ICs development in NTB.

There are 20 training participants who come from both NGOs and GOs. The participants come from 9 different islands and 11 different provinces in Indonesia: Riau, Jawa Timur, Jawa Tengah, DIY, DKI, Sulawesi Utara, Sulawesi Selatan, Kalimantan Barat, Nusa Tenggara Timur, Nusa Tenggara Barat and Irian Jaya.

We must not forget to express our thanks to all those who have helped us to realise this training.

Thank you.

WELCOME ADDRESS

by

Mr. Eng. Endro Utomo Notodisuryo
Director of Energy Development, Dept. of Mining and Energy

Mr. Endro Utomo spoke without a text. The following report is a brief summary of the contents of his speech.

Mr. Utomo emphasised the importance of IC development especially for Indonesia as wood fuel and other biomass are still widely used throughout the country.

He also mentioned that the Department of Mines and Energy, especially the Renewable Energy Department is always full supportive of IC development as can be evidenced by the IC dissemination project in East Nusa Tenggara Province (NTT) and West Nusa Tenggara Province (NTB) in which the Directorate General of Electricity and Renewable Energy collaborated with Yayasan Dian Desa.

Mr Utomo also mentioned that similar IC projects will be conducted in three other provinces: South Sulawesi, South-East Sulawesi, and East Timor Provinces.

Mr. Endro Utomo stated that he expected that this training would improve the skills and knowledge of many actors in the area of ICs and energy development and will help support the government program to preserve the environment.

KEYNOTE ADDRESS

by

Dr. Willem S. Hulscher
Chief Technical Advisor, FAO-RWEDP

It is a great pleasure for me to be here at the opening of this national training workshop on improved stoves, which is organised by ARECOP with support from RWEDP. As you may know, ARECOP and RWEDP have for a long time co-operated in the field of household energy. ARECOP and RWEDP are complementary, as the one organisation (ARECOP) is a non-government organisation and the other (RWEDP) is a government organisation. That means different operating practices and linkages to different partner organisations. ARECOP and RWEDP are aware of this and consider their complementary strengths an asset for their co-operation. It means that in the present training participants from both GOs and NGOs participate and can learn from each other.

On this occasion I would like to share with you some thoughts regarding the successful dissemination of improved cookstoves. We have learned from experience in many countries that disseminating improved stoves is not at all an easy matter. Why is this so? What can be the reasons that households do not always readily accept the improved stoves? There seems to be a major difference between the dissemination of ICs and the dissemination of the various household utensils which are readily bought by people, and also items like radios, fans or lamps, which seem to spread without any visible effort or dissemination programme. Why is this different from the often cumbersome efforts needed to disseminate improved stoves? It may be useful to ask ourselves such questions, because we should try to strengthen our efforts in cookstove dissemination.

First of all, we should be very clear why these stoves are to be disseminated. There can be many good reasons. The new stove can be time and fuel saving, or provide more healthy working conditions in the kitchen, or offer improved functions and convenience. However, are these advantages really important to the household? To whom in the household? Maybe the advantages are only perceived by the stove designer, and they are not so much valued by the user, or at least by the one in the household who decides on things like adopting a new stove. We should not overlook the gender differences in the household.

We have to ask ourselves if the stove is really an improved one, not only in the view of those who are committed to stove programmes, but particularly for the user. Is the quality surely as good as we like to believe? And do the characteristics of the new stove meet the needs and preferences of the user for which it is aimed? Do we sufficiently know and understand the needs of the envisaged users? And do we know and understand his or her constraints? Which are the problems perceived by the users themselves? There is an enormous variety of factors which determine cooking practices. The improved stove must match with all of the factors, as it is not likely that people will easily change their prevailing cooking habits. In most cases the users are women and we can only find out about their needs and constraints by consulting with them on the basis of mutual trust and respect. I call this a needs-oriented approach, which has

proven to be more successful than a technology-driven approach. After all, when the requirements and preferences of the users are not taken seriously, how can we expect that they will accept and indeed use the stove?

Once we are sure the stoves are of good quality and meet the users needs, the next challenge is to design a strategy for producing and disseminating them. There should be quantitative targets for the numbers of stoves and the time period, as well as the geographical areas selected. We have to think about possible mechanisms for dissemination. How do we reach the envisaged users? Which means of communication are available and suitable? In principle, there is a wide range of options. Introduction could be via market places, or special demonstration sites, or an existing village organisation, etc. Dissemination in a particular area may be supported by an awareness campaign or publicity via the media as applicable. All these aspects of a dissemination strategy have to be laid out before we embark upon the implementation of an improved stove programme.

In order to know if the improved stove meets the objectives, we have to monitor the results. That means that some time after introducing the stove, interviews will be undertaken in the households to find out if the people are using the new stove and what are their experiences. From such monitoring we can learn a lot for further improving stove programmes.

You may wonder why all these efforts are needed for the dissemination of stoves, whereas other durable consumer goods, like for instance radios or bicycles seem to spread in remote rural areas without deliberate efforts or programmes. In fact this is not at all true. For a product like a small radio to be successful, an extensive and professional market study must be undertaken. That means that the design is thoroughly tested amongst the envisaged users, the production is planned in great detail, and the promotion is carefully laid out by the marketing specialists of the company concerned. These professional activities are commonly undertaken in the private sector that basically is profit oriented. Failing to meet users' requirements means that the product is unsuccessful in today's competitive markets and the company may go broke. Profit is normally not an objective when NGO or government projects aim for the introduction and dissemination of improved stoves. Governments and NGOs do not go broke, as they are supposed to serve the interests of the people. My point is that the absence of a profit motive should never be an excuse for acting un-professional. To me, un-professional would mean coming up with a poor stove design and dissemination strategy, and then blaming external factors like presumed 'resistance to change' or 'backwardness' of villagers for not accepting the so called improved stove.

As I said, designing and introducing improved stoves is not at all a simple matter. It requires the best of professional ingenuity, experience and dedication from all involved. We have to be critical on our own products and performance, and we must be prepared to keep learning from both failures and successes. Some stove programmes have been very successful indeed and these results are encouraging us to proceed. I am sure the present workshop will help you in this respect, and I wish you all success in your future programmes.

OPENING ADDRESS

by

Mr. H. Lalu Azhar, Provincial Vice Governor, Nusa Tenggara Barat
Assalamu'alaikum WR. WB.

Honorary: Mataram City Representative
Regional Office of the Dept. of Forestry NTB
Regional Office of the Dept. of Industry and Trade NTB
in addition to other related agencies
Director of Pusat Studi Pembangunan NTB
and honoured invited guests and participants

It is indeed a joyous occasion for the participants from 11 Indonesian provinces to come together in Mataram, the capital city of Nusa Tenggara Barat Province, to attend the Indonesian Training for the Strengthening of ICP Technical Skills and Knowledge. Hopefully the favour and mercy of God swt. will always be poured upon us all so that the implementation of this training will be smooth and will be valuable for the participants and beneficial for the people.

We often use the term 'technology' to mean something out of the ordinary, great and as if it were only connected to aeroplanes, arms, nuclear energy and the like. An understanding of technology, as Prof. Habibie often reminds us, is not as narrow as that. New discoveries and engineering changes which bring benefits in many areas for humankind, and this includes technology, are obviously varied in characteristic and scale.

However simple, a finding which brings increased efficiency and productivity in our lives, should be praised and we should make serious efforts to develop it and disseminate it widely. Likewise with improved cookstoves (ICs). ICs are not new; rather they were introduced and developed over one decade ago. Many types of training courses, related to design, construction, use, raw materials and fuel have been realized by individuals, NGOs, the government and other organisations, however these efforts have yet to be evidenced in field practice in an even and optimal fashion.

If we investigate the reasons, perhaps one of them is connected with the variety of cultures in different areas which influence kitchen equipment, farming equipment and other equipment which has separate and distinct features. This era of progress brought by globalisation of all aspects of life has reached households in many shapes and forms, not least of these being the use of ICs, a technology termed 'appropriate.' It is fitting and 'appropriate' that new technologies should reach households even in the remotest villages and be quickly adopted by the people there not only because these people do not want to be left behind, but because these people need practical and simple technologies.

Efforts to initiate and design ICs, such as PSP, which involve working together with various organisations inside and outside of the country, must be supported to the best of our ability. Such efforts play an important role in tackling the critical problem of forest destruction. Steps to

prevent the destruction of these sources of fuel are urgently needed. These preventative steps can take many forms, including the prohibition of timber for construction, so that forests are conserved. The traditional use of fuelwood is not only wasteful but also results in household pollution.

Hopefully this ICP training will represent an appropriate and beneficial step in the effort to stress the effective and economical use of fuel by using a stove properly designed.

Thank you for your attention.

Wassalamu'alaikum WR. WB.

