Reducing Risks to Human Health and the Environment Associated with Pesticides

National Workshop on Sustainable Rice Production: Re-visting IPM,

12-13 September, 2012

Outline of the Presentation

Pesticide and its impact on human health and the environment
- case study of Kasargod, Kerala

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Policy and Regulatory Challenges

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What is needed

Endosulfan poisoning in Kasargod,Kerala

SHRUTI: PHYSICALLY CHALLENGED

CHILD WITH BRAIN CANCER

Kasargod: a long struggle for justice

- **Mid- 70s – PCK aerially sprayed endosulfan on cashew nut plantations**
- **1997 - Documentation by two local doctors**
- **Communities organised to tackle the issues**
- In 2000 – A Fact finding mission was organised by Thanal and PAN AP
- In 2001 – Center of Science and the Environment (CSE) – undertook laboratory testing of residues in the environment
- Testimonial documentation
- Studies and counter studies
- Legal recourse
- **In 2003 - High Court of Kerala ban the use of endosulfan on precautionary grounds**
- **State of Kerala bans and Chief Minister provides compensation**

POLICY ADVOCACY

- **Recent Inclusion of endosulfan in the Stockholm and Rotterdam Conventions**

THE STRUGGLE EXEMPLIFIES THAT:

- Chronic effects of pesticides take a long time to become evident in humans – in the case of endosulfan it took almost 2 decades even though animal studies indicated the harmful potential long before this.
- The existing regulatory mechanisms are lacking and are unable to deal with the emerging impacts of pesticides.
- Corporate Profits are still more important rather than people's health and the environment
- We need non-chemical alternatives to pesticides
- The long period of struggle to ban endosulfan in the state and at the global level

PESTICIDE POISONING

In fact, accurate statistics of pesticide poisoning do not exist.

- **Estimates of acute poisoning of agricultural workers range from 1-5 million through 25 million and up to 50-100 millio**n.
- In six Central America countries, 32,245 questionnaire responses indicated a regional estimate of 400,000 poisonings / year. **This corresponds with 1.9 % of the entire population being poisoned annually, and documents an underreporting rate of 98% in these countries**. (Murray et al 2002)

Pesticides and Poverty

Malnutrition increases the health effects of pesticide

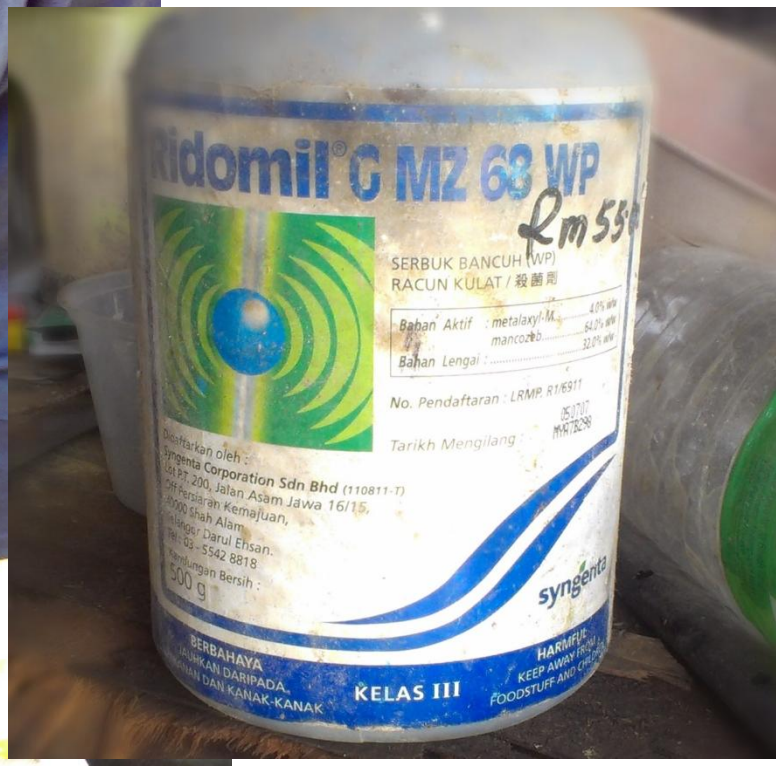
- **The poor are disproportionately affected because of :**
  - Illiteracy
  - Lack of capacity
  - Lack of information
  - Lack of options
  - Lack of labels in local language
  - Lack of protective clothing
  - Lack of training and information and use

