

resisting poisons *reclaiming* lives

impact of pesticides on women's health



Pesticide Action Network Asia and the Pacific (PAN AP)

resisting poisons, reclaiming lives!

IMPACT OF PESTICIDES ON WOMEN'S HEALTH

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RESISTING POISONS, RECLAIMING LIVES!

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PREFACE

Women were the first farmers and they continue to ensure the survival of millions of people in all regions. More than half the world's food is grown by women and their support and means of food security are diverse and complex, from cultivating field crops to livestock rearing, home gardening, gathering, and fishing from sources such as swamps, forests, woodlands, wastelands, quarries, etc.

Women's tremendous role and contribution is only recently being recognised and given some credit. For millions of rural women, that recognition is only lip service when they face daily social, economic and political discrimination, loss of livelihood, sexual violence and increasing workloads as women, as farmers and as agricultural workers. Beliefs and value systems in society institutionalised by social and religious norms continue to keep women in subordinate positions and allow their oppression. Women are more vulnerable, dependent and exploited as agricultural workers and farmers, ensuring that the majority of rural women do not own land nor have access to productive resources.

The introduction of the Green Revolution (GR) in Asia further entrenched patriarchy within the sector of food and agricultural production. Recognising only men as farmers and providing training, credit and GR input packages to men, women's contribution to ecological food production was displaced and their access to land and productive resources became increasingly non-existent. In seed selection and conservation, pest management and crop care, women's knowledge has played a vital role in ensuring food production and ecological agriculture. This knowledge has been ridiculed

and set aside by scientists, policy makers and institutions promoting the GR.

Meanwhile, the introduction of pesticides and the increasing use that began as part of the GR package benefited the agrochemical transnational corporations (TNCs). These pesticides poison the environment and our bodies so much so that all of us carry a body burden of chemicals that are carcinogenic, affect our immune system and disrupt our hormonal system. A US\$ 31 billion industry that is dominated by six corporations sells hazardous pesticides that contaminate not only our bodies but our food, air, water and soil. Even now, when enough evidence on the adverse effects of particular pesticides push regulatory agencies to ban them for health and environmental reasons, the agrochemical companies assert pressure to allow their continued use. It seems profits are more important than human health. As in the case of paraquat in Malaysia, the ban on paraquat would have been fully implemented in July 2005, but due to pressure from various business sectors, the ban is now postponed by a further two years. Paraquat is one of the most toxic of pesticides without a known antidote. It causes skin irritation; nails turning brown and dropping off; tearing of the eye; burning pain in the mouth; throat; chest and upper abdomen; pulmonary oedema; pancreatic inflammation; and renal damage, and affects the central nervous system.

Women farmers and agricultural workers spray hazardous pesticides such as paraquat and other poisons in very haphazard conditions. Many of them often mix the pesticides with their bare hands or with a branch, rarely follow precautions, have no idea of the hazards they are facing and lack training or knowledge of the pesticides used. In some instances in the plantation sector, the labels are torn off so that workers are clueless about the chemical that they are spraying.

The toxic impact of pesticides on women's health has been long neglected and little understood. And yet women are exposed to these toxins continuously in the course of their work. Their health complaints are rarely taken seriously and they lack access to health care facilities. Even now the issues of women sprayers and workers are often ignored by policy makers and even by some of the male dominated trade unions.

In order to eke out a living, women workers continue spraying while pregnant and breastfeeding and thus they unknowingly expose the foetus and infants at a very young age to pesticides. Some of these poisons cause chronic effects that lead to cancers, lowered fertility, hormonal disruption, lowered immune systems, Parkinson's disease, increased aggression, as well as long-term mental and physical disabilities, and psychological problems. These chemicals may well be undermining the human future. It is completely incomprehensible that we allow and continue to use such toxins in our food and agricultural production systems to imperil our agricultural workers, farmers, consumers and even our children, families and communities.

Fed-up with the rhetoric of higher yields and better income with corporate agriculture, when reality is actually increasing debt and increasing poverty, small farmers have started to search for and are implementing alternative systems that are ecologically and economically feasible. Women's knowledge in ecological agriculture is one component of these alternatives. These ecological agriculture initiatives have been successful in many countries in Asia but because they go against the grain of corporate style agriculture, they are rarely supported by policy, corporate science or finance. So the struggle requires transformation of the current mindset about how we grow and consume our food and agricultural products as well as policy, technical and financial support to make it happen.

Touching a key area of women's struggles in agriculture, this book outlines violence against women and the violence of corporate agriculture and poisons such as pesticides. The book covers the impact of pesticides on women and outlines the struggle against two pesticides, paraquat and endosulfan. It is an important contribution to public awareness of these issues and to women's struggle for a healthier environment.

The book would not have seen the light of day without the untiring support of Irene Fernandez, Tenaganita, and Fathima Burnad, SRED, the co-chairs of the PAN AP Task Force on Women in Agriculture. All the members of the Task Force on Women in Agriculture contributed to the book by sharing their research, experiences and stories of women's struggles, strategies for action, as well as their laughter and tears. I am grateful, as always, to Meriel Watts for her valuable and useful comments and suggestions, and for reviewing the book thoroughly. We would also like to thank Prabhakar Nair, Clare Westwood, Susan Loone, Rudhrapathy Vijayavale, Yeoh Jit Kooi, Marjo B. Quinto and Chandrika Devi who helped in the production of this book. We are also grateful for the support of Biodiversity Funds, HIVOS, EED, NOVIB, and the Rausing Funds that made this publication possible.

This book is dedicated to the women agricultural workers and farmers who daily toil the land and are exposed to pesticides and the violence of corporate agriculture. This is their story.

Sarojeni V. Rengam
Executive Director
PAN AP

SECTION I

WITHOUT WOMEN, WE ALL GO HUNGRY

WOMEN IN AGRICULTURE

"The land is my mother. Seeds are my children. See this corn, she is my sister. She gives me manure to make the land fertile. If I look after them, care for them as my own, they will look after my family and me – give me paddy, maize, wheat and vegetables. Farming is my life. I know of no other, and don't want to know also."

Ratni Devi, Himalayan farmer

Without women, we all go hungry

An African proverb

Women in subsistence production ensure the survival of millions of people in all regions. In fact, women were the first farmers. From ancient times, women have been the gatherers of vegetable foods, and it is largely through this activity that agriculture has developed. Peasant women continue to produce 60 to 80 per cent of the food in most countries and are responsible for half of the world's food production (FAO Focus, undated).

Skills, knowledge and work

Sisters, keep seeds in your hands!

*Jabanara, a farmer woman in Pabna, Bangladesh
at a Biodiversity Food Festival,
in a symbolic gesture as the foremost
strategy to ensure food security.*

Women's skills, knowledge and work as food producers, nurturers and providers ensure food security, biodiversity, and survival. In fact, women in most societies play a significant role in managing the diversity of the ecosystem and they are the real experts on biodiversity. They have a unique knowledge of local species and their use acquired from centuries of practical experience and innovation. They rely on gathering, cultivating and maintaining diverse crops, wild plants, and animals that are well-adapted to the local environment in order to reduce the risk of crop failures and animal disease or death. Because peasant women are responsible for feeding their families, they know their families' nutritional needs and match these to the nutritional contents of the crops and wild plants that they access or grow.

In rural households everywhere, the care of seeds has traditionally been the responsibility of women – women share seeds with their sisters, neighbours and relatives and this further enhances biodiversity. According to Vandana Shiva, women in Indian agriculture use 150 different species of plants for vegetables, fodder and health care. In the state of West Bengal, India, 124 ‘weed’ species collected from rice fields have economic importance for farmers (Shiva, 1998). Women play a vital role in selection and plant breeding and this gives them a position of “influence, power and respect” (Zweifel, 1996). This intimate knowledge of seed preparation as well as soil management, weed and pest control, post-harvest processing and storage, animal husbandry, food processing and meal preparation are significant and also crucial to ensuring food security through ecological agriculture. For example, sowing and selecting seeds calls for knowledge about seasons, climates, plant requirements, weather conditions, microclimatic factors and soil enrichment; sowing seeds requires physical dexterity and strength.

“Ninety per cent of the food eaten by indigenous people comes from women’s gardens and are often models of sustainable land use,” reports Vartan (2004). Most of the crops are perennial rather than annual and tended with mulch, manure and crop residues rather than with industrial chemicals. For example, in Thailand, a study of 60 women-managed kitchen gardens found 230 different species of plants, many saved from the neighbouring forest before it was cleared (Vartan, 2004).

Women’s work in agriculture is diverse and complex, and ranges from cultivating field crops and livestock rearing to home gardening, and gathering and fishing from sources such as swamps, forests, woodlands, wastelands and quarries.

Many rural women manage home gardens that contain high levels of diversity which are models of sustainable land use



Source:
UBINIG

WOMEN REMAIN INVISIBLE

Women account for more than 80 per cent of the agricultural labour force in sub-Saharan Africa, more than 50 per cent in Asia and 43 per cent worldwide (AWID, 2001)¹. Even in the United States, the Census of Agriculture claims that women make up 19 per cent of the agricultural force (Ransom, 1999).

Though women practically do most of the work in agriculture and food production, they are only now being counted as agricultural workers. In rural India, 89.5 per cent of women workers are employed in agriculture and allied industrial sectors; more than 90.5 per cent of the economically active women in Nepal work in agriculture as against 74.9 per cent of men; Pakistan has 79.4 per cent of rural women engaged

¹ *This figure is probably rapidly increasing because as agriculture becomes more and more unremunerative, men are migrating to cities to find other work and women are left to shoulder the entire burden of producing food.*

in agriculture compared to 60.8 per cent of rural men; and in Cambodia, 65 per cent of the farming population are women (FAO, undated).

Women carry the burden of survival of the home and family and contribute to the economy, but yet their role is often seen as secondary to men's in productive activities including agriculture. The 1991 United Nations (UN) report, "The World's Women: Trends and Statistics", states: "If women's unpaid work in subsistence agriculture, household and family

Sex distribution of the total agricultural and non-agricultural labour force						
World/region	Women's share in:					
	Total labour force %		Agricultural labour force %		Non-agricultural labour force %	
	1990	1997	1990	1997	1990	1997
World	40.0	40.4	42.7	43.3	37.3	38.0
Developed countries	43.4	44.2	38.4	36.7	44.0	44.9
Developing countries	38.8	39.3	42.9	43.6	32.3	33.7
African developing countries	40.0	40.5	46.6	47.3	27.5	29.5
- sub-Saharan Africa	42.4	42.5	46.9	47.3	31.4	32.7
Asian developing countries	39.4	39.8	43.5	44.0	31.7	33.1
Latin American and Caribbean developing countries	32.6	34.1	16.9	17.0	37.9	38.8
Oceanic developing countries	39.1	40.3	43.5	44.8	29.8	31.9
LIFDCs*	39.6	40.0	43.5	44.0	31.7	33.4
Low-income countries	36.2	36.9	41.3	42.1	26.0	28.4

Source: FAOSTAT. <http://www.fao.org/html>

* Low-income food-deficit countries

*Nepali
women are
an integral
part of their
communities'
collaborative
work in
agriculture*



*Source:
PAN AP*

care were fully counted in labour force statistics, their share of the labour force would be equal to or greater than men's."

Yet, millions of rural women face daily social, economic and political discrimination, loss of livelihood, sexual violence and increasing workload as farmers, agricultural workers and as mothers, wives, sisters and daughters. Beliefs and value systems in society institutionalised by social, political and religious norms continue to keep women in subordinate positions and allow their oppression. The majority of women remain subservient to their husbands, fathers and brothers in their households and communities and have only a limited role in decision-making in all spheres. Women are more vulnerable, dependent and exploited as agricultural workers and farmers, and the bulk of rural women have no access to resources such as land, seeds, water, credit, education, training and extension services.

This discrimination based on gender has also to be understood within the context of oppression based on class, caste, race

and ethnicity. In the Philippines, for example, 22 families control 65 per cent of the nation's wealth and 90 per cent of the peasants who work the land own only 10 per cent of all titled land. In such an unjust system, peasant women are oppressed not only because they are women but also by landlords who influence and gain from the political and the economic systems.