APPENDIX 2: TRAINING SESSIONS COVERED BY ARECOP

Module

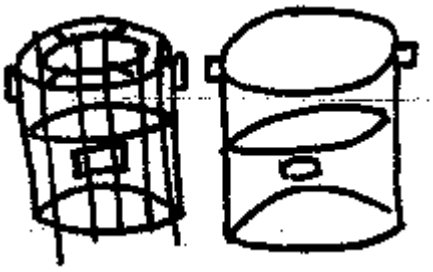
No.	Session	Duration	Major Objectives	Methods
1	Introductions	1:00	▪ to facilitate introductions	Concentric circles mapping
2	Goals and expectations	0:45	▪ to make sure trainer and trainee expectations match	Individual exercise sharing
3	Framework and content	0:45	▪ to clarify the objectives/expected outputs of the training	Lecturette, posters of training process
4	Principless of design	1:00	▪ to use pre-workshop exercise information and participants' experience and knowledge and link these with stove designs and stove projects	Brainstorm then transfer results to index cards Pair work Sharing
5	Raw materials	1:00	▪ to provide guidelines for choosing stove materials	Lecture with transparencies
6	Promotion and benefits	1:00	▪ to brainstorm possible benefits, indirect and direct, from an improved cookstove and project	Consumer and seller game discussion
7	Combustion stations and processing	2:00	▪ to fulfill participants expectations for technical information before addressing gender and field exercise 1	Short introduction with transparency Experiment stations Question and answer based lecture
8	Gender	1:30	▪ to challenge the idea that gender is only related to women	Drawing and gallery viewing Lecturette with transparencies
9	Overview of mud stove construction	0:45	▪ to explain the purpose of mud stove construction	Lecturette with transparencies
10	Mud stove construction	4:00	▪ to construct different mud stove designs	Stove construction
11	Guidelines for field exercise 1: community context	1:00	▪ to explain the purpose of the field exercise	Observing and listening games Working through examples
12	Field exercise 1: community context	2:30	▪ to observe and collect real information about the community context from a case study community based on new understanding	Field exercise
13	Stove selection stage 1	2:30	▪ to critically analyze information gathered to determine parameters of a stove design and stove project	Group work Poster making Presentations Question and answer, discussion

No.	Session	Duration	Major Objectives	Methods
14	Heat transfer and heat loss	1:30	▪ to provide information on the mechanisms of heat transfer, maximizing heat use in a stove design and decreasing heat loss	Lecture with written exercise sheets
15	Kitchen	2:00	▪ to illustrate the importance of the kitchen in assessment and the consequences of ignoring the kitchen environment	Role plays, lecturette
16	Combustion quiz	1:00	▪ to get participants to use basic combustion concepts to make decisions about stove design	Game show quiz with one-minute lectures when necessary
17	Stove parts	1:00	▪ to give an overview of the stove parts	Lecture with transparencies quiz
18	Stove types	1:45	▪ to get participants integrating technical and social information in modifying or choosing stove designs for certain social contexts (some participants' working areas)	Small group work presentation and discussion
19	Combustion and heat transfer	1:00	▪ to evaluate traditional stove designs from participants' working areas based on combustion and heat transfer concepts	Question and answer led discussion
20	Overview of brick stove construction	0:30	▪ to explain the purpose of brick stove construction	Lecturette with transparencies
21	Brick stove construction	4:00	▪ to construct different brick stove designs	Stove construction
22	Guidelines for field exercise 2: kitchen, user and traditional stove	0:30	▪ to explain the purpose of the field exercise	Lecturette
23	Field exercise 2: kitchen, user and traditional stove	2:45	▪ to observe and collect real information on a specific user and het kitchen on a specific user and her kitchen and traditional stove from the case study community based on new understanding	Field exercise
24	Stove selection stage 2	2:30	▪ to give participants and training team the opportunity to ask clarifying questions and challenge modifications/stove designs decided upon by the field exercise groups	Gallery viewing question and answer, discussion
25	Stove dissemination	2:15	▪ to introduce dissemination and listen to what participants want and need to learn about disseminatioon	Small group work Reporting Role play Lecture with transparencies
26	Subsidies	0:30	▪ to debate the issue of subsidies	Debate
27	Overview of mud stove finishing	0:30	▪ to give an overview of the mud stove finishing the needs to be done	Lecturette
28	Mud stove finishing	4:00	▪ to finish constructing the mud stove designs	Finish stove construction
29	Guidelines for field exercise 3: dissemination	0:30	▪ to explain the purpose of the field exercise ▪ to familiarize participants with the tools and techniques used during the field exercise (resource profile)	Working through exampless
30	Field exercise 3: dissemination	2:45	▪ to explore the dissemination of the current stove and other technology dissemination systems in existence in the case study community	Field exercise

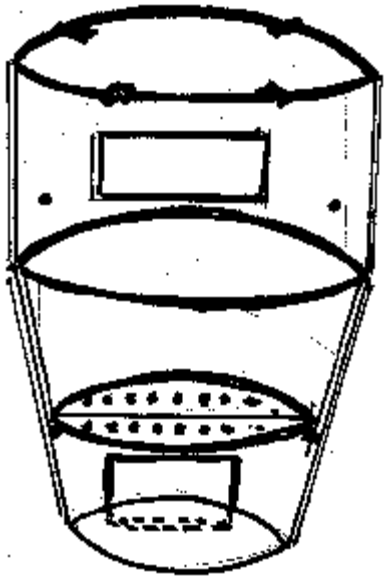
No.	Session	Duration	Major Objectives	Methods
31	Stove selection stage 3:	1:30 – 2:00	▪ to critically analyze information gathered to determine dissemination strategy	Presentation Question and answer, discussion
32	Monitoring and evaluation	1:00	▪ to give an opportunity for participants to express their understanding and feelings for m&e	Free brainstorming
33	Indicators	1:00	▪ to define indicators ▪ to come up with indicators to monitor whether benefits are actually provided	Brainstorm
34	Guidelines for field visits/stove performance analysis	0:30	▪ to explain the purpose of the field exercise ▪ to familiarize participants with the tools and techniques used during the field exercise	lecturette
35	Field visit	3:00-4:00	▪ to make participants critically think about and discuss the varied reasons for stove acceptance or rejection ▪ to bring together various themes from the training ▪ to observe the process of making a ceramic improved stove	Small goup work Discussion led by participant
36	Trouble shooting	1:00	▪ to emphasize that m&e must result in action and thereby stress the purpose of m&e	Brainstorm Pair work Sharing
37	Stove selection stage 4: workplan	2:00	▪ to critically anlayze information based on stove design and dissemination pattern selected for the case study community to determine a workplan	Group work Poster making Presentation Question and answer, Discussion
38	Overview of training	1:30	▪ to review the content of the training ▪ to prepare participants to work on their own using new knowledge and skills in developing stove designs and program plans for their working areas	Lecture
39	Application	6:00	▪ to get the participants deciding about a future stove design and program in their own working areas	Individual work with possibility for private consultation with training team Poster making Gallery viewing Question and answer General discussion
40	Evaluation of training	0:45	▪ to evaluate the training ▪ to collect suggestions for future trainings courses from participants	Individuals write on index cards Index cards grouped and taped up

Source: Adapted from Asia Regional Cookstove Program (ARECOP) (no date). Trainer Manual : Improvement Stove Selection and Dissemination, Yogyakarta, Indonesia.

APPENDIX 3: INDIVIDUAL OR ORGANIZATIONAL STOVE DESIGNS AND WORK PLANS

Deddy Sugiarto - BPPT Stove Design	
Traditional Stove 	Current IC, if any 

IC design determined at this training

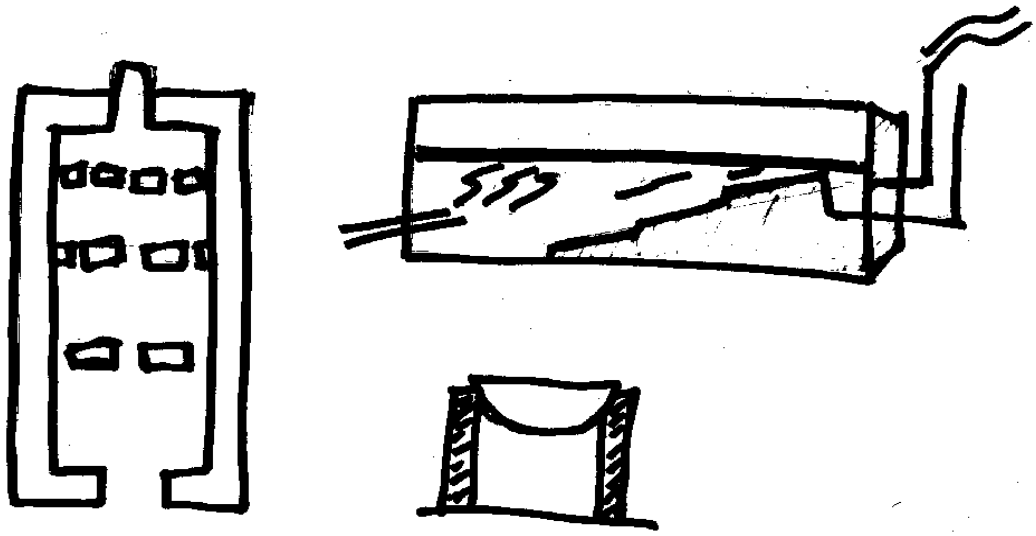


- no chimney
- portable
- grate used
- raw materials and clay and sand
- price of Rp. 5000 – Rp 10,000