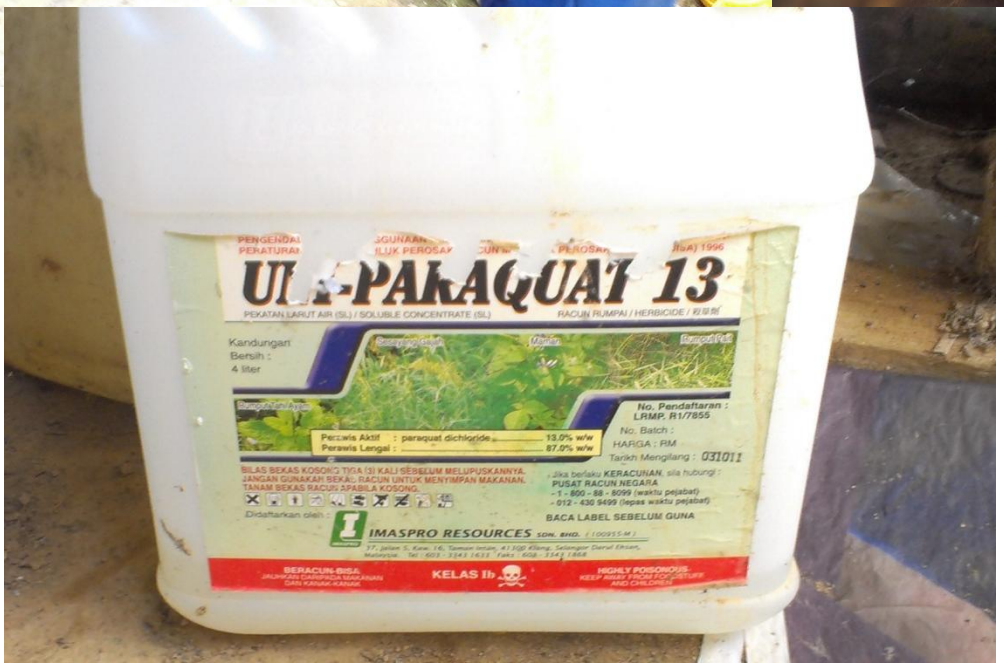
Kamukaan in Mindanao, Philippines

Pesticide Application

Pesticide containers storage and disposal

- Herbicides, especially Gramoxone (paraquat) are the most commonly


Ridomil® C MZ 68 WP
Rm55
SERBUK BANCUH (WP)
RACUN KULAT / 殺菌劑
Bahan Aktif : metalaxyl-M 4.0% w/w
mancozeb 64.0% w/w
Bahan Lengai : 32.0% w/w
No. Pendaftaran : LRMP. R1/6911
Tarikh Mengilang :
Didaftarkan oleh :
Syngenta Corporation Sdn Bhd (110811-T)
Lot P.T. 200, Jalan Asam Jawa 16/15,
Off Persiaran Kemajuan,
40000 Shah Alam,
Selangor Darul Ehsan.
Tel : 03 - 5542 8818
Kandungan Bersih :
500 g
syngenta
BERBAHAYA
JAUHKAN DARIPADA
MAKANAN DAN KANAK-KANAK
KELAS III
HARMFUL
KEEP AWAY FROM
FOODSTUFF AND CHILDREN