Dalit women in South Asia are oppressed because of their caste. Around 160 million Dalits are considered 'impure' and therefore 'untouchable' because of a system they were born into, and are treated as less than human beings. Dalits are given the lowest menial jobs, humiliated, beaten and raped by the so-called upper caste people. They make up the majority of the poor and illiterate in India. Dalit women eke out a living and feed their families, living in constant fear for their lives, livelihoods and personal security. The exploitation and oppression of women is thus further aggravated by class, caste, race and ethnicity.

Women's work is never done

"Not only do women perform more tasks, their work is also more arduous than that undertaken by men. Both transplantation and weeding require women to spend the whole day and work in muddy soil with their hands. Moreover, they work the entire day under the intensely hot sun while men's work, such as ploughing and watering the fields, is invariably carried out early in the morning before the sun gets too hot... because women's work, unlike men's, does not involve implements and is based largely on human energy, it is considered unskilled and hence less productive. On this basis, women are invariably paid lower wages, despite the fact that they work harder and for longer hours than men."

Carol S. Coonrod, 1998

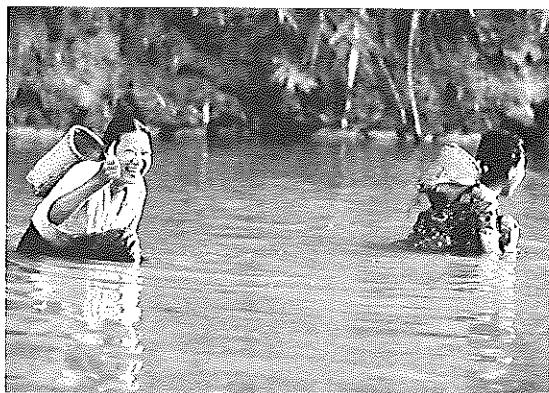
Women's farm work takes the form of primary agricultural production, processing, storage and very small-scale marketing of the produce. Women invariably do the repetitious, time-consuming and arduous work such as planting, sorting and weeding the fields as well as the kitchen gardens. In the case of rice planting, they work for hours standing and squatting in water. In addition, they are often involved in activities such as land clearing, ploughing, harvesting and threshing, using implements that require huge expenditure of human energy.

Female-headed households

Increasingly, as men migrate in search of better employment and income opportunities, the number of female-headed households is increasing in rural areas. In one Integrated Pest Management (IPM) farmer field-training programme in central Java (Indonesia) attended by only women because many men in the community had migrated to Jakarta, the women said that their husbands returned from the city during harvest to not only share the work load but, more importantly, to sell the produce and 'pocket' the bulk of the cash. Recent

As the main caregivers and nurturers of their families, women have developed special knowledge of the value and diverse use of biodiversity as a food source

Source:
SEHD



trends in Asia however, indicate that more and more young rural women are migrating to cities and often to other countries to work as domestic help or in the manufacturing sector, leaving older parents to cope with the increasing work load on the farm, as well as the household chores and the responsibility of caring for the young left behind.

Feminisation of poverty

The majority of the 1.5 billion people living on 1 dollar a day or less are women.

UN Division for the Advancement of Women, 2000

Women rarely own land. In fact, women own less than two per cent of the land (IFAD, 2003) while the proportion of female-headed households is increasing. In many cultures, women traditionally do not own land and are often regarded as daughters who will be 'given away' in marriage to live in their husbands' households. Inheritance laws generally do not favour women's rights over land and in cases where they do, give women smaller shares. Even if a woman owns a property, it will be managed by her husband.

In many countries in Asia, landlessness is still the biggest problem of peasant women and peasants in general. Land ownership is concentrated in the hands of a few landlords. For example, research conducted by the Kilusang Magbubukid ng Pilipinas (KMP) revealed that in the province of Quezon in Southern Tagalog in the Philippines, research indicates 307 landlords control 71,900 hectares of land where coconut is mainly grown. The holdings of the landlords average 230 hectares while the majority of the coconut farmers are either

tenants (working 3-hectare farms), or farm workers. In San Francisco town in the same province (in the Philippines), 48 landlords control 28,000 hectares. One landlord owns 13,000 hectares in the town of San Narciso (KMP, 2001). Despite the Philippine government's agrarian reform programmes, land is monopolised by a few landlords and the majority of peasant women still do not own land but lease it by giving their harvest to the landlord.

Without control over land, peasant women cannot sustainably and efficiently use the land and its resources. They cannot invest in improving the soil, plan the crops that they will grow, and make long-term plans to improve their economic situation. Their access to credit is also limited due to lack of collateral in the form of property or other assets. For the majority of peasant women, their lives and their livelihoods are tied to the land. "Our struggle for land is a struggle for our lives," eloquently stressed Carmen Turla-Buena of the Federation of Peasant Women (AMIHAN) in the Philippines speaking at a forum on Land, Food Security and Agriculture (Turla-Buena, 1998).

Men are still seen as the 'head of the family' and this concept is not only socially and culturally promoted, but now permeates national policy and has been institutionalised at all levels in Asia. Land distribution schemes often are directed to benefit men who are seen as the head of the family. This perception is so institutionalised that even the aid and compensation following the tsunami that hit Asia in December 2004 was given mainly to men. The tsunami, which had left more than 200,000 dead and over a million homeless and had destroyed the livelihoods of the coastal poor, fisher folk,

peasant farmers and small businesses, had drawn tremendous response and support from the international community, governments, non- governmental organisations (NGOs) and even ordinary people in terms of money, materials, expertise, and services. However, a concern raised by aid workers and NGOs was that the compensation was offered to the ‘head of the family’, which meant men, and thus women who were devastated by the loss of the husbands, grown-up sons, homes and livelihoods were left without any support. Stories also abound of men who had misused the compensation on alcohol, motorcycles and other such inessentials while their families were left without the means to rebuild their lives.

Women and health

While a woman’s labour, knowledge and hard work feed her family and community, the discrimination she faces ensures that she is the last and has the least to eat. These gender biases result in women in the rural sector being undernourished. Worldwide, 450 million women are undernourished compared with 400 million men. In addition, women with anaemia (iron deficiency) total 458 million compared with 238 million men (Valls-Llobet et al, 1999).

Malnutrition makes women more vulnerable to various health problems, including muscular-skeletal and soft tissue disorders, degenerative joint diseases and a wide variety of infectious and parasitic diseases. Malnutrition also makes women more susceptible to the adverse effects of pesticides — for example, low levels of dietary protein enhance vulnerability to organophosphate insecticides (Pronczuk de Garbino et al, 2003).

Frequent childbearing exacerbates the health problems in many countries. Most women work until late in their pregnancies but are not given any special care, neither do they receive extra food or rest (Kane, 1999). Pregnant farm workers in China due to traditional roles continue to work in the fields despite their medical condition or stage of their pregnancy and this makes it risky for them. Women in rural Pakistan frequently carry water over long distances and over difficult terrain and this is linked to increased rates of miscarriages (Kane, 1999). Malnutrition, hard labour, and occupational exposure to chemicals and other hazards can be a lethal combination in exacerbating the health problems of women in agriculture. However, women's occupational hazards in agriculture have been ignored and rarely studied.

These are the realities of discrimination and oppression of rural women, which have been further intensified by the introduction of the technologies of the Green Revolution and globalisation in food and agriculture. The former came in the guise of science and technology and increasing agricultural production while the latter appeared as free trade and access to the markets of developing countries. In reality, the Green Revolution was a massive and systematic drive to curtail the struggles for social justice for peasants through agrarian reforms. The globalisation process, on the other hand, is a corporate agenda for maximising profits through free and open access to natural resources, cheap labour and markets worldwide. Both processes lead to further exploitation and oppression of rural women.

CORPORATE AGRICULTURE, POLITICS AND MONOPOLIES

Asian agriculture and farmers' livelihoods were destroyed by hundreds of years of colonisation that prioritised feeding colonial markets rather than meeting the needs of the local people. In India, the British-instituted landlordism resulted in deep-rooted inequities that persist till today (Jayaraman, 2006). The forced payment of rents imposed on the peasants to fill the coffers of the British pushed the peasants into cash cropping. This zamindari system forced the peasants off their land and concentrated land in the hands of money lenders, petty capitalists and landlords. It resulted in the displacement of thousands of peasants from their land and worsened the food security situation in India (Jayaraman, 2006).

The Green Revolution increases hunger

This situation was exacerbated by the two World Wars, leading to widespread famines in India and other parts of the world. These became the excuse for the enforced spread of new agricultural technology. Structural adjustment programmes as well as food aid became increasingly tied to 'conditionalities' that required the use of this new technology – seeds, fertilisers and pesticides – facilitating the entry of foreign private investment in domestic fertiliser, pesticide and seed production, as well as importation of these inputs. This new technology did increase wheat yields, and in 1968, when the then United States (US) Aid Director, William Goud, wrote in his annual report that the "improvement" in India and Pakistan "looks like a Green Revolution", a new term was coined together with the creation of a new myth that modern technology was the only way to feed the burgeoning population of the world.

The mid-twentieth century saw the increasing introduction of chemicals in agriculture. A major driving force in its development and spread was the stockpiles of organophosphate chemicals left after World War II (WW II) during which these chemicals were used in the gas chambers. Organophosphates (sarin and tabun) were introduced in the late 1930's and after the war, these were marketed by Bayer as pesticides (E 605, Folidol, Nema-cur, Fenthion) (Mimkes, 2002). In other words, these chemicals, developed initially as weapons of war, were reintroduced as pesticides by the manufacturers to ensure profits.

The war against people goes on and on... Agent Orange and Roundup

From 1962 to 1971, over 86 million litres of toxic herbicides, mainly Agent Orange, were sprayed on Vietnam from UC-123 aircraft, helicopters, jeeps, trucks and by individual soldiers carrying 14-litre drums on their backs (Trautman, 2000). The spraying covered approximately 10 per cent of South Vietnam destroying the dense tropical forests and crops that provided cover and food for combatants. Operation Ranch Hand destroyed 14 per cent of South Vietnam's forests, including 50 per cent of the mangrove forests (PANUPS, 1998). The spraying programme identified various herbicide mixtures by coloured stripes on the containers. Agent Orange was the most common herbicide formulation used, according to official US

reports. About 65 per cent of the herbicides sprayed in Vietnam were 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), which contained TCDD (or dioxin).

Dioxin has been accepted internationally as one of the most toxic chemicals on the planet, causing everything from severe birth defects, to cancer, to neurological disorders, to death. Dioxin is also a virtual “genetic time bomb”: once it has entered the body, it may cause any number of birth defects in the children of those exposed, ranging from stillbirth or infant death to mental retardation or physical deformity (Griffiths, 2004). The spraying of Vietnam caused grievous harm and death to millions of Vietnamese and to hundreds of thousands of US soldiers who participated in the war. Its effects are still being felt after four decades (See Annex 2 for petition letter to help Agent Orange victims).

But Vietnam was not the first time that the military had used herbicides to wage war. The US began testing chemicals during the Second World War and found that herbicides were particularly effective in tropical climates (Trautman, 2000). During the war in Malaya in the 1950s, the British also employed a form of Agent Orange. And as early as 1978, herbicides were used against marijuana crops in Mexico, with aid from the US government (Trautman, 2000).

Monsanto knew its killer chemical well

Monsanto was one of the primary producers of Agent Orange (2,4,5-T and 2,4-D) a defoliant used by the US

in the Vietnam War. Monsanto resisted compensating US veterans for health problems caused by exposure to Agent Orange until it was forced to pay by a judge in 1984. In Vietnam, the impacts of Agent Orange and dioxin, present as a contaminant in Agent Orange, are overwhelming. Some estimates have put the number of dioxin-related deformities of Vietnamese children at 500,000 (Trautman, 2000).

And today, with the notorious Agent Orange being banned from use for military purposes, its creator, Monsanto, has fashioned an equally devastating alternative – Roundup. The US has consistently aided the Mexican and Colombian military with cash and aircraft to aerially spray over tens of thousands of hectares in Colombia with Roundup to “stop the flow of cocaine into the US”(Trautman, 2000).