Workplan		
Intervention	Target Group	Objective
assessment	women and men cadres (young people)	to collect data on the lifestyles and conditions of the local people
preliminary stove construction	male cadres (young men)	to learn the basics of stove construction
demonstration	women cadres (young females)	to introduce the IC
evaluation	users	to determine if designs are satisfactory

Prianti Utami, Nicolaus Sega Stove Design	
Traditional Stove 	Current IC, if any

IC designs determined at this training



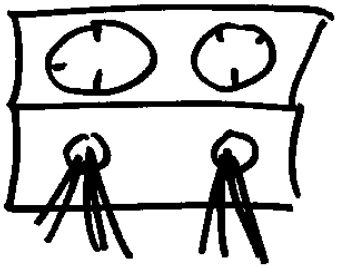
mud stove for salt producers

- with a chimney
- costs Rp. 5000 for stove plus wage of stove builder
- promoted as saving fuel, less smoke and safer (less burns)

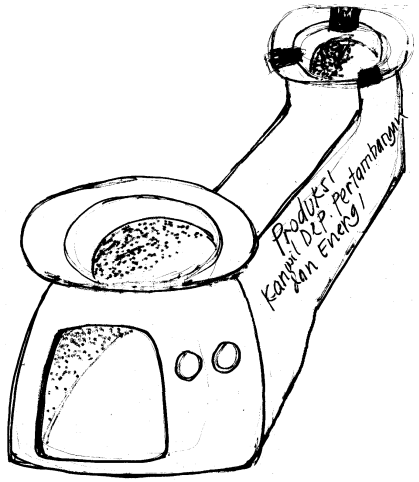
ceramic stoves for households

- one pot hole ceramic stove comes in 2 - 3 sizes, cost Rp. 1000 - 1500
- two pot hole SAE ceramic stove, costs Rp. 2500 - 3000
- a subsidy for transportation from the producer to consumer
- promoted as saving wood, less smoke and safer (less burns)

Workplan		
Intervention	Target Group	Objective
potter producers of ceramic stoves		
testing of raw stove materials and efficiency		to determine a standard for the IC
3 month training on production of ceramic stoves using a potter's wheel	group of 10 women potters	to transfer stove production skills
selection of 2 or 3 potters	2 - 3 women potters	to pick skilled potters who consistently achieve the standard
support in areas of IC standard, strength of raw material, operation		to ensure the IC does not disappoint the user
support in opening the market		to increase production
monitoring and evaluation		
200 women ceramic stove users 10 women and men salt producers		
promotion of stoves and healthy kitchens (layout and ventilation)	PKK, clinics, women's groups, community groups	to introduce and make aware
demonstration of stoves and kitchens		to prove their effectiveness
training and installation selling and installation	group of salt producers - cadres households	to give the skills to make the stoves to receive orders from other interested artisans
support and guidance production and operation operation	salt producers households	to get users acquainted with the new stove
monitoring every 3 months evaluation (end of first year; end of project)		to find out the progress (success/failure) and regain community's confidence if necessary

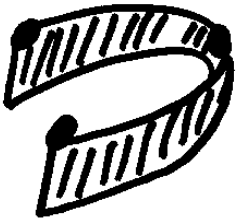
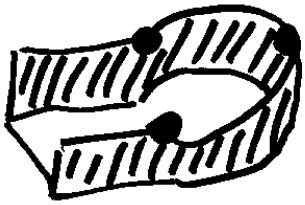
Anggawasita & Muliadi - Kanwil DPE NTB Stove Design	
Traditional Stove	Current IC, if any
 	 

IC design determined at this training



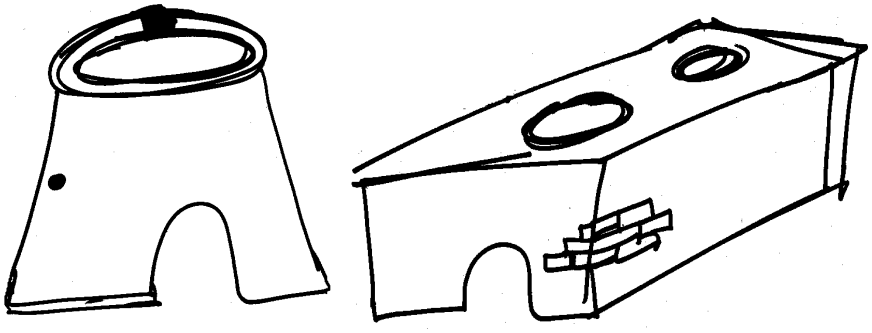
- SAE two pot hole ceramic stove
- costs Rp. 1500
- fuelwood and agricultural residues
- produced by Regional Office of the Department of Mining and Energy
- disseminated using integrated demonstrations, market displays, pamphlets, brochures and banners.
- the program will be integrated with other programs
- promoted as fuel saving and halal, ISO standard 9002
- stoves will be promoted by program planners, program target group, PKK, youth groups and local cadres.

Workplan		
Intervention	Target	Objective
1. meeting 2. assessment 3. planning	NGO institutions	1. to achieve an integrated program 2. to unify the vision of program actors 3. to find out the needs and habits of the target group 4. to determine the targets to be achieved
training	women's group and local cadre	to increase the skills of the target group
awareness raising	community	to raise understanding about the SAE stove

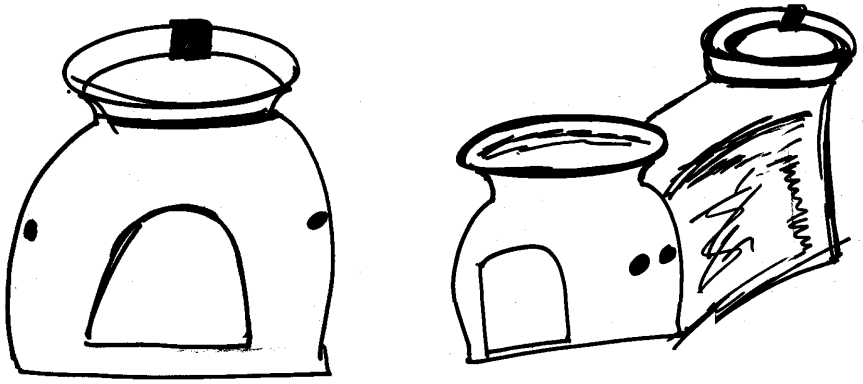
Laode Ahmad Monianse - SINTESA Stove Design	
Traditional Stove 	Current IC, if any 

IC designs determined at this training

Kab. Muna



Pulau Siompu



- user-built (Kab. Muna) and sold (Pulau Siompu)
- integration with health department (P. Siompu) and forestry department (Kab. Muna)
- promoted as a guarantor of family health and as a way to prevent deforestation
- promoted by women's groups, PKK, local cadres, women potters, women and men sellers, women and men field workers
- sold at Rp. 1500 - 2000, no subsidy

Workplan

Goals
To disseminate ICs and kitchen improvement
To decrease the rate of sickness among women and children
To decrease the amount of fuelwood used at the household level

Objectives
65% of households use the IC
To decrease the rate of sickness among women and children by 50% (of baseline data)
To decrease the amount of fuelwood used at the household level by 50%

Strategy
- Preparation
- assessment (collect baseline data)
- confirmation with linked institutions
- informal meetings at the level of county, district and village
- field worker orientation
- potter training/ community group training
- Implementation
- technical assistance to potters
- technical assistance to community groups (demonstrations)
- awareness raising and information dissemination (shows, billboards, banners)
- stove dissemination through community groups (PKK, KT)
- Evaluation
- data on rate of sickness amongst women and children (especially ARI)
- data on the difference between CO concentration in kitchens before and after the project
- data on the difference between fuelwood use before and after the project
- data on the activity of local cadres

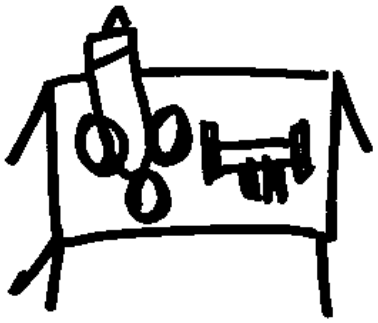
Time: 10 months
Sustainability:
trained potters
trained cadres
awareness of forestry issues

