Use of insecticide treated plastic sheeting for combined shelter and vector control in emergencies

Richard Allan

The Operational Challenge:


Where standard tools are to slow, unfeasible or impractical

Insecticide Treated Plastic Sheeting (ITPS)

- Duel purpose tool to:
- Save delivery time
- Reduce dependency on specialised control teams
- Improve acceptability and compliance and target whole household (like IRS)
- Long lasting
- Cost effective: shelter & malaria control

RBM / WHO co-ordinated and funded public private partnership

100 um LD laminate

200 um HD laminate

100 um LD laminate

polyethelene

4/19/2007

1st PS Peer Review Meeting
Experimental Results Published:

•1. IRD Montpellier (WHO partner test group) contracted by WHO for independent Phase 1 testing of ITPS in 2000. Results showing very high efficacy of ITPS for mosquito and housefly control published in 2001.

•2. LSH&TM + Health Net contracted by WHO for independent Phase II testing in 2001. Results published in 2002. Field tests in Pakistan showed:

•High mosquito mortality with ITPS

• ITPS acts in the same way as IRS (i.e. requires >80% household coverage to ensure community protection for malaria)

- 3. IRD Montpellier contracted by WHO in 2004 for Phase II testing of a ITPS in west Africa. Results published in 2005 showed the same results as the LSH&TM Phase II in Pakistan.

- 4. Phase III testing of ITPS by MENTOR/UNHCR/SL/IRD MoH was completed in 2004/5 in Sierra Leone and is being prepared for publication jointly by all partners. The field test data [illegible] that ITPS is feasible to use, safe to [illegible] effective in [illegible] reduces malaria inci[illegible]

Publication list with Joseph for those who want copies

- Consequently WHO recommended ITPS use for combined shelter and vector control in the Tsunami and other crises and requested NGOs to monitor and report on acceptability and feasibility.

- WHO emergencies network summary report for ITPS and some new malaria control tools disseminated in November 2006

ITPS important design criteria:

1. Is tested and published to the same level as 2 (permanet and Interceptor) or the 3 currently WHO approved LLITNs

2. Uses the WHO/FAO approved insecticide: Deltamehrin

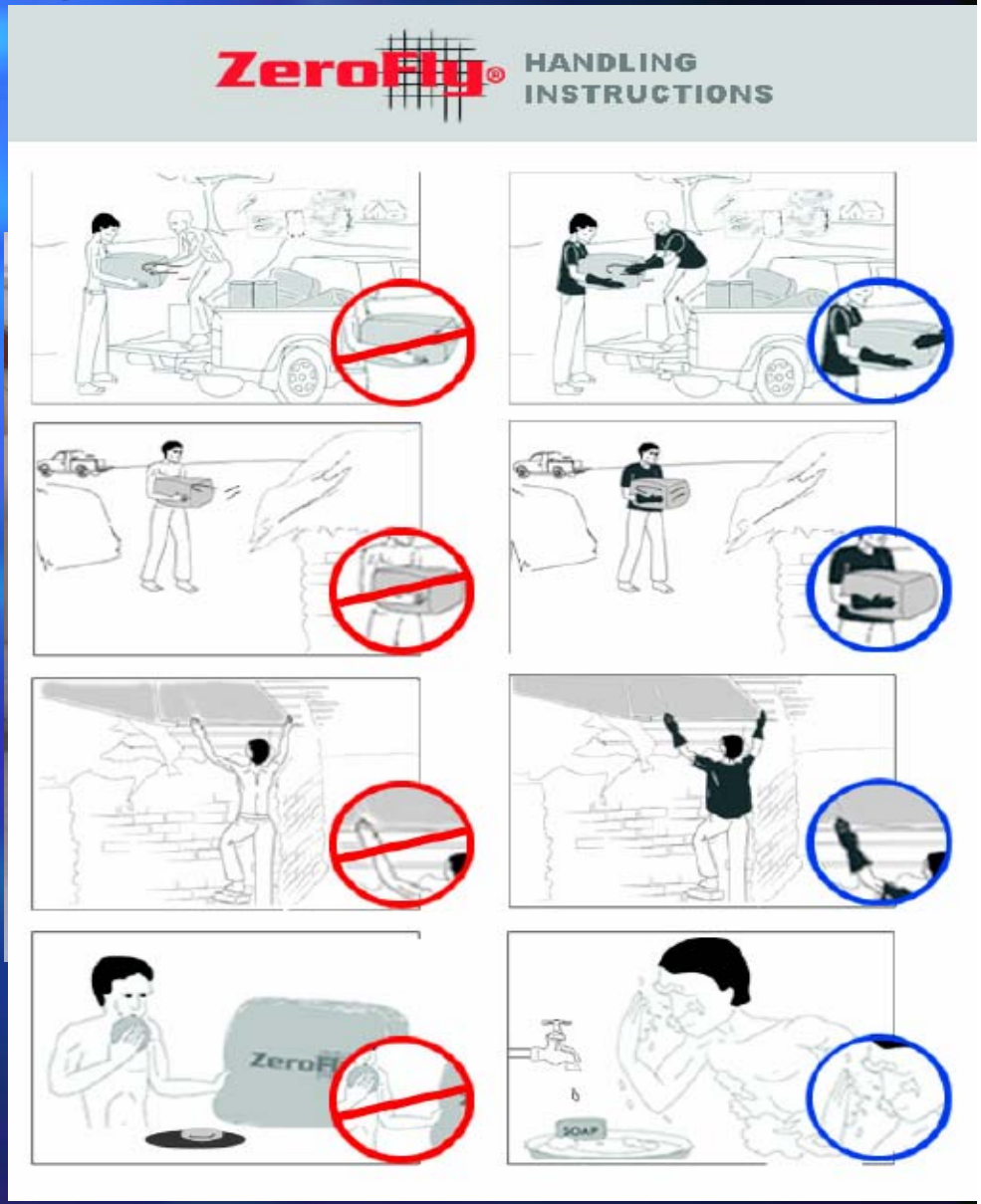
3. Deltamehtrin is also used in Permanet ITPS uses the same Permanet chemical technology

4. Deltamethrin is a standard insecticide used for large scale indoor residual spraying by Oxfam, MSF and many other NGOs

5. Safety testing for IRS is minimal and impossible to standardise results

ITPS use in emergencies to date

- 14000 Liberian refugees housed in 2 camps in Sierra Leone (2003-2005/6) (MENTOR/UNHCR)
- 13000 Liberian IDPs housed in 2 camps in Liberia (2003-2005) (IRC & other NGOs)
- Also used by NGOs in Darfur (MSF H) and Haiti (ICRC)
- Tsunami (Indonesia) 120,000 people housed along the Aceh west coast (+ 550,000 under IRS): MENTOR, + 12 NGOs (PCI, IRC, IMC, WV, SCF, etc)



2006: Earth quake victims in protected in Java

- In all cases of shelter construction, the MENTOR team would build a “model” shelter to teach the community the appropriate construction techniques, thus transferring skills.
- Families and communities would then proceed to construct their own frames with bamboo or salvaged wood while MENTOR provided the ITPS.
- MENTOR also provided communities with necessary tools and equipment, including gloves, nails, hammers and saws.


MENTOR initiative
www.thementorinitiative.org
INDONESIA
USAID
FROM THE AMERICAN PEOPLE

4/19/2007

ITPS schools and community buildings

4/19/2007

	Bantul	Gunung Kidul	Sleman	Klaten	Sukoharjo	Total
ITPS distributed	12,085	2,183	528	2,035	559	**17,390**
Shelters Built by MENTOR	938	70	48	85	20	**1,161**
Shelters Built by MENTOR& Community	1,484	350	84	96	30	**2,044**
Shelters Built by Community	706	119	-	328	90	**1,243**
Beneficiaries protected by ITPS	12,512	2,341	528	2,036	560	**17,977**

IRS conducted in homes which survived the earth quake

- MENTOR also completed IRS and IEC in 92 sub-villages spraying 33,474 homes for 119,079 beneficiaries

- Surface water were larvicided in 125 villages to reduce mosquito breeding sites

ITPS Acceptability Study

- Acceptability study implemented after 7 months
- The survey was done in 2 districts of Yogyakarta province and 1 district in Central Java province. A total of 442 households, from 18 villages in the 3 districts of Bantul, Gunung Kidul and Sleman were selected. All were highly endemic for dengue fever and had some malaria.
- Only households were surveyed (not clinics, schools etc)
- Malaria was defined as the presence of fever and chills.
- Due to the difficulty of getting a uniform and easily understood definition of dengue fever, the history of dengue hemorrhagic fever (DHF) was used as a proxy measure of dengue fever in the community.