UNI-PARAQUAT 13
PEKATAN LARUT AIR (SL) / SOLUBLE CONCENTRATE (SL)
RACUN RUMPAI / HERBICIDE / 殺草劑
Kandungan Bersih : 4 liter
No. Pendaftaran : LRMP. R1/7855
No. Batch :
HARGA : RM
Tarikh Mengilang : 031011
Perawis Aktif : paraquat dichloride 13.0% w/w
Perawis Lengai : 87.0% w/w
BILAS BEKAS KOSONG TIGA (3) KALI SEBELUM MELUPUSKANNYA.
JANGAN GUNAKAN BEKAS RACUN UNTUK MENYIMPAN MAKANAN.
TANAM BEKAS RACUN APABILA KOSONG.
Jika berlaku KERACUNAN, sila hubungi :
PUSAT RACUN NEGARA
- 1 - 800 - 88 - 8099 (waktu pejabat)
- 012 - 430 9499 (lepas waktu pejabat)
BACA LABEL SEBELUM GUNA
Didaftarkan oleh :
IMASPRO RESOURCES SDN. BHD. (100955-M)
BERACUN-BISA
JAUHKAN DARIPADA MAKANAN DAN KANAK-KANAK
KELAS Ib
HIGHLY POISONOUS
KEEP AWAY FROM FOODSTUFF AND CHILDREN

Repackaged pesticides

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Exploitation of children as workers and women