Roundup is a broad spectrum herbicide – it kills all plants and vegetation and easily finds its way into water supplies. In Colombia, besides killing the coca crop, indigenous and small farming communities have reported that “indiscriminate aerial spraying has caused illnesses, destroyed pastures and food crops, poisoned livestock and contaminated water supplies” (Knight, 2000). It has also covered men, women and children unfortunate enough to be outside when the planes have flown over. Thousands of villagers have complained that it has destroyed a major food – banana- and made it impossible to sell their produce, milk or meat. Local people refuse to buy these because they fear herbicide

contamination (Trautman, 2000). According to Elsa Nivia, the director of the Columbian affiliate of the Pesticide Action Network, “the herbicide is ‘toxic’ to all plants” and that “it is impossible to say that this herbicide can be applied in a way that is not harmful to the environment.” (Knight, 2000). Despite all the hazards caused by the herbicide, Monsanto continues to claim that the herbicide is “safe”.

After WW II, the dwarf varieties of wheat were introduced by Norman Borlaug in Mexico with the help of the Rockefeller Foundation. These new varieties, called high-yielding varieties or HYVs, required chemical fertilisers, pesticides, and, for the most part, irrigation. Mechanisation was also easier with these HYVs since often a huge area was planted with a single variety of a particular crop or monoculture. The increasing use of monocultures attracted pests, which then required chemical insecticides in order to prevent crop losses due to pest attacks. These insecticides were applied regularly and systematically without any understanding of the pest population and frequency. The chemical fertilisers also led to an increase of so-called weeds and herbicides were introduced to keep these weeds in check.

Even though the Green Revolution technology increased the aggregate food supply, it failed in its promise to end hunger. Worse, it further exacerbated hunger and malnutrition and caused massive ecological, economic and social problems. Technological solutions such as the Green Revolution technologies cannot alleviate poverty and eradicate hunger

because they do not address the issue of concentration of power and the inequitable distribution of resources that keep the poor exploited and oppressed. While the world produces enough food to feed every child, woman and man, there are still about 840 million people who daily suffer hunger and malnutrition. And paradoxically, the producers of food, i.e., women and men peasant farmers, agricultural workers, indigenous peoples and fisherfolk are the ones without food. A case in point is India which boasts increased production of grains and full granaries and yet around 5,000 children die every day because of malnutrition, and one-third of its 900-million population is poor and unable to purchase food (Rosset, 2000). Meanwhile, the grains are left to rot in the granaries. This highlights that a focus only on increased food production will not fully address the problem of poverty and hunger. A strategy that is focused on equitable distribution of resources, particularly land and productive resources, for food production to the poor, the women and men peasants and other food producers must receive the foremost consideration.

The Green Revolution and its impact on the environment

Meanwhile, the excessive use of chemical fertilisers has destroyed soil fertility and killed off beneficial life forms such as earthworms and mycorrhizae, decreasing the organic content in soil, and necessitating the use of even more chemicals.

Many governments in Asia were either pushing or were pushed into large dam investment to provide irrigation (for HYVs) and for industrial expansion. Inevitably, the construction of

Has the Green Revolution reduced global hunger?

The Green Revolution is supposed to have ushered in the era of food security. The world cereal production in Asia went up from 329,540,554 metric tonnes (MT) to 632,001,226 MT from the 1960's to the 1980's (FAO Statistics Division, 2006a).

The world consumption of fertilisers also increased dramatically: between 1961 and 2002 nitrogenous fertiliser use went up from 11,587,748 to 84,746,304 MT, phosphate fertiliser from 10,930,757 to 33,552,308 MT, and potash fertiliser from 8,663,739 to 23,272,518 MT (FAO Statistics Division, 2006b).

However, even today, 852 million people, mainly in developing countries, are still chronically or acutely undernourished. In fact, the number of people suffering from hunger has steadily increased. Almost 50 per cent of the world's hungry people are in South Asia, where one-fifth of the world's humanity resides. It is evident that aside from food production, food security and sovereignty also depend on global, regional and local political will to ensure equity in the distribution of safe food as well as adequate livelihoods and equitable access to resources to meet vital needs.

these large dams resulted in the massive destruction of forests with their priceless flora and fauna; changing the size, shape and flow of rivers; causing flooding and consequently the dislocation of millions of people, mainly the poorest, from their homes and livelihoods.

The use of these so-called 'miracle' (HYVs) seeds also led to severe groundwater depletion through excessive drawing out of groundwater. In many places, groundwater levels have sunk so low as to be irredeemable. Borewells, often promoted by development agencies, favour the bigger operators, who can better afford the initial investment and have lower costs per unit. A study conducted by a team of scientist from the Massachusetts Institute of Technology (MIT) found that the contamination of arsenic in Bangladesh drinking wells may be linked to crop irrigation. The scientist calculated that the irrigation pumping altered the groundwater flow through the aquifer and thus may contribute towards the arsenic levels in the wells (Harvey et al, 2002). Furthermore, chemicals, including pesticides, have also entered the water system. Today, the global scarcity of freshwater is causing national, regional and international conflicts.

The extensive use of HYVs and practices of monoculture have led to the near-extinction of thousands of indigenous varieties. This is most evident in the case of rice, of which India had over 30,000 varieties previously. These included rice that could grow without being transplanted, in rain-fed conditions, in drought conditions, in saline lands, in areas with excessive rainfall and in areas with high wind velocity. Today, 75 per cent of the country's rice cultivation is based on merely 10 varieties (Daño, 2003). In many cases, the yields of the extinct varieties were much higher than those of HYVs. The

extinct varieties include those resistant to disease as well as tall varieties that provide fodder for livestock, which has ultimately led to a decline in the use of livestock in farming.

The use of pesticides as part of the Green Revolution technology has led to increasing human and environmental devastation. According to the WHO Journal, pesticide poisoning affects about 25 million workers every year (Jeyaratnam, 1990). The use of pesticides in the fields kills off pest predators resulting in increased pest attacks. The increasing rate of pest resistance to these pesticides is also alarming. Because of this, farmers are increasingly using cocktails of dangerous pesticides and are trapped in the cycle of using more and more toxic pesticides in combination. Plants that were once considered a source of food or medicine in a multi-crop farming system are now considered weeds in a monoculture farm, and are also fast becoming “superweeds” as they become more resistant to herbicides.

Farmers in Bangladesh who practiced chemical-based agriculture, found that the fertility of the soil was clearly dilapidating. More and more fertiliser was required every year to prevent yield decreases. The farmers also concluded that the total amount of products and income of the farm was declining. In the case of HYVs, farmers figured out that calculating productivity and income on the basis of the yield of a single crop was faulty and misleading (LEISA, 2001).

Impact of the Green Revolution on women

Underpinning the motivation for the Green Revolution were narrow political and economic interests to expand export markets profitably. In short, the Green Revolution was

*In Bangladesh
and many
parts of
South Asia,
women are the
primary seed
keepers and
preservers*



*Source:
UBINIG*

designed to transform agricultural societies mainly in developing countries into consumers of seeds, pesticides, fertilisers, farm tools and equipment, irrigation and new technologies. Most to benefit were the transnational corporations peddling these poisons, equipment and technologies (see also section on TNCs).

The Green Revolution ignores the presence of women in farming. Discussions and training programmes are directed almost exclusively towards men. Subsidies to buy chemicals and seeds are directed towards men, because men own the land and can mortgage it and use it as collateral to purchase this technology.

The Green Revolution has not only ignored and devalued women's farm knowledge systems, but it has also deliberately distanced women from several aspects of agriculture that have been solely their domain. Seeds have been the sphere of women's expression of their agricultural knowledge, culture

and expertise. Traditionally, women have selected the best seeds, stored both grain and seed, conducted germination tests, sowed the seeds, and transplanted young plants. Thus, they have developed a complex knowledge system related to seed selection, seed protection, and best times and ways of sowing and transplanting. The Green Revolution, by creating 'improved seed' in laboratories, and distributing it to men through marketing channels that recognised only men as farmers, destroyed women's role in seed selection and storage. Women's knowledge of pest and weed management no longer applies to the new seeds, and women's contribution to agriculture has become limited to the mere application of the pesticides demanded by the new technology and selected by men. Their knowledge about sowing and transplanting times is of no use anymore as the new seeds do not follow the rules of nature that women farmers are familiar with. Thus, whatever control women had over agriculture and the decision-making power they exercised have been snatched away, even while they continue to be physically involved in

*Women in
agriculture often
do the most
repetitious,
back breaking,
menial,
hazardous
work, and they
work longer
and harder.*

*Source:
PAN AP*



the various tasks of farming. This has deepened the sexual division of labour, simultaneously making women more invisible and no longer considered as farmers.

The problem of debt accumulation, because of switching to Green Revolution technology, is a reality faced by most small and marginal farmers in Andhra Pradesh (see box, “Crippling debts and suicides in Andhra Pradesh”) and generally in Asia. In Thailand, 4.3 million farming families were buried in debt just several years after the adoption of high-yielding varieties; this grew to 5 million in 1990. In the Philippines, agriculture is deemed non-lucrative as evidenced by half the rural families living below the poverty level (Rengam, 2006).

The high costs of farming with this technology is increasing farmers’ indebtedness, forcing more men to migrate to find other ways to earn money, and forcing women to work their families’ land single-handedly as well as labour on other fields for cash. However, when agriculture is talked about, the myth that men farm while women help continues to dominate.

*Adivamma at the bedside
of her husband Muppidi
Marayya of Yerasaingudem
village of Kattangur
mandal as he battles for life
at the Government Hospital
in Nalgonda after
consuming pesticide.*

*Source:
Frontline Magazine,
Volume 21, Issue 13,
Jun. 19 - Jul. 02, 2004*



Crippling debts and suicides in Andhra Pradesh

In Andhra Pradesh, India, during the years 1995 to 2003, 1926,000 farmers are reported to have committed suicide based from statistic put out by the home ministry (Rengam, 2006). Farmers in the area had shifted from food crops to commercial crops such as cotton and chillies, which meant capital investment in high-yielding varieties, chemical fertilisers and pesticides (Green Revolution technology), and to meet these costs, farmers borrowed heavily (Venkateshwarlu and Da Corta, 2001).

Unfortunately, the massive spraying of the fields with pesticides created an ecological crisis; pesticides killed off natural enemies of the pests and caused the development of pest resistance to pesticides. These twin problems of pest resistance and resurgence made farmers use cocktails of pesticides, which further exacerbated the pest problem leading to repeated crop failures, and with the increasing costs of pesticides and other inputs, forced farmers into a cycle of debt. Once these small farmers bought into such a technology, they were trapped - one crop failure meant heavy economic loss and indebtedness, and only a commercial crop such as cotton could provide the means to repay the debts incurred. Unable to bear the consequences, the men have committed suicide leaving the burden of debt to their wives and families who face increasingly unbearable workloads and depressing poverty as they struggle to settle the debts.

Rengam, 2001

The myth of higher productivity

The Green Revolution was touted as the answer to hunger because of its higher productivity. However, this most potent myth is false on many counts.

- ♦ The HYVs of the Green Revolution are responsive only to chemical fertilisers in the presence of immense quantities of water. They are not high-yielding by themselves. In Central Luzon, Philippines, rice yield increased 13 per cent during the 1980s, but came at the cost of a 21 per cent increase in fertiliser use. In the Central Plains, yields went up only 6.5 per cent while fertiliser use rose 24 per cent and pesticides by 53 per cent. In West Java (Indonesia), a 23 per cent yield increase was virtually cancelled by 65 per cent and 69 per cent increases in fertilisers and pesticides respectively (Institute for Food and Development Policy, 2000).
- ♦ Currently, even this productivity is either declining or has stagnated, as seen in countries such as China, North Korea, Indonesia, Myanmar, the Philippines, Thailand, Pakistan, and Sri Lanka. Increasing quantities of fertilisers need to be added only to get a minimum yield increase. Long-term experiments conducted by the International Rice Research Institute (IRRI) in both Central Luzon and Laguna Province confirm these results. Similar patterns have also been observed for rice-wheat systems in India and Nepal (Institute for Food and Development Policy, 2000).