Workplan

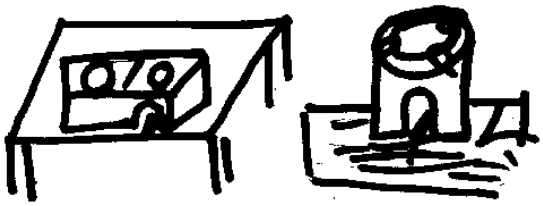
Intervention	Target	Objective
assessment (Kab. Muna)	women, men and children	to collect baseline data, including the availability of natural resources and cultural context
training for potters (P. Siompu)	10 women	increase technical skills
training for cadres (Kab. Muna)	women and men from five communities (community groups)	to train local cadres
promotion and dissemination	men and women of 1000 households (P. Siompu) and 50 households (Kab. Muna)	to introduce the stove well to make people interested in using the stove
evaluation	women, men and children in households using the ICs	to check the impact of the project to plan follow-up

Herculana Ersinta, Agustinus Hartono - YDT
Stove Design

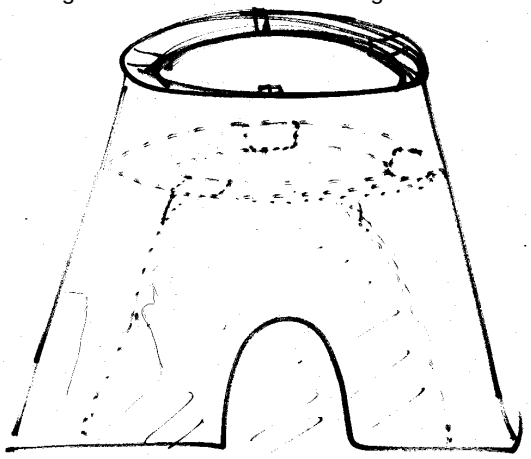
Traditional Stove

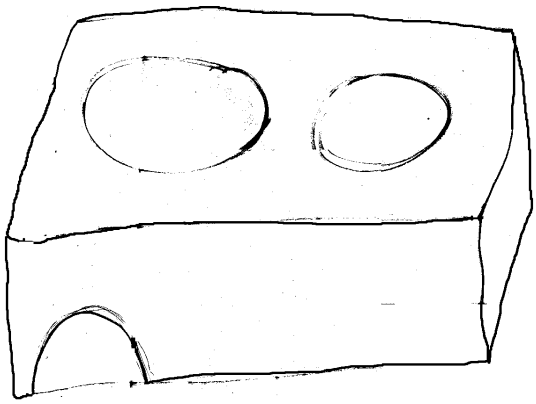


Current IC, if any



IC designs determined at this training





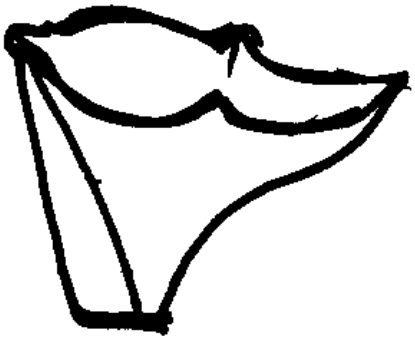
- one pot hole stove at Rp. 3000 - 5000
- two pot hole stove sold at Rp. 10,000 - 15,000
- dissemination by trained local cadres who sell their stove building services to users
- promotion by demonstration, word of mouth, in the market, with posters and booklets
- integrated program

Workplan		
Intervention	Target	Objective
1. assessment	women	to observe and find out the condition of women in the household (work division, workload, health, etc.)
2. problem identification	women and men	to determine and choose program strategies
3. initial meeting of women's groups	women	to introduce the ICP and ICs benefits
4. team meeting	men and women	to prepare families to attend a training course
5. training for cadres	men and women	to increase the technical skills of cadres
6. guide cadres and women's groups	local cadres and women's groups	to increase awareness of the groups for stove dissemination
7. stove dissemination	community (men and women)	to increase the awareness of community members about using the stove and the user benefits
8. integration (PPTAT, TFC, NTFP)	men and women	to increase the integration of the program with those involved in its development
9. promotion in schools and clinics	school children and women	to introduce the program
10. monitoring and evaluation	users	to understand how far the ICP has succeeded and what are the benefits incurred by the community

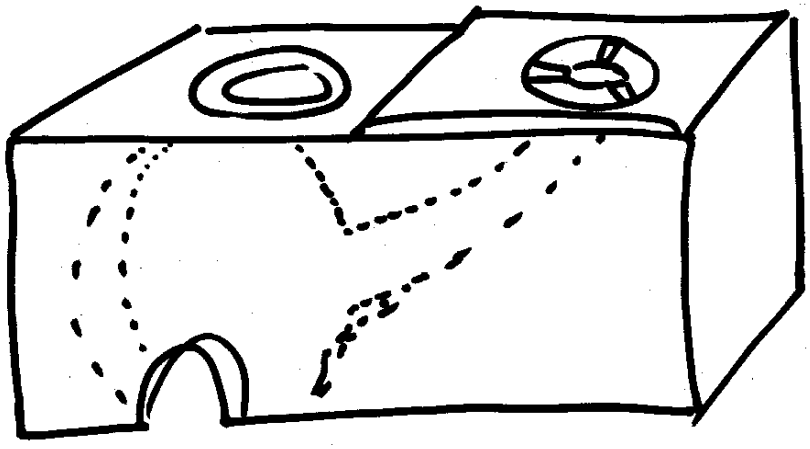
Ambo Masse, Marlina - YLK
Stove Design

Traditional Stove

Current IC, if any



IC design determined at this training



- two pot hole stove
- without chimney
- permanent
- Rp. 10,000 with subsidy
- raw materials of clay, sand and rice husks/straw
- fuelwood

Socio-cultural notes

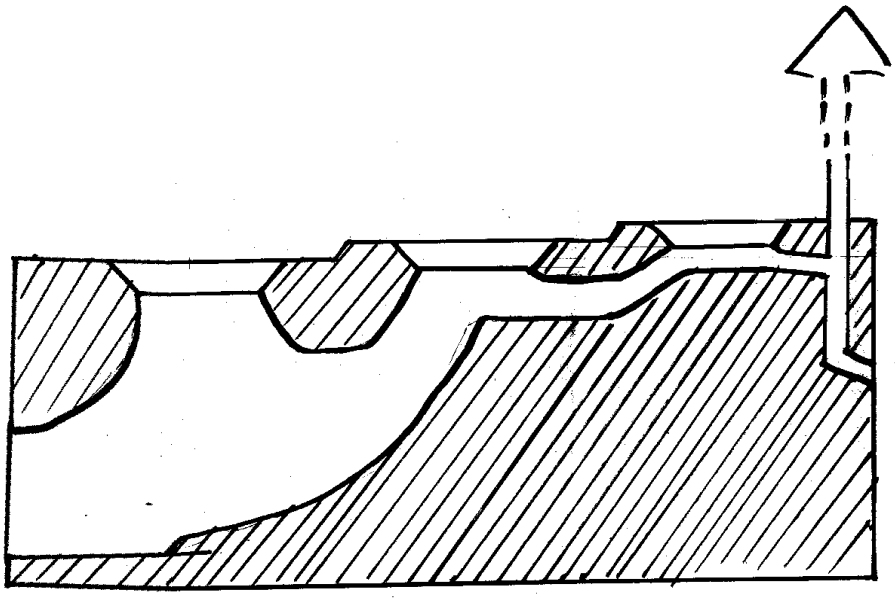
- habit of cooking with two stoves
- habit of cooking dishes side by side
- cook while sitting
- cook two dishes
- traditional stoves are not usually ceramic

Model of Integration
1. Stove and Kitchen • time saving • fuel saving • work divisions • equality between men and women • healthy layout and sanitation • . • etc. Advocacy/Consumer Protection consumer rights (information, basic needs, safety and welfare, clean living and work environment) Health women's health issues a woman's right to reproductive health women's empowerment

Workplan		
Intervention	Target	Objective
assessment	women, men and children	to collect data about stove use, the availability of raw materials and fuel
stove construction training	potters and local cadres	to transfer skills and knowledge to potters and cadres about stove construction
dissemination	men and women	to introduce the ICs widely
awareness raising (stove, health and consumers' rights)	women, men and teenagers	to disseminate information about the IC, health, and consumers' rights