Pregnant plantation worker working as a pesticide sprayer

Child labourers and their exposure

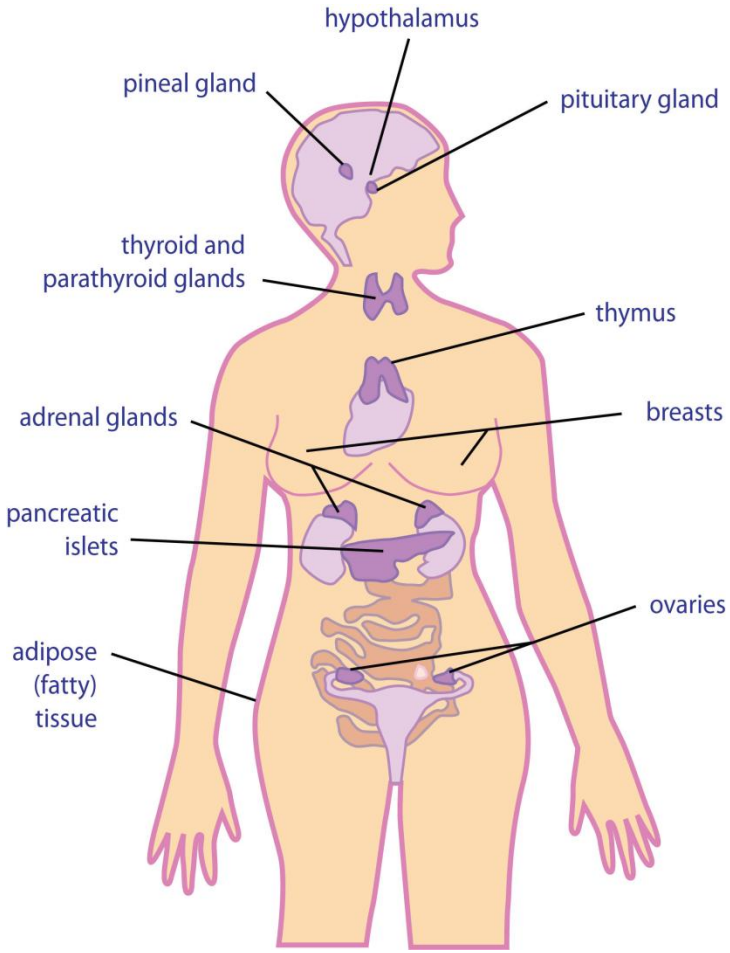
CHRONIC EFFECTS OF PESTICIDES

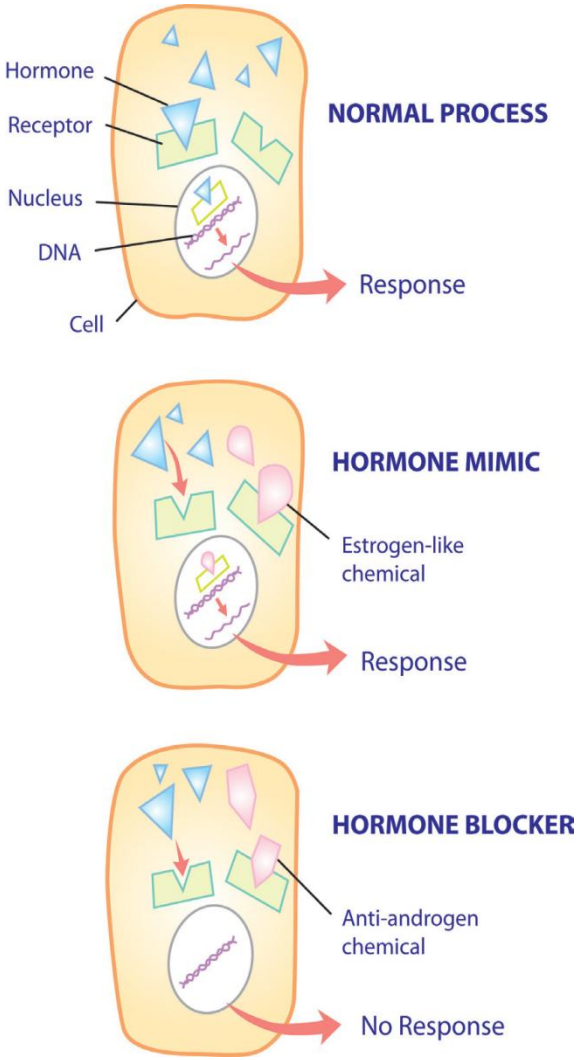
- CANCER
- REPRODUCTIVE PROBLEMS
- BIRTH DEFECTS
- DEVELOPMENTAL AND BEHAVIOURAL IMPACTS
- IMMUNE IMPACTS
- ENDOCRINE DISRUPTION
- NEUROLOGICAL IMPACTS

Broad trends:

- Synergistic interactions are the most problematic, because they indicate that the effects of multiple chemicals together can be significantly more powerful than might be predicted simply by adding up their effects one at a time. **Regulatory science rarely incorporates any interactions; it is incapable, at present, of coping with synergies.** Effect of paraquat in inducing Parkinson's disease has been shown to be heightened by synergistic interaction with the fungicide maneb