-
- ♦ There are numerous indigenous varieties of rice and wheat that are as high-yielding as the HYV varieties. These varieties give high yields without the need for chemicals. But they were not useful to the proponents of the Green Revolution, which was basically meant to create markets for chemical fertilisers and pesticides. Due to this, these varieties have not been propagated or popularised.
 - ♦ The productivity of a multi-crop farm, with cereals, pulses, oilseeds, vegetables, fish, milk, eggs, fodder for cattle, etc. cannot be equated with the productivity of a monoculture HYV farm of one single yield which is only the grain.
 - ♦ In terms of input-output ratio, mixed farms are higher in productivity. For example, HYVs need chemical fertilisers, which cost money, as compared to mixed farms, especially those with cattle, where manure, leaf litter and the presence of earthworms and soil micro-organisms ensure fertility of the soil. HYVs grown in a monoculture system are also more prone to diseases and pest attacks as compared to local varieties grown in mixed farms, which have built-in measures to limit pest and disease attacks. In addition, chemical treatments of HYV also destroy large parts of the crop, further lowering productivity.

Globalisation in food and agriculture

“At a conservative estimate, between 20 to 30 million people in developing countries have been driven from their land because of trade liberalisation in recent years.”

John Madeley, 2000a

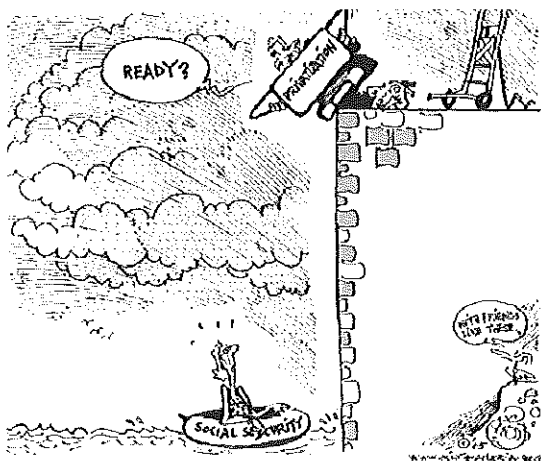
The process of globalisation is a continuum of colonisation and the former colonisers and imperial powers, i.e., the USA, UK and countries in the EU, are driving the globalisation process to perpetuate the control and appropriation of natural resources to ensure cheap labour and profits from developed and developing countries. The process benefits the big TNCs and the elites of the developed countries at the expense of the poor in the developing countries.

Globalisation is described as economic integration in trade, investment and finance and takes the form of liberalisation, privatisation and deregulation. In developing and under-developed countries, however, globalisation translates into corporate dominance over local enterprises and of international capital over domestic economies (Taguiwalo, 2005). Antonio Tujan of the Asia Pacific Research Network explains, “Corporate monopolies dominate the ownership structures of local economies and the organisation of production methods. They have control of technology, raw material sourcing and access to markets” (Taguiwalo, 2005).

The international financial institutions including the World Bank and the International Monetary Fund (IMF) have imposed ‘conditionalities’ that support the globalisation agenda in countries that have huge debts. The majority of

Privatisation: All products and services, electricity, education, health, water, will be up for sale to big businesses.

Source : <http://www.bendib.com/newones/2005/january/large/SS%20Privatization.jpg>

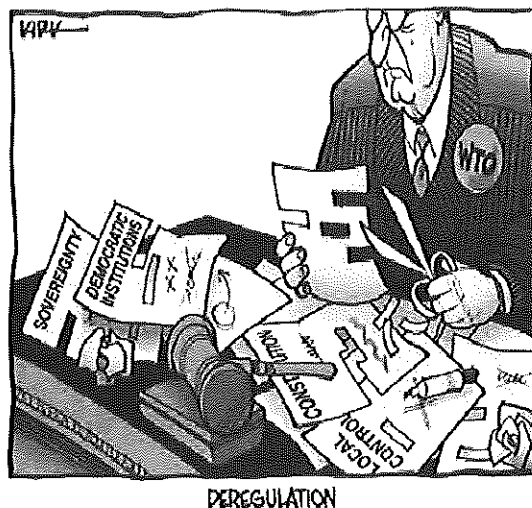


these are developing or under-developed nations. After the economic crisis of 1997, many countries including Korea, Indonesia and Thailand took loans from the IMF and they agreed to further liberalise their agriculture and their service sector.

The globalisation process is dismantling policies and regulations safeguarding the rights of people and their health, environment and livelihoods. These regulations are seen as barriers to trade and as 'protectionism'. It is also reducing public expenditure on social services, such as health and education, by governments and shifting control of these services to corporations. Liberalising, in reality, means the opening of markets to allow the dumping of subsidised agricultural products from developed countries to developing countries. This process is changing everything including land, biodiversity, water, food and livelihoods into commodities for sale.

*Deregulation:
The elimination
of government
control and
regulation over
private
companies'
running and
control of the
economy.*

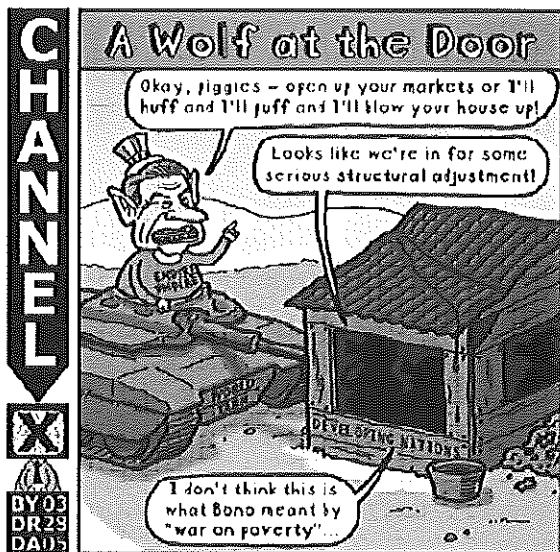
*Source: [http://
www.cagle.com/
news/WTO/
wtob.asp](http://www.cagle.com/news/WTO/wtob.asp)*



In food and agriculture, countries are corporatising their agriculture, i.e. promoting cash crops dependent on the export market at the expense of local food production. It is not about food production or food security. These new high-value crops being encouraged are floriculture, horticulture, intensive aquaculture, and even rice production destined for the export market. This process has further intensified control of land and productive resources by transnational and local corporations, landlords and elites in a country. Land is consolidated into plantations which are tightly managed by TNCs and businessmen. The use of pesticides has increased tremendously in these corporate farms. Pesticides are known poisons that have devastated human lives and the environment. Peasants work in these farms as agricultural workers with very low wages and in horrendous conditions without any amenities at the workplace, constantly exposed to pesticides and suffering from the ill effects.

*Liberalisation:
One's country is
opened up for
foreign
investment,
control,
intervention and
plunder.*

*Source :
[http://www.
greenleft.org.au/
back/2005/
621/toonz.jpg](http://www.greenleft.org.au/back/2005/621/toonz.jpg)*



Another form of control is through contract farming where farmers produce certain crops according to specifications from corporations under a contract. The contract specifies the quantity and quality of the produce, the price at which the corporation will buy the crop and the right of the corporation to reject the produce if it does not conform to quality standards. Often the farmers are given all the inputs and provided with crop management advice. Instructions on the amount and frequency of pesticide and fertiliser use are given which the farmer has to follow to the letter. All the risks for agricultural production are with the farmer. The corporation promises assured income, assured markets, low risk as the inputs and technological support are provided, and the elimination of middlemen.

However, these benefits have often not materialised. In the Philippines for example, IBON (1998) documented the real

situation of farmers under contract farming both by local corporations and foreign TNCs such as Dolefil and Del Monte.

Farmers were often paid cheap “buying prices” because the company said the farmers were not able to meet their quality standards. In addition, they had to pay for the inputs and that accumulated into crippling debt to the corporation. In addition, the company could terminate the contract at will and abandon production as well. Massive indebtedness was the result for the farmers while the TNCs made the profits. Another ongoing study in Thailand, undertaken by the North-Eastern Women’s Network, Sustainable Development Foundation (SDF) and Reclaiming Rural Agriculture and Food Sovereignty Action (RRAFA), showed similar experiences of farmers. In northeast Thailand, small farmers contracted for vegetable seed production are also now in debt and many suffer pesticide poisoning due to the large amounts of pesticides used. The farmers have also realised that they have become dependent on seed corporations and have lost not only the biodiversity in vegetable seeds, but also their self-reliance.

Overall, the use of pesticides has increased tremendously in these corporate farms. For example, as a result of structural adjustment, Zimbabwe has doubled its use of pesticides, and Tanzania has seen an increase of almost 80 per cent in retailers of agricultural inputs including pesticides (London et al, 2002). The FAO statistics note that, in developing countries, pesticide use on arable land has almost doubled from 0.66 kg/ha (1989-91) to 1.02 kg/ha (1999-2000).

Women plantation workers in Sri Lanka

Plantation workers form the most disadvantaged minority ethnic and Dalit group in Sri Lanka. The British brought them into the country during the 18th century as captive labour and they remain so till today, being born, working and dying in the same plantation. Even in cities, those who escape life in the plantation, work at the lowest paid and lowest status jobs such as toilet cleaners and shoe menders. Even within this extremely marginalised group, women are more oppressed. They face the dual oppression of patriarchy within the home and at work.

They work longer hours than men. In the case of tea plantations, women do domestic work from 4.30 to 6 in the morning, after which they work on the plantation till 5.30 or up to 6 p.m. They return to continue with their domestic chores, which goes on till late night. Through the development of household structures on the plantation, women also provide the unpaid reproduction of labour, thus subsidising the plantation.

Farm managers, chief clerks, factory officers, field supervisors (called Kanganies) are all men, even though women form 52 per cent of the workforce in plantations. Male workers and officers/managers refuse to deal even with women union leaders merely because they are women. Women are seen as the reserve labour and this elastic supply of labour affects both sexes in terms of wages. They are paid less than men. In many cases, their wages are given to the men in their family, rather than to the women. Often, they are not given any benefits and/or wage supplements that are given to the men.

Sivapragasam, 2004

Dumping

The globalisation process is opening vulnerable southern countries to the onslaught of cheap, unhealthy subsidised foods and agricultural products especially from the US and Europe, that are driving farmers out of business and small farmers out of their livelihoods and very existence.

No food security without farmers' livelihood security

Rice import in the Philippines

According to AMIHAN, a mass-based peasant women's organisation in the Philippines, the dumping of subsidised rice into the country will destroy the livelihoods of about 750,000 rice farmers, mostly women. The solution provided by the government is to plant export crops including flowers, asparagus or broccoli. Even agricultural products that were previously protected such as onions, garlic and potatoes are now imported into the Philippines from abroad. These are cheaper than locally grown products. A further consequence of the liberalisation is the inflow from the USA of machine-cut potatoes ready for frying. The price for locally grown potatoes has therefore dropped to almost half of the 1990 price, reducing the income of farmers.

Export crop tobacco in Kenya

In Kenya, for example, tobacco is now widely planted instead of food. The displacement of small farmers

has accelerated in the past decades. Displaced farmers either migrate to the towns or they work as house servants or seasonally employed harvesters, which will earn them a minimal wage and place them at great risk in terms of health (because of the large amounts of pesticides used in monocultures).

Milk powder imports in India

India is experiencing an unprecedented surge in imports of milk powder following trade liberalisation, threatening the country's self-sufficiency in milk as local farmers experience stifling competition from low-cost producers.

Extract from a paper by Marianne Hochuli
on the impact of trade liberalisation on
food security and gender relations presented
in APRODEV Good Conference, 18-20
September, 2002.

TNCs

Concentration of corporate power is the defining feature of today's global economy. The agrochemical industry's convergence into new corporate structures has profound implications for food and agriculture. The ETC group in their Communique Number 91, "Oligopoly, Inc", 2005 report states, "According to Phillips McDougall, global agrochemical sales (herbicides, fungicides and insecticides) reached US\$ 35,400 million (*or 35 billion*) in 2004. The 10 top companies accounted for 84 per cent (29,566 million) of the total market. The six

top companies control 71 per cent of the pesticide market; the top 2 control over one-third" (ETC, 2005). The same corporations also control 50 per cent of the US\$ 21 billion commercial seed market (ETC Group, 2005). Increasing integration of the pesticide industry with the seed, biotechnology, food and chemical industries is also taking place.

