Annex 1: Participatory Technology Development Training
Dfid Smoke KaR Project, for communities in Kajulu and Kisumu East Locations, Winam Division.

Reported prepared by …….

Program
Dates : 8th to 10th January, 2003.

8th Wednesday
- Preparations of Materials
- Cost Comparison

9th Thursday
- Chimney Installation
- Window Installation
- Group Interaction
- Eave-spaces
- Chimney Pre-test
- Kitchen Improvement

10th Friday
- Recap and Preparations for Testing

23rd Thursday
- Chimney Testing
- Handing Over

Rationale for the PTD
Lessons from the last IAP work.

i) The household owners were willing to install interventions but were limited by the cost of suitable materials
ii) The last Smoke Project featured intervention of varying costs that were high enough to warrant a research for lower cost materials:
iii) The team conducted household improvement visits[1] during which it was determined that a PTD session would be useful in meeting the needs of the work and installing interventions in a cost effective and participatory manner

Progress
An artisan from the Mumias Ichingo area was challenged to develop a mud chimney/fireplace using locally available materials. This was successfully conducted [2] and valuable lessons learnt. It cost a total of KShs 800/= to make, and was effective in extracting smoke during the testing. It was however not used consistently afterwards because of cultural constraints imposed on the household owner.
The challenge after this lesson was to:

i) to develop an affordable and cost effective chimney
ii) to demonstrate transferable technologies in the installation of the chimney
iii) to demonstrate the suitability and adaptability of locally available materials
iv) to duplicate the use of second hand or scrap material with little variation in effectiveness.
v) To demonstrate the concept of cost sharing to the participating community with a primary view of installing similar interventions in all the households, and a secondary view of scaling up and commercialising the interventions at a later stage.

[1] See the "Household Improvements Visit report"
[2] See the "Innovative Chimney Report "

Even though the PTD was not planned in the original Project document, it was a theme that ran implicitly through the project implementation methodology. The team therefore felt that an explicit session of PTD would be useful in developing further previous chimney designs while incorporating ideas from key community members such as artisans and eventual product users.

Materials		Cost 1 KShs	Cost 2 Substitute KShs	Percentage difference
1. C – metal body, timber frame.including labour costs	7200		3700	
2. Eaves – fine mesh, timber, nails	616		616	
3. Improved stoves				
4. Windows, weld mesh, timber, Nails	150		150	
Nails	900		900	
Bondex,	145		145	
Sand and cement	220		220	
	120		120	
5. Others - labour				
TOTALS				

Note: Window and eave space requirement per household varies.

Location and Siting for Interventions

In the case where a new kitchen is built it is important to advise on siting in cosidation of the deirection of wind.

In siting of the interventions in a kitchen they are done in realtion to the fire place:

Stiting of fire place.

Identify with the house owner the place that she prefers to have her fireplace at. Discourage dark corners that will not enable proper burning of the stove. At the same time the wind direction needs to be pointed as if the stove is placed against the wind then the smoke is likely to flow across the house as opposed to leaving from the end at which it is generated.

Deleted: preferss

Windows and eave spaces

Use the principle of through and cross ventilation. Take into socio-cultural issues and security. In some places they do not accept to have windows at the back so in this cases eave spaces may be more preferable but reinforced.

Criteria for selecting PTD household

i) the household needed to be centrally located in the community

ii) belong to a needy member of the community who was familiar with the Smoke Project, but not one of the monitoring households
iii) Did not have an integral kitchen and was willing to take up the cost of building a separate kitchen using locally available materials while ITDG installs the interventions on a research basis.
iv) Uses biomass fuel for cooking and is willing to change kitchen procedures to accommodate the requirements of the Smoke Project.

Thus using this criteria the house for R.O. who is a Community representative was chosen as she was recently rendered homeless by fire that swept both her kitchen and the main house and she had to move to a totally different place to establish a home. On this basis she was approached after she built the main house if they could consider building a Kitchen in which we could do the PTD.

Objectives of the Training

1. To introduce the concept of Participatory Technology Development to the community, by inviting key members of the communities to the training.
2. To develop a cost effective chimney using locally available materials
3. To adapt and modify previous chimney designs from previous work in other communities to suit this particular community.
4. To initiate business contacts between the community members in need of interventions and artisans willing to undertake the work for a profit.

Expectations of the participants

1. To attend a skills building session and share existing ones.
2. To receive a new kitchen
3. To make contacts with the community members for the purpose of developing business.
4. To see how smoke interventions are installed

Participants

1. Household Owners (chosen to provide a platform to determine the level of need for Smoke Interventions, affordability and desirability among the users.)
   G.O., Konya Sub-location.
   R.O, Konya Sub-location
2. Artisans (invited to assist in adapting and developing the correct chimney features with reference to community household designs practices and standards.
   S.N., Konya S. location. (Carpenter)
   G.M., Bandani S. location (Mason/Builder)
   F.O., Bandani S. location (Mason/Builder)
   E.O., Wathorego, (Builder)
3. Community Representative
   D.O., J.O.
4. Community Members from Konya S/location. (invited to participate in the session and play the role of information disseminators, in line with the implementation methodology to use community members as much as possible)
5. Trainers (has been important in the last Smoke Project activities in developing the design and choosing appropriate materials for the chimney)
   C.O., Kibuye Jua Kali Arisans, (Tinsmith)
6. Facilitators Hellen N. Odhiambo, ITDG EA, Kisumu.
7. Rapporteur/Digipix Vincent A. Okello

Photographs Index

1. Homestead and kitchen before
2. Homestead and Kitchen after
3. Materials preparations
4. Chimney installation preparations
5. Window installation preparations
6. Eavespace installation preparations
7. Kitchen
8. Chimney inside
9. Chimney outside
10.

Conclusions and Results

1.

Key inputs by the arisans.

Once briefed on the intention at the start of the PTD, the team of arisans were able to give step by step input into the work. The idea of having the artisans with different skills involved was very useful as each of them were able to a[pply their skills as required. Initially we never realised how useful it was to have masson for the mud base.

- The tinsmith was able to identify the right metal guage to be used for making the hood and also to modify the hood to be fitted onto a mud base
- A proper foundation for a fireplace.
- The need to prepare the walls for the hood base
- Good finishing for the mud base hood was the maison's input.

Conclusions

- The hoods should be at at hand when the base is being measured. To ensure that the final result is not affected.

Further PTD Work

Once testing of this smoke hood is done it will be useful to try a double one since 80% of the research households would like to have double stoves during installation of the interventions.