Endocrine Disruptors

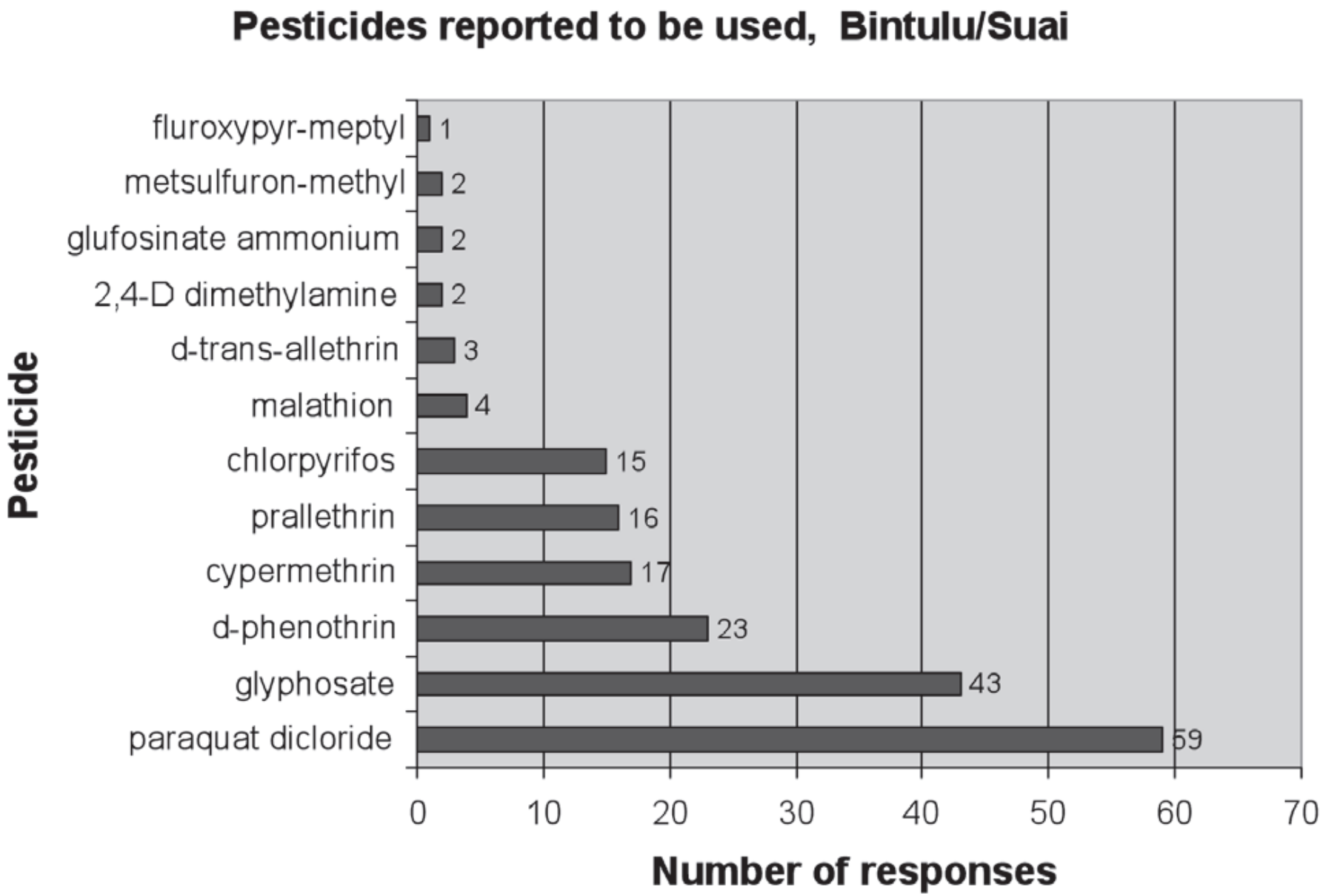




Important glands, organs and tissues sending or receiving hormonal messages in the human body

Environmental contamination

- Honey bees are pollinators that help to fertilise at least 30 percent of the world's crops and 90 percent of wild plants.
- Recently, honey bees have been disappearing and abandoning their hives and it has affected bee keepers across the globe particularly in France, Germany, Japan and the US.
- The phenomenon known as colony collapse disorder (CCD) is globally estimated to cost USD5.7 billion in terms of declining crop yields and increased production costs.
- Pesticides are implicated as one major cause of CCD including neonicotinoid pesticides (produced by Bayer). Some of the neonicotinoid pesticides have been banned in Europe but continue to be used in the US and Japan.
- The Beekeepers Italian Association recently announced that bees are repopulating northern Italy thanks to a ban on neonicotinoids by the Ministry of Agriculture as a precautionary measure.