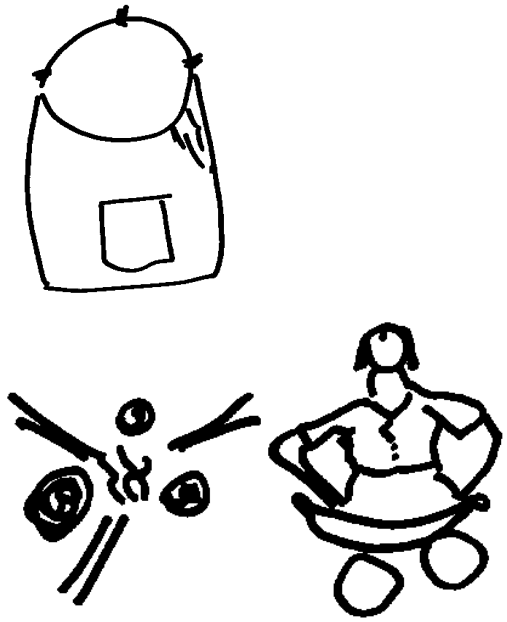
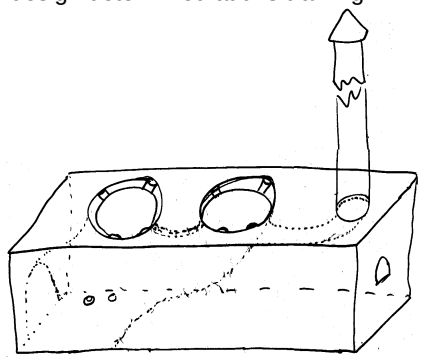
Sutrisno - PKPEK Stove Design	

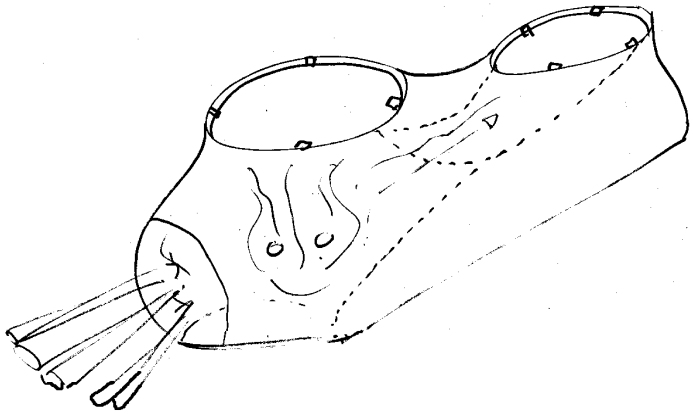
IC design determined at this training



brick stove with 3 pot holes
materials: clay, sand, bricks, rice husks, clay pipe

Workplan		
Intervention	Target	Objective
problem identification and identification of the needs of the target group	men and women's group	to find out the problems of the target group and determine their needs
initial meeting	women's groups	plan the kitchen improvement program and introduce the IC
kitchen improvement training	men and women's groups	to introduce the concept of kitchen improvement to determine kitchen improvement priorities
IC training	men and women	to train how to construct and install the IC to train how to operate stove

Sahirsan, Murni - LAKAMALI Stove Design	
Traditional Stove 	Current IC, if any 
IC design determined at this training 	

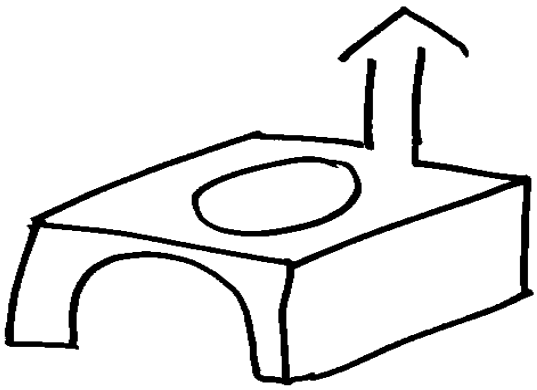


- stove costs Rp. 5000
- disseminated by working with stove potters
- program integrated with practical education for illiterate women and in cooperation with IGA project
- promoted by demonstration plots
- stove sold through PKK, clinics and study groups
- promoted is seven villages of Bau-Bau
- local cadres, potters and LAKAMALI volunteers will promote the stove

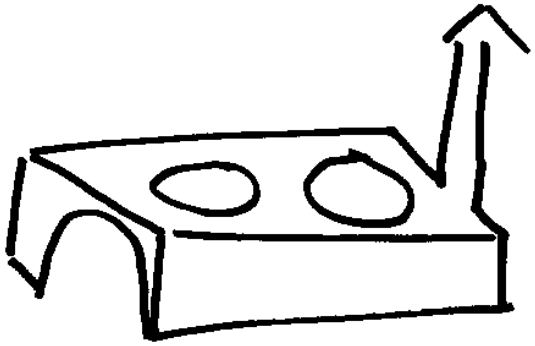
Workplan		
Intervention	Target	Objective
assessment	7 villages	to find out kitchen and stove conditions
training	12 cadres	to train on technical stove design to train on dissemination strategy
dissemination	600 households	to introduce and sell the stove
evaluation	women users of the stove	to compare the before and after IC use situations

Dothor Panjaitan - DJLPE
Stove Design

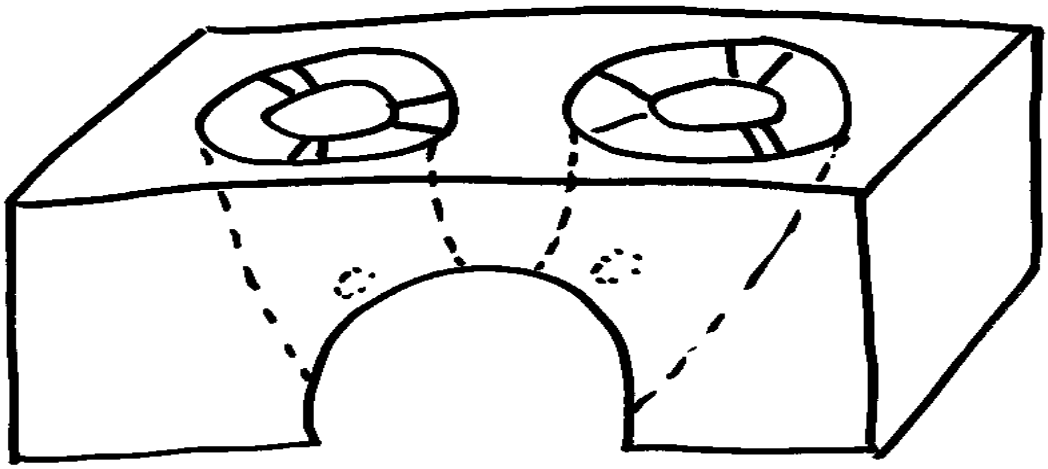
Traditional Stove



Current IC, if any

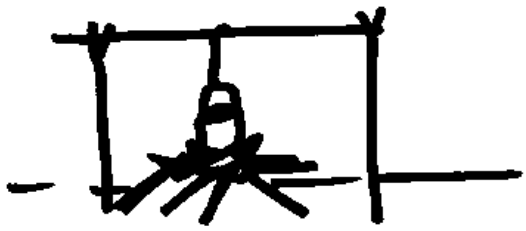
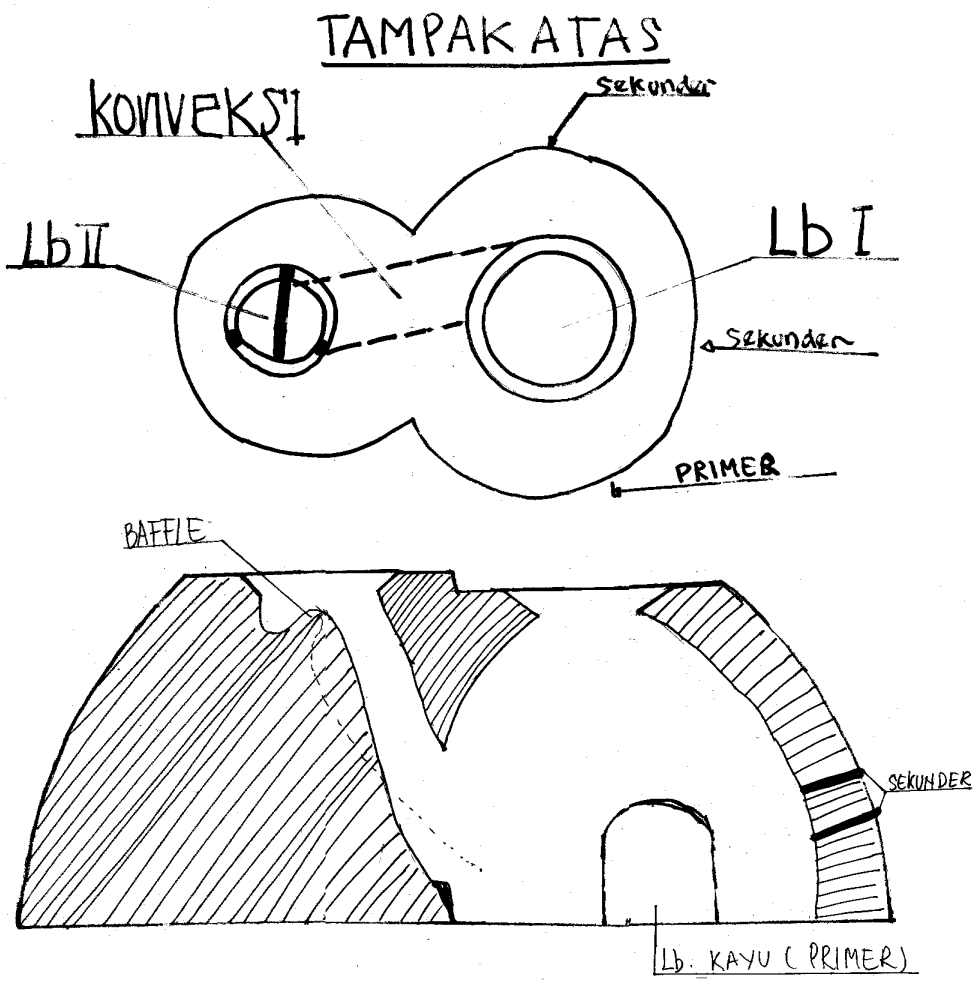