Agrochemical TNCs continue to profit from pesticides even though pesticides continue to poison about 25 million agricultural workers every year (Jeyaratnam, 1990). Farmers and agricultural workers are exposed to pesticides directly when they are mixing and spraying these pesticides. Communities and consumers are insidiously exposed to pesticides through contamination of the soil, air, water, and food. The chronic effects of pesticides are particularly alarming as new studies link certain pesticides to cancer, lowered fertility, endocrine disruption, neurological and developmental damage (Colborn et al, 1996; Colborn, 2006) and the suppression of immune systems. In many areas, the agro-ecological balance has been severely disrupted by intensification programmes that involve heavy reliance on pesticides.

Biotechnology, another new technology, is now being promoted as the solution to world hunger. However, genetic engineering (to differentiate it from other biological-based technology) has not gone through the required health and safety tests and poses the threat of large-scale environmental contamination. The real winners of this technology are the biotech companies who are also the agrochemical TNCs.

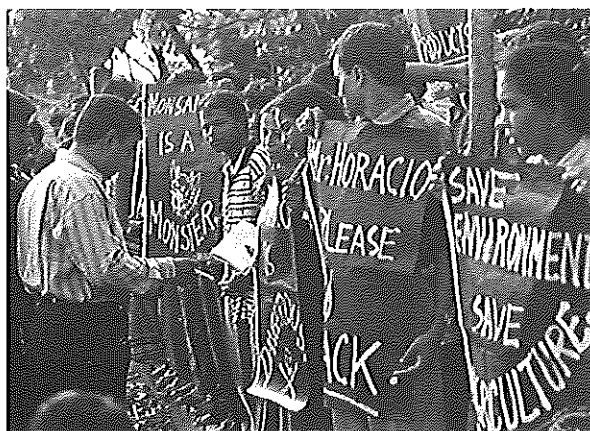
This monopoly is further intensified when the same companies are commercialising the terminator technology (sterile seeds), which has the potential to adversely impact

the 1.4 billion farmers who depend on saved seeds. Another similar technology, known as traitor technology, where the plant will manifest a particular trait such as high yields or pest resistance only after the application of a company's proprietary chemicals, is also being developed for commercialisation.

Agrochemical TNCs influence the research agenda of some research institutions and scientists and also work to silence researchers and scientists such as Romeo Quijano, Ignacio Chapela and Tyrone Hayes who have been critical about these genetic engineering and pesticide technologies. They also set up lobby arms and associations to lobby politicians and policies of governments. There is a well-documented "revolving door" between government officials and TNCs. For example, some US government officials were either former TNC employees or consultants (Mariano, 1999). It was not surprising that the US was negotiating heavily with other countries to support its position on genetic engineering at the World Food Summit five years later (WFS+5) because there was so much investment in genetic engineering by its corporations.

*Protest
against
Monsanto in
Bangladesh,
where women
have been
resisting the
onslaught of
genetic
engineering
technologies.*

*Source:
UBINIG*



Consolidation of the agrochemical TNCs

- In agriculture, six companies control almost 71 per cent of the US\$ 35 billion sales in agrochemicals (ETC, 2005a).
- The top 10 seed corporations control 50 per cent of the commercial seed market valued at US\$ 21 billion (ETC Group, 2005b).
- The six agrochemical TNCs; Syngenta, Bayer, Monsanto, BASF, Dow and Dupont have also developed GE seeds (Dinham, 2005).
- In 2002, the sales of GE seeds of over US\$ 4.5 billion were led by DuPont, Monsanto, Syngenta and Bayer (Dinham, 2005).

Impact on peasant women

As a result of globalisation and corporate agriculture, women's traditional role and position in society and the gender division of labour, in terms of production and reproduction, continues to operate. For example, women in agriculture face loss of livelihoods with the dumping of subsidised imported food products into their countries. As a result, women who traditionally have the responsibility of household food security are forced to work longer hours, and harder, to ensure the food security of the family. Women are faced with increased costs of food production as costs of inputs, such as pesticides rise, and women's health is increasingly compromised. All these

factors have intensified rural women's impoverishment, displacement and hunger.

In many countries, land laws and land ceiling regulations have been changed to allow corporate agriculture to operate. But the impact on small and marginal farmers is tremendous. A survey done by Madeley (2000b) covering 27 case studies shows that:

1. Indian cotton farmers are being marginalised and becoming landless as corporations consolidate land leading to the concentration of farms in the hands of a few.
2. In Cambodia, ten years after the country joined the globalisation bandwagon, 10-15 per cent of the farmers are landless and the land is being concentrated into fewer hands. Ten per cent of the population owns 35 per cent of the cultivated land while the bottom 20 per cent owns less than 4 per cent of the cultivated land.

*Women
making a
stand
against the
agrochemical
TNCs and
globalisation
during the
People's
Caravan for
Food
Sovereignty
2004*

*Source:
PAN AP*



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3. In Mexico, 40 per cent of the total value of Mexico's agricultural exports are concentrated in the fruit and vegetable-growing areas which are large-scale, irrigated farms, and where corporations and investments are being concentrated.

As a result, peasants have been pushed out of their lands and have lost their livelihoods. This results in an exodus of rural workers to the city or migration to other countries working in low-paid, unskilled and difficult jobs. Others survive as waged workers and agricultural workers, and again women agricultural workers are discriminated against and paid low wages even while they have to take on arduous, repetitive and hazardous work.

For women peasants and labourers, the struggle for land has been double-edged. While their struggle as a whole is to challenge landlords and corporations amassing land for their own benefits, it has also included the struggle for land rights through national policies and within their families and communities.

Plantations

In plantations or large farms, it is the women worker who is sought out and hired. Employers see women agricultural workers as unskilled workers who will accept low wages and increased workloads without complaining, and women are also known to rarely join unions or organise themselves for their rights.

Toiling in plantations - for a roof above their heads

In the palm oil plantations of Malaysia, women workers toil from dawn to dusk and their work does not end there. They are regarded as unskilled workers and given the most menial and hazardous jobs including pesticide spraying. Their wages are low and inconsistent with the male workers who work mainly as harvesters and regarded as more skilled. Because the plantations provide a roof over their heads and some basic amenities, women with families chose to stay back and continue working in the plantations. To supplement their meagre incomes, women plantation workers living near industrial zones often hire themselves out as factory workers putting in another gruelling shift in the factory. These women plantation workers face multiple forms of violence. In a survey of plantation workers by Tenaganita, a women and migrant rights organisation, many women admitted that they were survivors of violence in their families, both by their husbands and fathers. Many had been raped when they refused sex with their husbands because of fear of bearing another child. At work, these women workers also faced sexual harassment by their supervisors.

Pesticide use in the plantations

The use of pesticides in plantations has had a devastating effect on women plantation workers. Almost 30,000 women work as pesticides sprayers in

the plantation sector in Malaysia. They spray pesticides often eight hours a day, six days a week and use very toxic pesticides, some of these are listed as extremely hazardous by the World Health Organisation. In a survey conducted by Tenaganita recently, the results revealed horrendous conditions of work. These included workers spraying pesticides without any knowledge of their hazards or being provided with protective clothing, and even having the labels removed from the pesticides bottles before being given them so that the workers are unable to identify the pesticide used. Workers complaining about pesticide poisoning are treated callously by medical personnel and often prescribed Paracetamol for pain and skin creams for skin irritation.

The plantation sector has contributed to the economic growth of the country but without the toil of the plantation workers, this growth would not have been possible. And yet the country continues to ignore their tremendous contribution and be oblivious to the plight of agricultural workers, particularly women workers.

Pesticide impacts on women's health

Women are particularly susceptible to the effects of pesticides, in part because their biology is different. Women have more fat than men and so carry more of the residues of certain pesticides in their fat. Absorption of pesticides through the skin is more rapid in women as compared to men and the

hormone, oestrogen, also affect women's vulnerability to toxic pesticides. Women's complex hormonal systems appear to be especially sensitive to even low-level exposure to oestrogen-mimicking pesticides, increasing the risk of breast cancer.

The impact of pesticides on women's health is also particularly of concern because of effects on future generations, as many women spray pesticides that are potentially toxic to the foetus, even while pregnant or during breastfeeding. The effects of pesticides on the endocrine system or the hormone system are only now being studied and these have devastating implications for the growing child. Pesticides may lead to disruptions of the hormone system that ensures the proper development of the reproductive organs leading to deformities, neurological, developmental and behavioural effects and even cancers, such as breast cancer, later in life. Certain pesticides also adversely affect the immune system.

*There are
over 30,000
women
plantation
workers in
Malaysia
whose main
task is to
spray
hazardous
pesticides.*

*Source:
Tenaganita*



“Overall women are over-exposed and under-heard particularly since they face social, cultural, economic and political discrimination and this discrimination renders even their exposure to pesticides a non-issue.”

*Dr. Meriel Watts, PAN Aotearoa,
New Zealand, 2003*

Other health problems

The exposure to pesticides, increased workload, and the heavy burden women carry doing double and sometimes triple shifts, as plantation workers, factory workers and home worker – as well as poverty and malnutrition all take a heavy toll on plantation women’s health.

*Skin
problems
noted on the
feet of a
woman
sprayer
from
Malaysia.*



*Source:
Tenaganita*

Globalisation impacts indigenous women

It is clear from the start that Asian indigenous women occupy an extremely disadvantaged position in society. They are victims of multiple forms of oppression because of the fact that they are indigenous and they are women, added to the fact that the majority of them are farmers or workers belonging to the most exploited classes in society. In Taiwan, for instance, indigenous women are called 'third class citizens' because of their inferior status in relation to men and in relation to non-indigenous people, those belonging to the dominant Han culture in Taiwanese society.

On one hand, their status as indigenous people is not recognised by the state. On the other hand, it is their distinctness as indigenous people which is used as justification for government policies of assimilation, integration, resettlement, transmigration, or militarisation. These policies are used not only as means of erasing their existence as indigenous peoples but also to dispossess them of their rich ancestral land which is the basis of their culture and survival. In the most extreme cases, these state policies amount to cultural genocide or ethnocide as in the case of the indigenous peoples of Nagaland, the Chittagong Hill Tracts and Myanmar.

In addition, indigenous women find themselves living within traditional and largely patriarchal societies which

dictate that woman is subordinate to man. From birth, females are considered inferior to males. In most cases, women do not have any property rights, or if they do, they cannot inherit these rights. Seldom are they consulted on political matters concerning the community, much less are they involved in actual decision-making which is usually done within structures or institutions dominated by men such as the traditional village council.

Women play a primary role in production in indigenous communities in Asia which are largely subsistence agricultural communities. Indigenous women in Asia engage in swidden farming or plough cultivation in settled, irrigated or terraced fields. Women usually bear the brunt of the work in the fields such as hoeing, transplanting and weeding. Farming by indigenous women is usually augmented by other productive activities such as foraging, fishing and handicrafts like weaving, knitting, basketry and embroidery.

On the ground, globalisation comes in the form of mining and logging operations, dam construction and other projects, agriculture for export, inflow of imported goods and crops, and tourism development projects such as national parks and golf courses, agricultural plantations and industrial estates, among others. The loss of land due to incursions by multinational corporations (MNCs), government projects or settlers in indigenous territories is crucial in deciding the fate of the indigenous women.

Production of food for export, monocrop production of high-value crops for the market, and importation of food staples in line with the policies of globalisation have had the overall effect of degrading the environment and threatening the food security of the people in the rural areas, especially indigenous peoples and women. The effects range from the loss of soil fertility, massive land erosion, the pollution of water aquifers, loss of natural enemies to pests and the loss of biodiversity due to the use of fewer certified seed varieties. As a result, indigenous women who are primarily involved in agriculture are unable to produce the food needed by their families and fall into the trap of commercialised agricultural production for export.

Poverty, dislocation from their ancestral land and marginalisation from subsistence agriculture have pushed thousands upon thousands of indigenous women to migrate to urban centres, in search of other livelihood opportunities. Some try their luck as migrant workers or overseas workers while others cross national borders as refugees retreating from the armed military repression in their homelands.

In the cities, indigenous women have difficulties finding employment because of the prevailing discrimination against indigenous people and women, and the inherent lack of employment opportunities in under-developed countries in Asia. Some are able to find low-level jobs in the formal economy as workers in plantations, factories, hotels or other establishments. As workers,

indigenous women are exploited with low wages, no benefits and difficult working conditions. In the plantations, indigenous women workers usually receive lower wages than men.