Pesticides reported to be used, Bintulu/Suai
Pesticide
fluroxypyr-meptyl
metsulfuron-methyl
glufosinate ammonium
2,4-D dimethylamine
d-trans-allethrin
malathion
chlorpyrifos
prallethrin
cypermethrin
d-phenothrin
glyphosate
paraquat dicloride
1
2
2
2
3
4
15
16
17
23
43
59
0
10
20
30
40
50
60
70
Number of responses

POLICY AND REGULATORY CHALLENGES

Governments lack the resources

- **Unable to systematically monitor these hazardous pesticides**
- **Health monitoring is sporadic**
- **In many countries there is no legislation to safeguard - freedom of information and right to know.**
- **Lack participation of CSOs and organisations representing the vulnerable sectors and affected communities in the decision making processes**

- Even if government bans a pesticide, the industry challenges them in court or through the media and PR spins and political influence able to overturn the ban
- Example, Germany and Malaysia

Concentration of corporate power - what do they control?

- **<u>Total proprietary seeds market in 2007</u>**
  - **US$ 22 billion**
  - **10 companies control 67% world's proprietary seed market**
  - **Monsanto, accounts for 23% of the global proprietary seed market.**
  - **Monsanto, Dupont, Syngenta lead the pack.**

<u>Total pesticide sales in 2009</u>

- $45 billion global pesticides industry
- 85% by big six

<u>Total GE seeds sales in 2006</u>

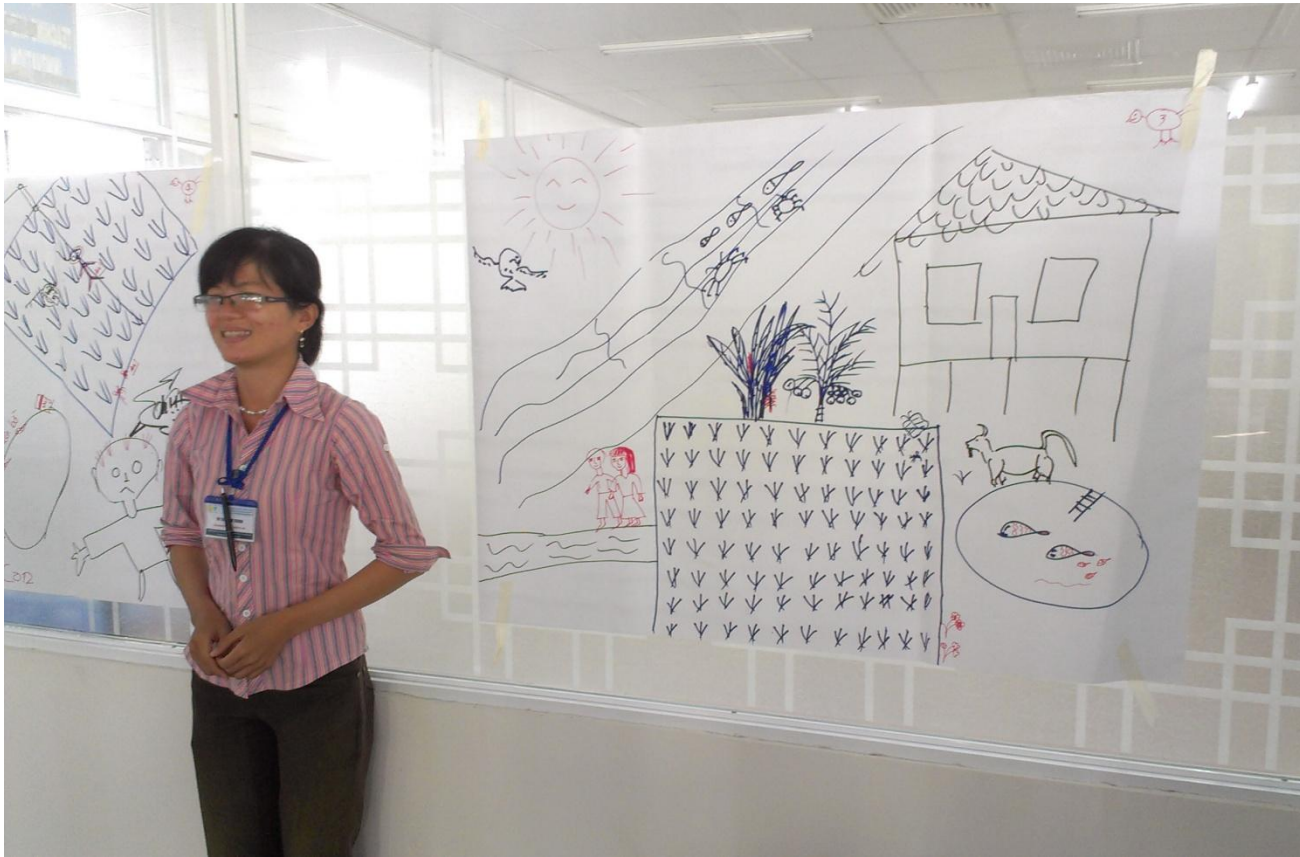
- US$6 billion, 97% by Monsanto, DuPont, Syngenta
- Over 57% are herbicide tolerant