IC design determined at this training

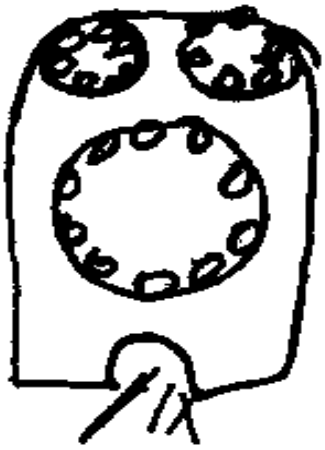
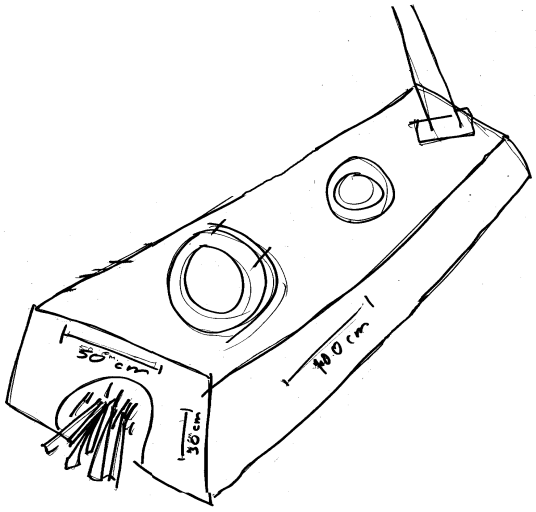
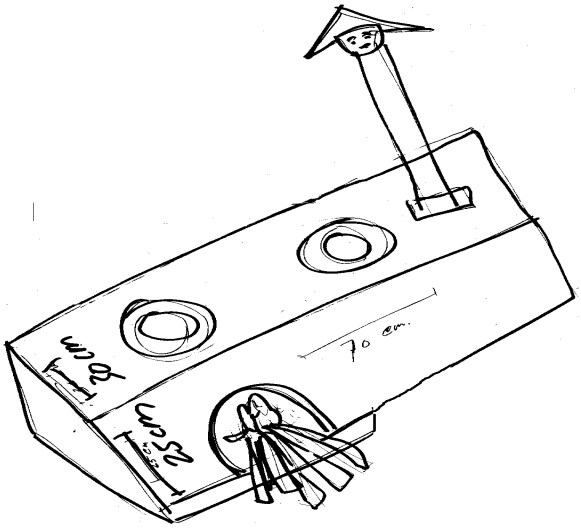


raw material: clay, sand, rice husks
no chimney

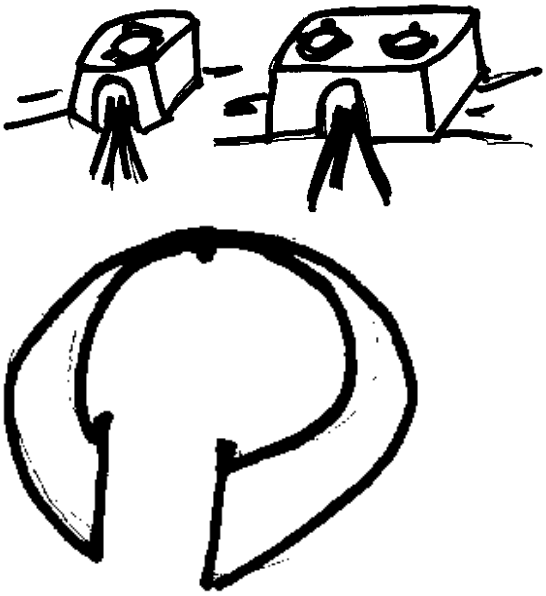
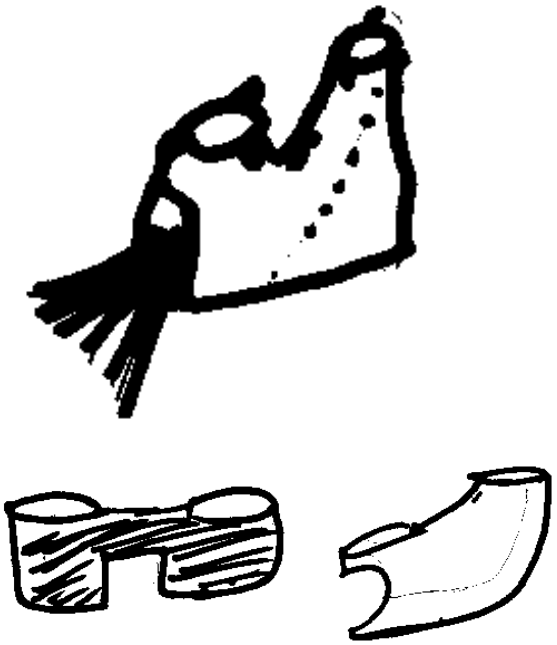
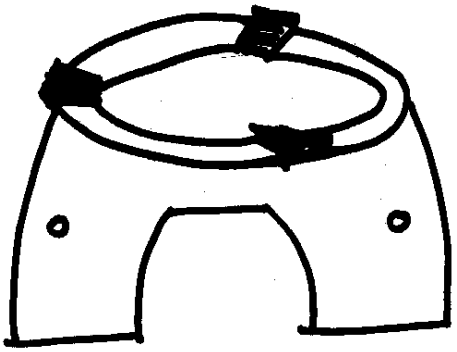
Workplan		
Intervention	Target	Objective
assessment	men and women	to collect information about stove users, stove construction, stove materials and the stove functions
introduction of new stove design	men, women, children, teachers	to introduce the IC as fuel saving and safer
introduction and demonstration	men, women and children	to illustrate the benefits of the IC
training	community groups and local cadres	to transfer stove construction skills
promotion	men, women, children, community organizations	to introduce the IC
monitoring	stove builders and users	to check if the stoves are built according to design to check if community members are using the stoves
evaluation	community	to find out the level of success of the project

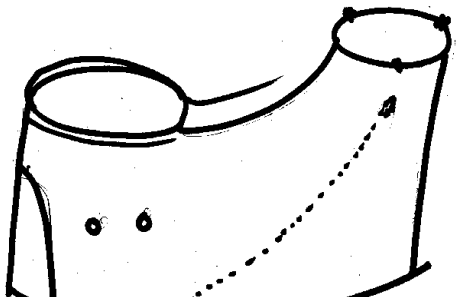
John D. Reda - YPMD Stove Design	
Traditional Stove 	Current IC, if any
IC design determined at this training 	

Workplan		
Intervention	Target	Objective
improve the mud mix of the ICs already introduced (funds to be found)	users: women and girls	to raise cadres' confidence in IC programs to rebuild users' trust towards YPMD
assessment of new ICP area (working area of YPMD, KKW, PKBI, YKPHM, WWF, PKK)	community groups of men and women	to collect data on the social conditions and resources of the communities
lobby working partners	YPMD integrated farming management program, women's working group, PKBI, KKBN, YKPHM, WWF, Regional Office of the Department of Health	to plan the program in accordance with the needs and abilities of the local people to decide on the division of work
meeting	community actors, religious actors, local government, working partners	to explain project ideas and the needs of the target group from assessment information to set a schedule and divide jobs
training	men and women of the target group, local cadres	to increase IC technical skills to explain the advantages of the IC
stove test	community groups and local cadres	to prove the advantages of the IC
monitoring	stove users, local cadres, working partners	to appraise the success of project activities to make technical improvements
evaluation	working partners, target group users	to ensure all activities have been accomplished