Many indigenous women are trapped into prostitution in the cities. A particularly serious case is that of the refugee indigenous women of Myanmar who have fled the abusive military operations in their homeland and have gone to live in Thailand. Increasing prostitution is largely a result of the poverty and landlessness of indigenous people in areas which have been taken over by multi-national corporations (MNCs), settlers or hostile government forces. In Kalimantan, Indonesia, it is clear that prostitution arose with the coming of the logging company into indigenous territory.

Health care, education, roads, communication networks, and utilities like water and electricity are usually the concern of the women in the community. Indigenous people generally have poorer health and less medical services available to them. For example in Myanmar, the indigenous peoples have the highest infant mortality, lowest levels of income, highest illiteracy rates, and no access to basic health, education and social services.

Extracted from "Putting Together a Picture of Asian Indigenous Women", a study of the situation of Asian Indigenous Women by Jacqueline Carino of Cordillera Women's Education Resource Center (CWERC) on behalf of Tebtebba, 2000.

SECTION II

OUT OF SIGHT, OUT OF MIND: The Gender Context of Women's Work with Pesticides

"I did not know of the dangers of paraquat (a pesticide). Nobody told me."

Saraswathy, Malaysian pesticide sprayer

"After applying pesticides, I feel weak and rest until the next day. This is especially so when I use weedicides."

Korean woman pesticide sprayer

"In the evening, I sleep after spraying. Next day, I spray again in the morning. Where to get so much of soap to wash and clean every

time! Soon after spraying which I do barefooted, we start feeding the animals. When I feel giddy, I take a 15-minute rest and then continue."

Pakistani woman pesticide sprayer

"I get frightened in seeing my childhood photos. Nowadays it is the helicopter that flashes in my head when I see a cashew flower. Surroundings are foul smelling. Along with tea mosquitoes, we also sink into pesticides."

*Sbruti, a child victim of endosulfan
spraying by helicopters on cashew
plantations in India*

Women are exposed to pesticides not merely in the field and through spraying but also through a variety of chores associated with their multiple roles related to home-making.

A study by London et al (2002) points out that in the case of commercial farming in developing countries, women have, in addition to the regular long working hours (with physically taxing work), the double burden of home and family care. Other problems faced by these women include:

- ♦ low status
- ♦ low pay
- ♦ no social security
- ♦ employment as casual labour
- ♦ dependency on men farmers for job security

Women are not only involved in subsistence farming but also work in plantations and in flower and fruit processing, where, for the lowest pay, they perform tasks with the highest risks. This can be most clearly seen in the plantation industry, where pesticide sprayers are mainly women. In addition, the

increasing migration of men from agriculture to other occupations means that women are forced to take on other aspects of farming, increasing their workload which includes spraying pesticides in farms and working as pesticide sprayers in the plantation sector.

Floriculture

Asia is expanding its cultivation of high value-crops including floriculture and horticulture. The expansion of the floriculture industry is particularly alarming since it is rapidly shifting land from food production, often in the hands of peasant families, to the production of cut flowers that are exported to Japan and Europe.

This industry is taking advantage of the cheap labour, mainly women and children in countries such as India, Thailand, Malaysia and China, and the tropical climate. Women and children work as waged labourers earning very low wages, working long hours and exposed to pesticides that damage their health and the environment. Again, these women and children are hired because their nimble fingers help harvest the flowers. And because these women and girl children come from patriarchal societies that continue to suppress them at home and at work, they rarely complain openly or organise for their rights, and so their plight remains invisible and they suffer in silence.

Studies conducted on the floriculture industry in Colombia indicate that massive amounts of pesticides

are used and workers are exposed to a cocktail of 127 different kinds of pesticides. Rates of abortion, premature birth and babies born deformed have increased in women working and exposed to pesticides in the floriculture industry. Surveys conducted in India and the Philippines also show massive amounts of pesticides are being used and the dangers that they pose for women and young children are staggering.

This industry is also constantly “thirsty” for water, and has contributed to the sinking of groundwater levels in many regions. So total water available to communities in the surrounding areas becomes limited and this problem becomes a burden for women who have to trudge long distances to fetch water.

Rengam, 2005

WOMEN’S PESTICIDE-RELATED ACTIVITIES

Women are exposed to pesticides on the farms and plantations in numerous ways:

- ♦ They spray pesticides.
- ♦ They mix, apply and store pesticides.
- ♦ Where men spray pesticides, they often walk behind the man filling the drum.
- ♦ Their clothes and food come into contact with pesticide residues.
- ♦ As the pesticides are often stored within the premises of the home, their household chores often expose them to pesticides.

-
- ♦ They wash the pesticide containers.
 - ♦ They work long hours in fields and plantations that have been sprayed.
 - ♦ During rice transplantation, they stand for long hours in water which contains pesticides.
 - ♦ Women sprayers in plantations carry heavy spraying equipment on their persons, which may leak and expose them to the poison.
 - ♦ Any protective clothing given to them is often of inadequate standard or is not suitable for the climate or the topography of the region, and thus cannot be worn for long periods.

"I use my bare hands to mix pesticides. I don't know if what I am doing is harmful to me in the long run, but I know it burns my skin."

Woman pesticide sprayer from Malaysia

The mixing of pesticides by farmers, by using their bare hands, is a common sight in Asian countries.



Source:
UBINIG

Women farmers exposed to pesticides in Indonesia

A study conducted in Indonesia amongst women farmers focused on the various ways in which women are exposed to pesticides while spraying rice and an assortment of vegetable crops. On average, women handled 69 litres of pesticides per week. Over half the women used a pre-mix of four pesticides per tank. Overall, the 161 women sprayers studied used 878 products. Most of these were insecticides and fungicides; the remaining were fertilisers and surfactants.

Handling pesticides

Almost all the women measured and mixed pesticides with a spoon or other instrument, as opposed to directly pouring them into the tank. The pesticide often spilt out and wets their hands, feet and legs. As a result, all women had direct skin exposure while preparing their solutions to spray. All the women had their hands wet with pesticide during the process while some of them had their feet and legs wet as well.

Furthermore, almost all had some body contact with the pesticide during spraying. Pesticide from leaking tanks eventually spilled down onto the women's clothing while spraying and this resulted in their backs and legs getting wet with pesticide during spraying.

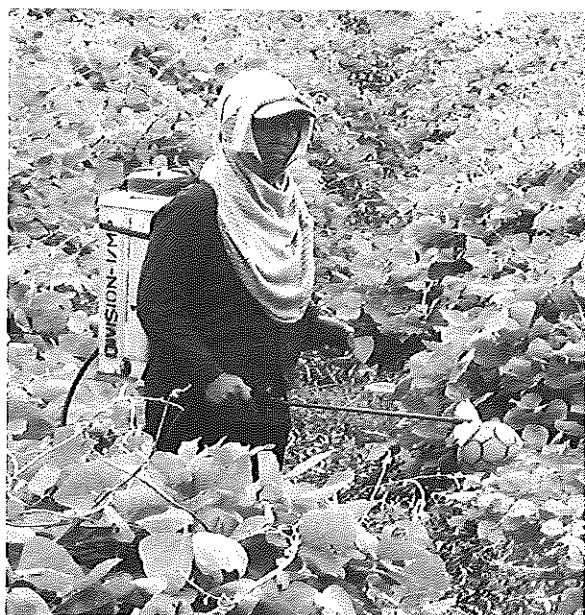
All the women sprayed upwind, and most had significant respiratory exposure either from their own spray or from a neighbouring sprayer. The major source of potential gastro-intestinal exposure was direct contact with the nozzle in an attempt to blow out an obstruction. While they did not eat, smoke or drink with contaminated hands, some touched their mouths, providing a route for pesticides to enter the gastro-intestinal tract.

Protective clothing

Most women used some sort of head covering, as it is the tradition of the local culture. Very few used protective eyewear or masks and in most cases even the masks were soaked by the end of the spraying session. Gloves were rarely worn. Even when worn, they were permeable, and gave no protection as they got soaked at the end of the operation. Few used footwear but they were rarely made of waterproof rubber. This led to most women having pesticide-soaked feet by the time they finished spraying. Clothes also often got soaked with pesticides. All the women in the study exhibited a range of chronic and acute effects of pesticide poisoning.

Murphy et al, 1999

Plantation workers, such as this woman from Indonesia face dangers from pesticides that are hazardous under conditions of use in the South.



*Source:
PAN AP*

GENDER CONTEXT OF EXPOSURE

Gender determines the conditions in which women work with pesticides.

Poverty

Although three-quarters of the world's 1.2 billion extremely poor people live and work in rural areas, the aid to agriculture which is their main source of income, has fallen by two-thirds (International Fund for Agricultural Development, 2001). The shift from production of staples to cash cropping, together with the rise in food prices, is sharply escalating this poverty. Women have little choice but to try and increase their incomes by means of increasing production by using more chemicals

and taking up whatever work they can, including spraying pesticides.

The same policies shift control of markets from women to men. Small local markets, where women traded their produce, are no longer available; larger markets dominated by men are subsuming them. Men market the produce and women have little say in how the income should be spent. Market forces also cause shifts in cropping patterns, forcing the use of more pesticides.

Institutional support for women is lacking in most developing countries, particularly for rural women. Even where banks, hospitals and training colleges exist, women can rarely access them.

**“I have no choice”
- Stories of women pesticide sprayers
from the People’s Caravan**

“**I** have no choice (but to push on)”, says Muniamah, a worker in a palm oil plantation in Malaysia, who wakes up at 4 am every day to cook for her husband, in-laws and children before she reports for work as a pesticide sprayer. Muniamah has seven children and is the sole breadwinner in the family as her husband is sick. She herself is chronically unwell with headaches, backache and a rash on her hands and legs, and takes home a pittance between Ringgit Malaysia (RM) 200 (US\$ 54) and 300 (US\$ 81) per month.

PAN AP, 2004a

Ratini, a 34-year old plantation worker in Indonesia, says that when seven-months pregnant, she informed her employer, who scolded her for having “cheated” him by taking leave that is allowed each month to menstruating women. The management deducted her salary for those days, and forced her to spray pesticides throughout her pregnancy. “I could not ask for another job. I continued spraying till the month I gave birth, and my baby was small compared to my previous children,” says this mother of six. “After three months, my son developed rashes on his legs and body, and I had to buy medicines for him”.

PAN AP, 2004b

Market forces turn women tappers into pesticide sprayers in Malaysia

Women were recognised as highly skilled tappers by the rubber plantation industry. In the early sixties, when there was a global rise in synthetic rubber consumption, rubber prices sharply dropped, and the Malaysian plantation sector was forced to diversify. Palm oil was introduced as the alternative. This brought about a major restructuring of the workforce.

The male workforce increased as men were employed as harvesters of fruits. Women, who had been tappers,

lost their jobs. However, as palm oil required more intensive “protection” from pests, women were re-employed as sprayers of pesticides and fertiliser applicators. In the process, they were also relegated to the status of “unskilled workers”, working at the most menial and hazardous jobs in plantations. Today, there are 30,000 women pesticide sprayers in the country, living in broken-down homes and struggling to maintain their families.

Tenaganita and PAN AP, 2002

Illiteracy and incomplete knowledge

An important aspect of poverty is illiteracy, and women across the developing world are less literate than men. In India, for example, female illiteracy is 62 per cent while male illiteracy is 34 per cent; in Bangladesh, women have a nearly 50 per cent lower literacy rate than men; in Pakistan, the literacy rate for women is 16 per cent compared with 35 per cent for men; in Laos, women have on average 30 per cent literacy rate and in Vietnam, it is 15 per cent lower for women above 25 (FAO, undated).

Even when they may be literate, pesticide sprayers are very often unable to understand the information written on the labels because:

- ♦ The labels may be in non-local languages, as in the case of pesticides which are smuggled into the country illegally. In Cambodia, a study found that 95 per cent of the pesticide

bottles sold were not labelled in Khmer, but in a foreign language – English, Chinese or Malay (CEDAC, 2004).

- ♦ The listing of contents may be in scientific jargon rather than in commonly understood language. Thus, the label may state the chemical composition of a pesticide rather than its common name such as lindane, paraquat, and so on.
- ♦ Retailers and the plantation management do not fully inform the farmers and plantation workers about the risks of the pesticides, or the precautions that should be followed.