WHAT IS NEEDED?

Integration of poverty and sound chemical management

- Active participation of leaders of people's movements and those affected – peasants, indigenous peoples, agricultural workers, urban poor, pastoralists, (with equal participation of women) in decision making processes and implementation
- Capacity building and empowerment of the marginalised sector to understand the effects of pesticides and to take action. For example, IPM farmer field schools.

Capacity Building: Community Monitoring



Policy and regulatory responses required

- Apply the precautionary principle
- Implement the progressive ban on highly hazardous pesticides as recommended by the FAO/WHO Joint Meeting on Pesticide Management, using the criteria to review pesticides in use at national level and during registration process
- Capacity enhancement at all levels

Biodiversity based ecological Agriculture

- The Special Rapporteur on the Right to Food, Olivier de Schutter identifies agro-ecology as a science and practice that has fast concretised the right to food for many vulnerable group.
- Such ecological agriculture systems have tended to learn from, and build on traditional farming with the tools and technology that local farmers have utilized.
- These approaches build on peasants resilience and knowledge and skill on food production to achieve food security
- There is a quiet change that is taking place – movement for ecological agriculture with women's participation

The International Assessment on Agricultural Knowledge, Science and Technology

- IAASTD carried out by hundreds of scientist under the UN banner, reflects a growing consensus among the global scientific community and most governments that the old paradigm of industrial, energy-intensive and toxic agriculture is a concept of the past.
- The key message in the report- small-scale farmers and agro-ecological methods provide the way forward to avert the current food crisis and meet the needs of local communities.
- FARMING has a diversity of environmental and social functions and that nations and peoples have the right to democratically determine their best food and agricultural policies

FAO's Policy Makers Guide

Plant Protection

- Resistant varieties
- Conserving predators
- Managing nutrient levels to reduce insect reproduction
- Crop rotations
- Eliminating infected hosts plants
- Lower risk synthetic pesticides for targeted control
- Integrated pest management through farmer field schools
- Strict pesticide regulations

Biodiversity based ecological agriculture

INDONESIA

- **GITA PERTIWI in the last five years has trained 5,000 (90% women) farmers in Java on farmer-fields**

CAMBODIA

- **CEDAC works with 149,000 farmer families and 56,000 practice SRI.**

India

- **LIESA works with 20,000 BEA farmers in Tamilnadu**

MASIPAG APPROACH

- Criteria is to be organized as a farmers organization.
- There are now 35,000 farmer members in 47 provinces in the Philippines with 64 farmer rice breeders and 200 volunteer farmer trainers.
- They have recovered more than 1000 traditional varieties, around 1000 MASIPAG bred rice varieties, and 273 farmer-bred lines developed.

Figure 1: A young farmer doing rice breeding (Picture courtesy of MASIPAG)

Awareness building and campaigns

THANK YOU FOR YOUR ATTENTION!

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