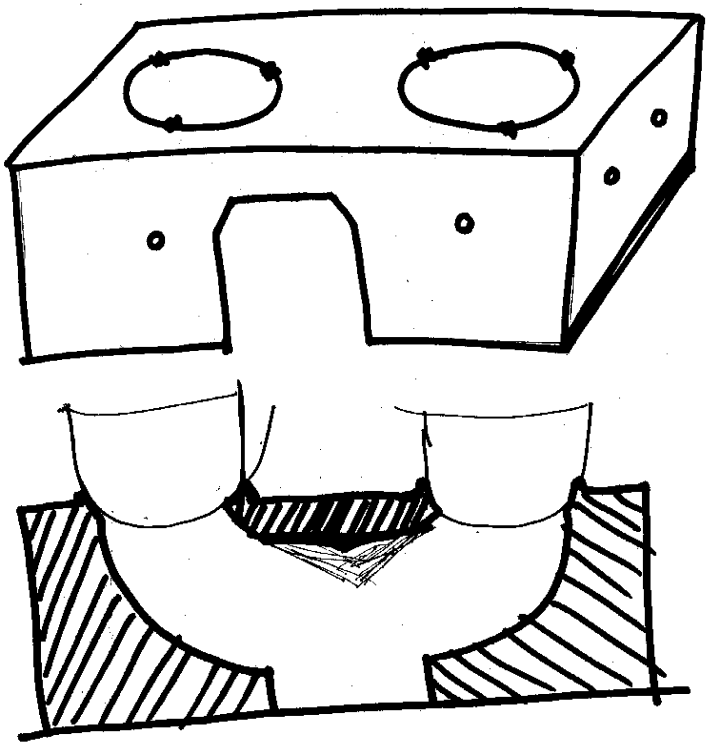
A. Dauri - BPM-PPA Stove Design	
Traditional Stove	Current IC, if any
	
IC designs determined at this training	
	
raw stove materials (clay, sand, rice husks/straw, water)	

Workplan		
Intervention	Target	Objective
socialization of ideas/information	sugar producers	to interest the sugar producers and understand their opinions
assessment	stove users	to understand the problems sugar producers experience
IC construction training	potters, stove users	to increase the network of ICP actors
research and development of IC design	training attendees and those interested in the IC	to identify a designer
IC testing	women users of the traditional and improved stove	to assure the community of the advantages of the IC
modification of the traditional stove	community actors and stove users	to speed up the dissemination of the IC
evaluation, problem identification and trouble shooting, follow-up	all levels of the community	to identify challenges and successes and future steps

Mawardi Gupran, Bambang Supardi - PSP Stove Design	
Traditional Stove 	Current IC, if any 
IC design determined at this training  modification of traditional one pot hole stove • one pot hole • secondary air holes • pot rests shortened from traditional stove • fuelwood • raw materials: sand, clay, rice husks	



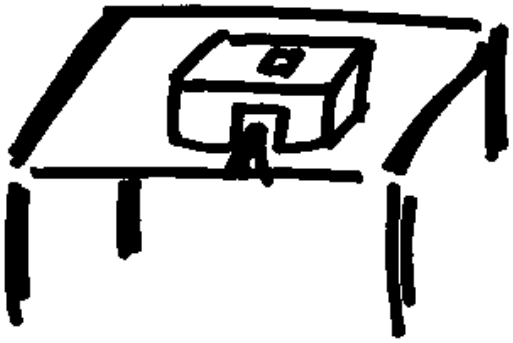
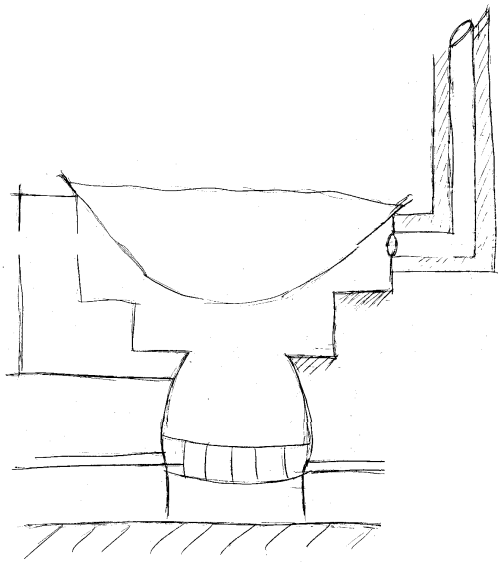
SAE stove
ceramic stove
fuelwood, agricultural residues

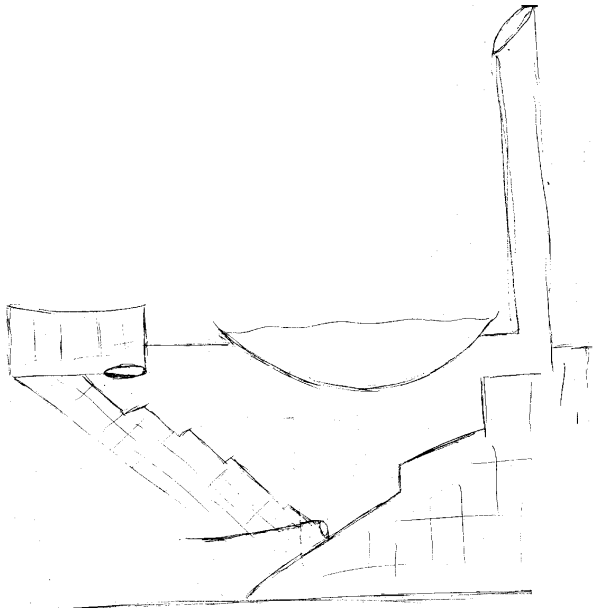


modification of traditional two pot hole stove

- make the combustion chamber smaller
- add secondary air holes
- pot rests shortened
- the distance between the pot holes adapted for the cooking equipment
- fuelwood
- raw materials: sand, clay, rice husks

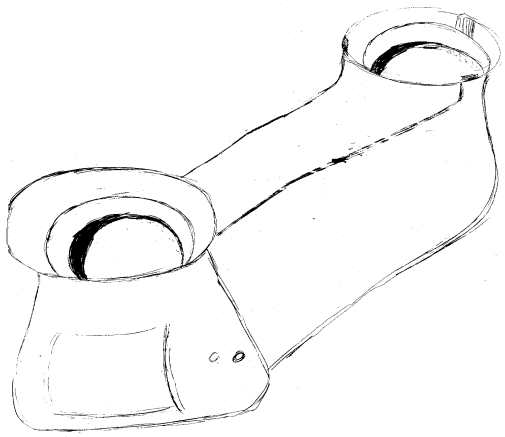
Workplan		
Intervention	Target	Objective
assessment	men and women	to find out information about the communities
social preparation	supporters, related institutions, trainers and community group formers	
stove modification	women stove makers men for collection of raw stove materials	to give skills to modify and make IC
stove construction training	target group, local cadres	to give technical stove building skills
demonstration	target group, local cadres, community	to introduce the IC, its construction and use
IC dissemination	target group, local cadres → consumers stove builders' group and retailers/central market → consumers	to disseminate the IC and technology
IC installation	users	to ensure users are able to install and appropriately place the stove
evaluation and reporting	program implements, stove builders' group, local cadres, community	to find out the success of the program to find out the challenges that have been faced in program implementation

Suroso - PPSW Stove Design	
Traditional Stove 	Current IC, if any 
IC design determined at this training  IC for tempe/tahu industry • fuelwood	



IC for tempe/tahu industry

- rice husks as fuel



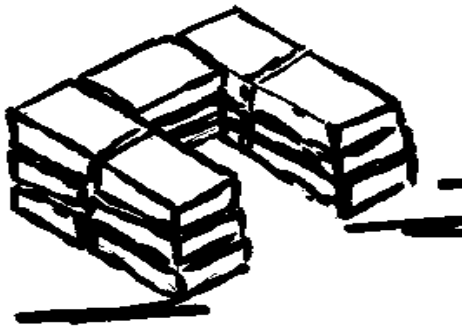
household stove

- ceramic stove
- fuelwood

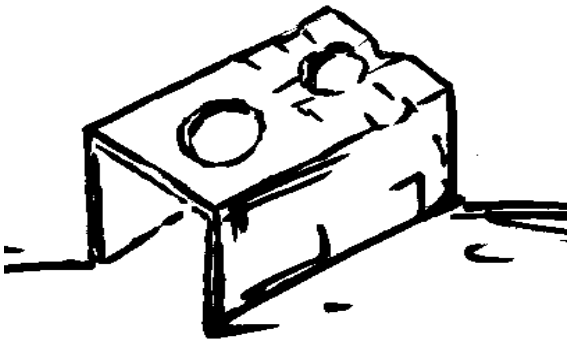
Workplan		
Intervention	Target	Objective
assessment/consolidation	men and women of the target group	to find out the needs and problems of the communities that are related to stoves
training	KWPS, KPS target group	to increase skills and knowledge about issues related to IC technology (environmental awareness)
demonstration	men and women	to increase skill and involvement in stove design
dissemination	target group	to disseminate IC technology
monitoring and evaluation	stove users	to review the expectations not yet achieved