“I started applying pesticides to grass,alang (weeds), palm oil trees and creepers on the ground. I sprayed strong chemicals to unwanted trees. I never knew the names of these chemicals nor their impact on me. I even used my bare hands to apply an oil-based chemical on the alang to kill them.”

*Parmes, Malaysian pesticide sprayer
(Tenaganita and PAN AP, 2002)*

Incomplete knowledge leads to improper disposal of empty pesticide containers. Kwan Ou Jun of Korea wears clothes, cap, gloves and boots during spraying. She also takes a shower afterwards, but washes the clothes she had worn when spraying pesticides with her other laundry. She has never been educated on pesticide usage at the agricultural cooperative or the agricultural training centre. Kwan wraps empty pesticide bottles in vinyl (or plastic bags) and hangs them on the wall or leaves them in a corner at home. She sometimes burns or buries them. Pesticide containers are commonly used to store a variety of goods including grain, food and water in countries

like India and Pakistan, as they are easy to come by and so that scarce resources are not used up in buying new containers.

In countries with no individual water supply in homes, pesticide sprayers bathe and wash containers and clothes in rivers which serve as common sources of water.

"It is a common practice in these villages in Pakistan for villagers to bathe in the canals while still wearing pesticide-soaked clothes."

Women farmers from Pakistan

Lack of knowledge and poverty are the significant factors that lead people in developing countries to unintentional ingestion of and exposure to pesticides.

Multiple burdens

"I spend the whole day in the field given to me by my brother, where I grow tomatoes and other vegetables. I fetch water from a distant pond, but all the hard work is worth it. The trouble is soon forgotten. Cultivating that land and taking care of it has become the meaning of my life."

Jayalaxmi, India

Women in rural areas have to work on land, producing food. However, their chores at home are not lightened with any help from any other members of the family, particularly the male members. Women have to continue doing all the domestic labour that they are supposed to do according to the roles laid out for them by society. Sexual division of labour dictates that they cook food, serve, care for the young, the elderly and the sick. Gendered expectations are that women

will do so without complaining, and if needed, make sacrifices. Thus women end up cooking, cleaning, washing and managing the home on the pittance they are usually given, in addition to looking after livestock, poultry and tending to the kitchen garden, all this besides the work they do on the farm.

"I get up early in the morning and run either to the fields or to the animal shed. Who has the time to wash one's face? We do not even have the time to say our prayers, the workload is so much."

Woman farmer from Pakistan (Habib, 1997)

Women in Bangladesh, besides doing domestic chores and taking care of planting, weeding and seed storage, are also expected to maintain kitchen gardens. They regularly spray their homestead gardens with whatever pesticides are given to them. The women who use pesticides cannot read instructions, nor do retailers or the agricultural department give them adequate information (UBINIG and PAN AP, 2003).

Another burden that the woman has to cope with alone is the ill health of others in the family. When the man becomes ill or debilitated, her workload is increased as she has to not only look after the home and the ill person, but also to carry out all his productive activities on the farm as well.

On the farm, sexual division of labour results in women spending extremely long hours in the field. They sometimes spray pesticides. Even when they do not, they follow and assist the men who spray, walking directly into the sprayed area. They transplant and weed for long hours, which means they are in constant direct exposure to the pesticide. When they

squat for hours in the course of their work, as in the rice fields in Tamil Nadu, India, their hips and lower parts are totally drenched in pesticide-laden water in the fields.

Gender bias in the health care system

“Unless we are unable to move, we do not think of going to a doctor or of taking medicine. Some local remedies are used, for example, in the case of burning skin, we apply mustard oil or butter oil. Where can we get that much money to spend on burning skin treatment?”

Pakistan women farmers

Poverty begets ill health, and, while rural areas generally have less institutional support, women suffer most because of the gender issues involved in their seeking support. Their health

Ko Byung Sook of Korea uses Tie Break (fenhexamid + tebuconazole) and Beam (tricyclazole) soluble powder for the red pepper and Sevin (carbaryl) for rice crop. When she uses Tie Break, her nose becomes flushed, her legs itch and she has bouts of dizziness. After using Sevin, Ko notices symptoms such as sweating, dizziness and headache. She does not think of these symptoms as dangerous, so she has never gone to the hospital. Although the hospital and public health centre are not far from her home, Ko is reluctant to go there. She usually feels better after taking a rest at home.

Jaiok Kim and Hackyung Park, 2005

problems are not considered significant by anyone, including themselves, and they continue to work without seeking medical help. Even when they know that the problem is serious, they believe that spending money on health care for themselves is not a priority. In most cases, taking time off to visit a health centre also means the loss of a day's wages.

Some of the gender-driven conditions that make exposure to pesticides more hazardous include:

Undernutrition: Undernutrition intensifies the health risks of exposure to pesticides. Women in most developing countries suffer from nutritional deficiencies, especially anaemia and micronutrient deficiency. Especially in countries with a preference for sons, such as India, Pakistan and Bangladesh, women and girls eat last and they eat the least. They are not merely undernourished; their heights and weights are also less than average. The lack of basic domestic needs such as fuel and water (to obtain which they have to travel long distances), adds to the depletion of calories. Undernutrition also makes carrying of pesticide spraying equipment a more arduous task.

Reproduction: Women have to bear the brunt of the responsibility for reproduction of the species. Long periods of pregnancy and lactation further deplete their undernourished bodies. Pesticides have special impact on women's reproductive health. They affect both the reproductive system itself (see section on pesticides and health), and cause spontaneous abortions, deformities and other congenital abnormalities and neurodevelopment deficits in young children. The responsibility for the care of the children adds to a woman's existing complex and multiple burdens.

"He cries all the time. I can't go out to work. It would be impossible to have a job and take care of my son. We have to make do with the tiny amount of money (we have)."

*Jayanthi, mother of Harshith,
a boy from India who has become
mentally and physically-challenged
because of aerial spraying of endosulfan*

Uncaring attitude of health staff: What happens when a female victim of occupation-related pesticide poisoning visits the health care centre or a doctor? The women pesticide sprayers of Kapar and Teluk Intan areas in Malaysia were unequivocal about the lack of concern they faced when they sought medical help. Below are some of their comments:

- ♦ *No point in seeing the doctor, as I don't get an MC (medical certificate). Instead, my wages get deducted because of the travelling time to and from the estate and the hospital. It takes half a day to get to the hospital by bus, so I continue to work even if I am feeling sick.*
- ♦ *Doctors are unwilling to issue medical certificates and only give painkillers all the time.*
- ♦ *Doctors are uncaring.*
- ♦ *The government clinic/hospital is located too far away. Doctors are not effective and they often say that there is nothing wrong with me. Instead, they tell me that I am getting old (42-year-old woman).*
- ♦ *There are no thorough checks by the doctors. They only issue painkillers and the same tablets to everyone who visits the hospital. Usually we are asked to go back to work.*

The economics of spraying and women's health

Besides the distances and the unconcerned attitude of the medical profession, the economics of pesticide spraying does not allow women to seek help outside. For example, the average take-home monthly wages of women pesticide sprayers of plantations in Kapar and Teluk Intan in Malaysia are approximately RM 300 (approximately US\$ 81). Of the 22 women covered by the study, almost half are either single parents or the sole breadwinners in their family, supporting one or more dependants. For these women, seeking outside health care becomes a great drain on their meagre financial resources. Even if they choose to do so, they need to take an entire day off from work as the clinics are too far, which means that they forego wages for the day. Most of the plantations follow a "No work, No pay" policy. Doctors too do not relate the women's complaints to pesticide exposure and the women are only given symptomatic treatment and sent home.

PAN AP, 2004c

Gender biases in epidemiological studies

The following incident brings out the gender biases underlying the general attitude towards women workers' health issues, particularly those exposed to pesticides. When a fruit factory in South Africa introduced fumigants to treat the products, the gas leaked, and most of the workers became ill with

headaches, nausea, dizziness, salivation and weakness. Twenty-five women workers reported to a clinic and the symptoms were diagnosed as mass hysteria (London et al, 2002). The report does not go on to state whether the “hysterical women” were firmly put back in their place or whether they were given any treatment at all, and if so, whether only for hysteria. The incident however makes it obvious that for the medical profession, women cannot be poisoned by pesticides in the course of their work, because of the persistent belief that women do not work with pesticides.

The myth that men actually do all the hard physical labour associated with pesticides makes women’s pesticide-related health problems a non-issue with the health care system. In most toxicological and epidemiological studies, women are not mentioned at all – they are subsumed by the general terms ‘farm workers’ and ‘humans’. In the case studies quoted in the WHO publication, “Environmental Health Criteria 39: Paraquat and Diquat”, of 1984, which was supported by the UN Environment Programme and the International Labour Organisation (ILO), women are not mentioned at all while men specifically were mentioned as prone to scrotal dermatitis, arising from pesticide knapsacks leaking and drenching the scrotal area with pesticide. Ironically, many of the studies had been carried out in Malaysia, where women comprise the majority of the pesticide sprayers and pesticide knapsack leakage drenches their backs, lower abdomen and reproductive parts.

Yet, women were not mentioned as part of the subjects of those health studies and this despite the fact that the text mentions that in Malaysia, there are more women pesticide

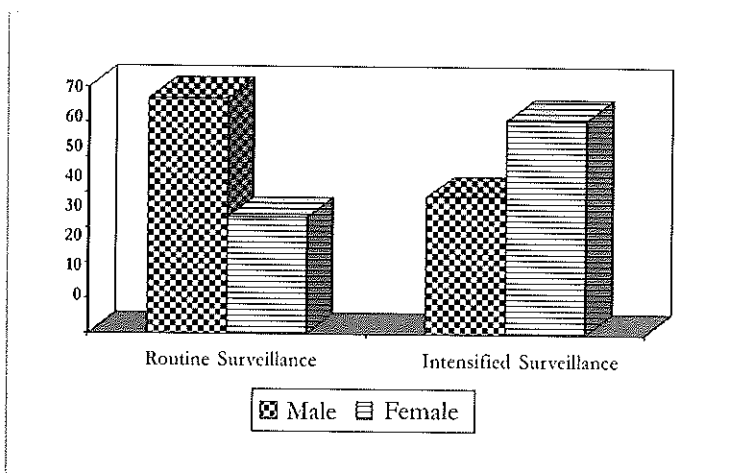
sprayers than men and their exposure is greater as weed control goes on for 10 months in a year. In addition, the knapsack is used for the entire working day for six days a week. Further, there was no reference at all in the entire document to the effects of pesticides on the reproductive health of the women except for the two cases involving paraquat poisoning during pregnancy. However, both the 'cases' were reported as poisoned from ingestion and not during the course of work. The report stated that both women and their foetuses died due to poisoning.

The women workers at Kapar and Teluk Intan plantations, who sprayed paraquat every day frequently fell while spraying because of the uneven terrain, improper footwear or the strain of having to carry a heavy knapsack on the back for long. These falls injured their knees, caused scratches and often resulted in the pesticide being splashed on them. These conditions eventually caused severe skin discolouration of their body and various other health problems.

The uncaring attitude of the health care system is reinforced by the industry, which, in any case, does not want to acknowledge any occupational health problems related to pesticides because of the issue of compensation. For example, in the case of aerial spraying of endosulfan in Kerala, India, in spite of the overwhelming evidence of numerous critical health problems caused by the pesticide among villagers living near the plantations reported by the Centre for Science and Environment (CSE), a national non-governmental organisation, industry-sponsored studies insisted that the endosulfan level in the environment was not sufficient to cause any harm. These studies also concluded that there was no

connection between the aerial spraying and the health problems faced by the villagers (see Chapter three for more details on the issue).

In general, women's work in agriculture and its impact on their health are not taken seriously by either the health system or policy-makers. The situation is compounded by the fact that women lack information on the effects of pesticides. In addition to that, women's subjugation to patriarchal assumptions of their role makes them unable to perceive the problems as important. London et al (2002) had shown how intensified surveillance actually revealed that women were more exposed to pesticides than men.



They further clarified that while routine surveillance pointed to accidental/intentional poisoning as the most common cause of pesticide poisoning, intensified surveillance put the blame clearly on causes related to occupation.