Table 1; Characteristics of 442 heads of household in survey population

		N (%)
Sex	Male	217 (49)
	Female	225 (51)
	Total	**442 (100)**
Age	10-20yrs	11 (2.5)
	21-30yrs	54 (12.2)
	31-40yrs	129 (29.2)
	> 40yrs	248 (56.1)
	Total	**442 (100)**
Marital status	Married	371 (84)
	Single	27 (6)
	Widow(er)	40 (9)
	Others	4 (1)
	Total	**442 (100)**

Table 2; Characteristics of 442 households with people living in ITPS structure.

		N (%)
Number of people living in house	1-2	70 (16)
	3-5	250 (57)
	>5	121 (27)
	Total	**441 (100)***
Family living under ITPS	No	87 (20)
	Yes	355 (80)
	Total	**442 (100)**
Who lives under ITPS	Father and/or mother	23 (27)
	Father and all/some children	10 (12)
	Mother and all/some children	8 (9)
	Father,mother and all/some children	25 (30)
	Total	**85 (100)****
Anyone pregnant living under ITPS	No	415 (94)
	Yes	27 (6)
	Total	**442 (100)**
How have you used ITPS	As part of the shelter structure	411 (93)
	As the only shelter structure	29 (6.5)
	Other	2 (0.5)
	Total	**442 (100)**
How many ITPS did you use	One	8 (2)
	Two	73 (16.5)
	Three	95 (21.5)
	4 or more	266 (60)
	Total	**442 (100)**

Table 3; Perceptions and attitude towards ITPS among 442 respondents.

		N (%)
Who installed the ITPS	Yourself	**306 (69)**
	Community group	38 (9)
	Mentor staff	91 (20.5)
	Others	7 (1.5)
	Total	**442 (100)**
Does ITPS have negative effects	No	121 (27)
	Yes	308 (70)
	Total	**441 (100)**
What are the negative effects	Make people sick	18 (6)
	Make house hot	118 (39)
	Itchiness	168 (54)
	Other	4 (1)
	Total	**308 (100)**
Would you use ITPS again as temporary shelter	No	120 (27)
	Yes	**322 (73)**
	Total	442 (100)

Table 4; Perception of influence of IPTS on vectors and disease among 442 respondents

		N (%)
Effect of ITPS on reducing mosquitoes and other insects	Very good	23 (5)
	Good	361 (82)
	Poor	37 (8)
	Don't know	20 (5)
	Total	**441 (100)***
Anyone in your family ever suffered from fever and chills	No	415 (94)
	Yes	27 (6)
	Total	**442 (100)**
Anyone in your family ever suffered from DHF	No	421 (95)
	Yes	21 (5)
	Total	**442 (100)**

*one household did not answer these questions

Conclusions

- ITPS proved feasible to use on varied Indonesian shelter/ house designs
- The majority of people built their own shelters after seeing community model
- 82% said that ITPS had a significant impact on insect of all types
- Only 94.5% reported no incidence of malaria or dengue whilst living under ITPS
- Minor irritation was noted by 70% (maybe due to not using gloves)
- 73% said thy would be happy live under ITPS again

New 2007 ITPS generation:

As a result of the feed back from the December 2006 Peer Review meeting

VF have modified ITPS weight from 180 gm/m^2 to 200 gm/m2

UV spec was Standard 2 but is now Standard 1

Temperature resistance: -20 to +80^{o}C (flashpoint 200^{o}C)

Please see new spec sheet for full details.

New samples are available for testing by the peer group.

THANK YOU

4/19/2007