Ibnu Singgih Pranoto - LPTP
Stove Design

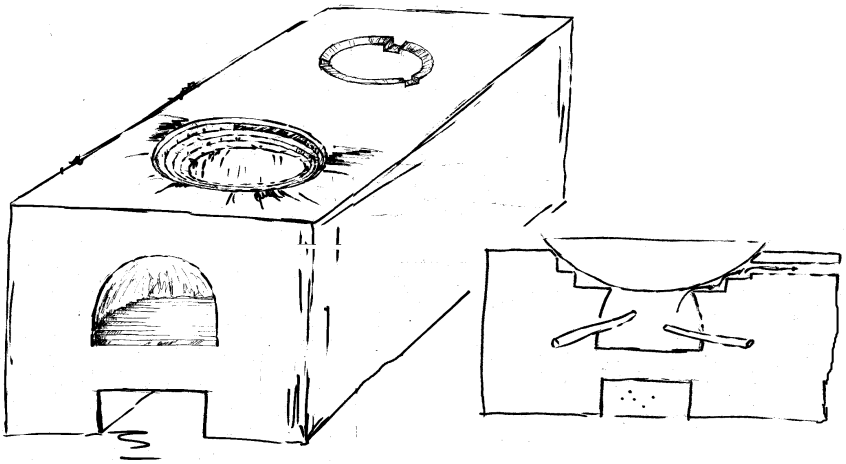
Traditional Stove



Current IC, if any



IC designs determined at this training



IC functions: cooking, coconut sugar production, drying wood and corn
placed in the center of the kitchen with the mouth facing west
raw materials: bricks, clay, sand, straw
stove costs Rp. 20,000 - 25,000, a rotating fund can be set up
dissemination through men and women's groups
integration with programs: institution development, sustainable farming, gender
promoted with stove construction leaflet
promoted with target group (4 groups of coconut sugar producers)
promoted by social workers and local cadres

Workplan

Intervention	Target	Objective
identification of problems, potentials and real needs of the target group	women's group, men's group, local government	to formulate the problems, potentials and real needs together with the target group
program/activities planning	women's group, men's group	to make a working agreement to find out the number of those interested in stove building
training and demonstration	target group (those interested)	to identify members of the target group who can learn and make an IC to identify the type of IC which is appropriate for the needs of the communities to find out how many people are interested in building the IC

APPENDIX 4: LIST OF PARTICIPANTS, TRAINERS AND ORGANIZERS

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APPENDIX 5: TRAINING SCHEDULE

Stage	Session	Time	Method
Nov. 27			
Opening	Opening ceremony	8:30 - 9:30	
	Break	9:30 - 10:30	
	Introduction to ARECOP & RWEDP	10:30 - 10:50	speeches by Mr. Auke Koopmans, FAO-RWEDP and Mrs. Christina Aristanti, ARECOP
Orientation	Introductions	10:50 - 11:20	concentric circles matching name cards to people
	Goals and expectations	11:20 - 12:00	small group work colored cards taped to newsprint
	Framework, content and methodologies	12:00 - 12:50	presentation with transparencies
	Lunch	12:50 - 2:00	
Assessment	Introduction to assessment	2:00 - 2:30	brainstorm
	User context: the kitchen	2:30- 3:00	presentation with slide show
	Guidelines for field exercise 1	3:00 - 3:20	presentation
	Break	3:20 - 3:40	
	Field exercise 1: the kitchen	3:40 - 6:00	field exercise
	Opening Dinner	7:30	
Nov. 28			
	Stove selection stage 1: the kitchen	8:00 - 9:00	fill-in stove selection stage 1 worksheets poster making
	Presentations	9:00 - 10:30	presentations of results with posters questions and answers
	Break	10:30 - 11:00	
	Introduction to community context and gender	11:00 - 11:30	lecturette with transparency singing
	Why is gender important for you?	11:30 - 12:30	drawing pictures gallery viewing group work and poster making

	Lunch	12:30 - 1:30	
	Why is gender important for you? continued	1:30 - 2:00	guided discussion and lecturette
	Gender analysis framework	2:00 - 2:15	lecturette with transparencies
	Community context profile / stove selection stage 2	2:15 - 3:15	small group case study reading small groups fill-in stove selection stage 2 worksheets composite results on whiteboard summing up
	Break	3:15 - 3:30	
	Gender analysis activity profile and resource profile	3:30 - 4:30	
	Review	4:30 - 4:45	
Nov. 29			
	Opening	8:10 - 8:40	review progress go over agenda for day
Technical	Mapping participants' traditional and improved stoves	8:40 - 9:00	mapping drawings of participants and their traditional and improved stoves with a map of Indonesia
	Principles of design	9:00 - 9:50	presentation of factors which influence a stove design individuals write factors important for their own or Lombok stove designs on cards samll groups determine stove design parameters for some influencing factor cards
	Guidelines for field practice: mud stove construction	9:50 - 10:20	presentation with handout
	Break	10:20 - 10:40	
	Raw materials for stove construction	10:40 - 11:00	handout individual reading

	Break for Friday prayers / lunch	10:40 - 2:00	
	Mud stove construction	2:00 - 5:00	field practice in small groups
Nov. 30			
	Opening	8:00 - 8:15	review progress go over agenda for day
	Combustion experiments	8:15 - 9:15	10 experiment stations
	Combustion	9:15 - 10:15	question and answer lecture with transparencies
	Break	10:15 - 10:45	
	Quiz on combustion	10:45 - 11:15	game show type quiz
	Heat transfer	11:15 - 12:00	lecture with transparencies
	Guidelines for field practice: brick stove construction	12:00 - 12:40	lecture with handout
	Lunch	12:40 - 2:00	
	Brick stove construction	2:00 - 5:00	field practice in small groups
Dec. 1			
	Opening	8:15 - 8:30	review progress go over agenda for day
	Field visit	8:30 - 11:00	field trip to PSP project area
	Discussion of observations	11:00 - 12:00	discussion
	Beach time / free time	12:00 -	
Dec. 2			
	Opening	8:00 - 8:15	review progress go over agenda for day
	Using combustion and heat transfer theory for design	8:15 - 9:00	lecturette
	Quiz	9:00 - 9:30	game show quiz on combustion and heat transfer
	Break	9:30 - 10:00	
	Stove parts	10:00 - 10:30	lecture with transparencies

	Traditional stove types	10:30 - 11:40	using examples of participants' traditional stoves to tie to theory and suggest modifications
	Improved stove types	11:40 - 12:15	lecture
	Lunch	12:15 - 1:30	
	Selecting designs for case studies	1:30 - 2:45	small group reading of case study and selection of stove design presentation using newsprint
	Stove selection stage 3: technical design	2:45 - 3:00	lecturette and worksheet distribution
	Break	3:00 - 3:30	
Dissemination	Introduction to dissemination	3:30 - 4:30	telephone small group brainstorming presentation lecture with transparencies handout
Dec. 3			
	Opening	8:15 - 8:30	review progress go over agenda for day
	Introduction to dissemination continued	8:30 - 9:00	lecturette
	Dissemination types and strategies	9:00 - 10:30	role play lecture with question and answer
	Break	10:30 - 11:00	
	Promotion	11:00 - 11:30	matching needs with sales pitches game brainstorming summing up
	Stove selection stage 4: work plan	11:30 - 12:30	small group work
	Lunch	12:30 - 1:30	
	Presentations	1:30 - 3:00	group presentations
	Guidelines for field practice: finishing mud stoves	3:00 - 3:20	lecture with handout
	Break	3:20 - 3:45	
	Finishing mud stoves	3:45 - 5:45	field practice in small groups

Dec. 4			
	Opening	8:00 - 8:15	review progress go over agenda for day
	Monitoring and evaluation: indicators	8:15 - 9:15	presentation work pairs reporting
	Stove testing theory	9:15 - 10:30	lecture with handout
	Break	10:30 - 11:00	
	Stove testing practice	11:00 - 12:00	field practice in small groups
	Lunch	12:00 - 1:00	
	Stove testing practice	1:00 - 3:30	field practice in small groups
	Calculations of results	3:30 - 4:30	presentation small group work
	Break / dinner	4:30 - 8:00	
Application	Introduction to application	8:00 - 10:00	participative lecture
Dec. 5			
	Stove selection stages 1- 4	8:00 - 12:00	individual or per organization work poster making and hanging
			poster making and hanging
	Lunch	12:00 - 1:00	
	Calculation of stove testing results continued	1:00 - 2:30	group work presentation
	Break	2:30 - 3:00	
	Presentation of stove design and work plan from stove selection stages 1 - 4 for individual working areas	3:00 - 4:30	gallery viewing comments by trainers / organizers comments by participants
	Evaluation of training	4:30 - 5:30	colored cards for positives, negatives and suggestions taping and viewing of cards summing up
			taping and viewing of cards
	Closing speech	5:30 - 5:50	speech by Mr. Auke Koopmans, FAO-RWEDP