Violence

Statistics reveal that one in every six women is subjected to domestic violence ranging from physical and emotional to sexual (Kishor and Johnson, 2004). The actual figure may be higher as many women feel that it is no use seeking help, such violence is a part of life, or feel humiliated to acknowledge that they are victims of violence.

Specific facets of violence increase a woman's risks of exposure to pesticides. Overt violence such as beating, rape and other abuse causes physical injuries which facilitate the absorption of pesticides. Repeated sexual intercourse also causes bruising of pubic area and the vagina. When the woman then carries leaking pesticide containers on her back, the bruised skin of her hips and the pubic area get soaked in pesticide, thus enabling it to enter her body through the bruised skin.

Do pesticides aggravate domestic violence?

According to a recent research, pesticides, or a combination of them, not only affect the nervous, immune and endocrine systems but are also able to stimulate hyper-aggressive behaviour. Findings from a group of biologists and medical researchers at the University of Wisconsin in Madison, USA, led by Warren P. Porter, have shown that a mixture of low-level carbamate insecticides, triazine herbicides and nitrate nitrogen causes an increase in aggression in mice.

According to Dr. Porter, the thyroid hormone typically changes when pesticide exposure occurs. "The thyroid hormone not only affects and controls your metabolic rate, that is how fast you burn food, it also controls your irritability level." These findings corroborate yet a study by Guillette et al (1998) of 4 and 5-year old children in Mexico's Yaqui Indian community living in the Yaqui Valley, in low-lands dominated by pesticide-intensive agriculture (45 or more sprays each year). In contrast to the control group living in upland foothills where pesticides are not used, the lowland children were observed hitting their siblings when they passed by, becoming easily upset or angry over a minor corrective comment.

Dr. Porter further elucidates that, "the human body can defend itself against poisons to some degree but describes ways in which low-level mixtures of pesticides and fertiliser might get past the body defenses — the body is prepared to protect itself against poisons taken by mouth. The liver begins to produce enzymes that try to break down fat-soluble chemicals. However, if a poison enters through the lungs or the skin, the body does not offer the same kind of defenses. Furthermore, the body's ability to put up defenses may be compromised by taking certain medications (e.g., antibiotics), or by receiving 'pulses' of toxins rather than a steady dose."

Montague, 1999

The threat of sexual harassment, including rape, prevents most women from taking a proper bath after spraying. In many developing countries, there is no proper system of piped water or enclosed and safe areas where women can bathe, and women have to use a common source of water. In countries where such facilities are available, the myth that women do not work with pesticides prevails, and no separate toilet and washing facilities are provided for women.

Lack of unions

Primarily because women are rarely members of farmers' unions, or agricultural workers' unions, they are not regarded as farmers. In cases where they are allowed to become members, they have little say in setting the unions' agenda or priorities. Nagamah, a highly articulate plantation worker from Malaysia, complains that the union collects RM 10 (US\$ 2.80) from workers every month but does not do anything on the workers' behalf.

When the women sprayers with Nagamah confronted the management on the poisoning of their health, the management refused to believe them. When they took up issues of lack of adequate health care, the management and the union both did not treat this as serious. When the women went to Parliament to meet legislators, they were not received well. A deputy minister limited his sympathy to some gratuitous advice such as "If you mix clay and water and drink it, the poison will go away."

"It is time that women increase their political involvement. Only if women become politically involved in getting parliamentary seats can there be change. Why can't we be represented in Parliament? Politicians come around during elections and search for votes, but nothing happens after that. We should boycott this form of elections."

*Nagamah, woman pesticide sprayer
from Malaysia*

Nagamah's story is repeated by plantation workers from Sri Lanka where male workers, officers and managers do not acknowledge women leaders of the union merely because they are women (Sivapragasam, 2004).

The inability to unionise renders each woman's battle her personal issue, and prevents women from drawing strength from collective bargaining. Even when they do manage to show collective strength, another facet of patriarchal oppression emerges. In the case of women sprayers of Sumatra, Indonesia, their resistance is strong against plantation owners but they have a problem with their husbands who deter them from actively participating in the struggle.

In countries like India, where the caste system is deep-rooted, the problem takes on added caste dimensions. The poorest of the agricultural workers, many of whom are landless, are Dalits. However, even while the Dalits are the most oppressed caste-based group in society, Dalits do not recognise women's oppression as yet another face of the same patriarchal oppression that they face. Even within them, there is no support for Dalit women's struggles and there is a lack of common ground between the Dalit women's groups and other women's groups to fight gender, class and caste oppression.

Thus the women's movements, trying to build political alliances, rarely find support from either men-dominated movements or peasants' and workers' movements or even the Dalit movements.

PESTICIDES AND THEIR IMPACT ON WOMEN'S HEALTH

Women's invisibility in agriculture extends to their exposure to pesticides and unsurprisingly little is known about the impact of pesticides on the specific health problems of women. For example, menstrual symptoms have been identified as the most commonly diagnosed disorder of women but until recently menstruation problems were seen as personal, and possibly neurotic. However the menstrual cycle characteristics may well have implications on women's ability to become pregnant and increase the risk of hormonally related diseases.

Farr et al (2004) noted that certain pesticides are known or suspected to cause hormonal disruption or are toxic to the ovaries and consequently, they cause adverse reproductive effects on animals and humans, but little is known about the effect of pesticides on women's menstrual function. In that study, they investigated the association between pesticide use and menstrual function among 3,103 women. The researchers concluded, "Women who used pesticides experienced longer menstrual cycles and increased odds of missed periods compared with women who never used pesticides. Women who used probable hormonally active pesticides had 60-100 per cent increased odds of experiencing long cycles, missed periods, and intermenstrual bleeding compared with women

who had never used pesticides.” Interestingly they noted that their study was probably the first study to examine the effect of several pesticides on the menstrual function in women.

Menopause and menopausal symptoms can also be indicators of exposure to environmental pollution. Farr et al (2006) found that exposure to pesticides resulted in later menopause, indicating that pesticides interfered with the menstrual system.

Women have lower body weight and a higher proportion of body fat than men, making their bodies more prone to the accumulation of fat-associated pesticides such as DDT. These fat-soluble persistent organic pollutants (POP) stay in the body for many years due to their slow breakdown and persistency. They also affect babies’ health as the pesticide (or its breakdown products) can be passed on to the baby across the placenta and through breast milk.

The impact of certain pesticides’ action on hormones may be different in men and women. Many pesticides have been associated with congenital defects and damage in foetuses.

*Pesticides pose great
health risks to
women in tea
plantations in Sri
Lanka*

*Source:
[www.invent.org/
themen_reg/
regionen/suedasian/
index.de](http://www.invent.org/themen_reg/regionen/suedasian/index.de)*



Studies confirm the link between pesticide use and cancer

A 2004 study conducted by Kheta Virasat, a local NGO in Bhatinda district of Punjab, India, the heart of the Green Revolution area growing rice and cotton, noted increased incidence of cancer, kidney failure, yellowing of teeth, joint pain, breathing problems and skin disorders among adults in the community. Children were marked with congenital defects such as mental retardation. There were complaints of abortions, abnormal births and jaundice during pregnancy (Sharma, 2004). The findings, related to increased cancer deaths, especially among women, were confirmed by the Chandigarh-based Post-Graduate Institute of Medical Education and Research (PGIMER), a premier research and teaching medical establishment in a study done on behalf of the Punjab government.

The PGIMER study covered a population of 85,315 in Talwandi Sahib in Bhatinda district, notorious for its excessive use of pesticides, and 97,928 in Chamkaur Sahib in Ropar district (control area), another district in the Green Revolution belt. A total of 7,441 deaths was recorded in the 10 years from 1993-2003 in Bhatinda district. The cancer death rate per 100,000 population per year at Talwandi Sahib was 51.2 while that at Chamkaur Sahib was 30.3. The prevalence of confirmed cancer cases per 100,000 was 125.4 in Talwandi Sahib compared to 72.5 in Chamkaur Sahib.

The five most common categories of confirmed cancer cases included breast, uterus, leukaemia/lymphoma, oesophagus, skin and ovary.

Heptachlor, a known carcinogen, was found in ground and tap water in both places. Pesticide residues such as chlorpyrifos, aldrin, heptachlor endoepoxide, alpha-endosulfan, dieldrin and alpha HCH were found in vegetables in Talwandi Sahib while in Chamkaur Sahib, chlorpyrifos, beta HCH, gamma HCH and delta HCH were found.

Sharma, 2004

Killing fields

In 2002, a fact finding team consisting of four organisations – Centre for Resource Education, Community Health Cell, Sarvodaya Youth Organisation and Toxics Link – looked into the issue of deaths and hospitalisations of pesticide sprayers in the district of Warrangal in Andhra Pradesh, India. The team found that “a highly grievous situation persists in the districts of Warrangal caused by chemical pesticides.” On the basis of preliminary investigation by the team, taking into account two to three deaths and more than five to 10 cases of exposure in villages visited, it was estimated that there could be more than 500 deaths in Warrangal district alone and more than 1,000 exposed in the period August to December 2001.

Crop

Cotton has been replacing traditional food crops of millet, paddy, maize, chillies, pulses, and oilseeds. However, cotton has become synonymous with pests, and farmers have been investing heavily in pesticides, often using cocktails of various pesticides as the pests quickly build up resistance.

Pesticides used

Methyl parathion, cypermethrin, endosulfan, chlorpyrifos, monocrotophos, Ekalux (quinalphos), Avaunt (indoxacarb) and Tracer (spinosad), either singly or in combination. It was officially estimated that in one season in 2001, over 600 metric tonnes (MT) of pesticides were used in the district alone, at an estimated cost of Indian Rupees, Rp. 300 million (approximately US\$ 6.8 million).

Protective gear

Piece of cloth covering nose or mouth, but more often, nothing.

Method

A cotton farmer is shown spraying pesticides from a motorised backpack pump, wearing no protective gear or extra clothing as he walks into the spray. Team members observed this farmer and many others spraying at high noon despite the fact that pesticide use is not recommended between the peak sun hours

of 10 a.m. and 4 p.m. Women commonly are given the job of refilling the tank while walking behind the sprayer, resulting in continuous exposure to the pesticide. Women also are exposed while harvesting the cotton buds, sometimes a mere three to four hours after the plants have been sprayed.

Health effects

Early symptoms included dizziness, fatigue, runny nose, salivation, nausea, intestinal discomfort, sweating, changes in heart rate, chest pain and respiratory congestion, central nervous system stimulation and depression, dermatitis, diarrhoea, visual disturbances, hepatic and renal injury, insomnia and mood changes, mucous membrane irritation, muscle twitching and shivering, abdominal pain and anorexia, vision problems, joint pain, hormonal disturbances, paralysis, peripheral neuropathy and weakness. In acute cases, paralysis, seizures, loss of consciousness, and death have been reported. Doctors of the Indian Medical Association, Warrangal, said that there are increased cases of congenitally deformed babies being born, increased cases of convulsions in children of 5-12 years of age (today it is called "Warrangal convulsions"), increased gynaecological problems, breast cancer, miscarriages, painful menstruation and difficulties in conceiving.

Excerpt from "*The Killing Fields* - Farmer deaths due to exposure to pesticides in Warrangal District", a report of the Fact-Finding Team of Toxic Link et al, 2002

How pesticides get into the body

There are four ways that pesticides get into the body - by breathing in, swallowing, through the skin, and through the eyes in cases of splashes or spills. Most workers think that breathing in the vapours is the major way that pesticides get into the body. This is not so. The major route of absorption of pesticides into the body is through the skin. Some parts of the skin absorb pesticides more easily than others. The genital area is an area of high absorption followed by the face and neck, back of the hand, armpits and the lower forearm. Dampness of the skin, cuts, rash, or even minor irritation of the skin ensures faster and larger amounts of pesticide absorption.

At the same level of exposure, children tend to absorb more pesticides compared to an adult. This is because they have a lot more skin surface for their size than an adult and also take in more breaths per minute. Women have thinner skin than men and may absorb more under similar levels of exposure. For a pregnant woman, once the pesticides get into the blood stream, they can cross the placenta and affect the child in the womb.

Moses, 1999

Immediate effects: The immediate or acute effects of pesticides can appear within minutes, hours or sometimes even days after exposure. They include:

- ♦ irritation of eyes, nose and throat such as tearing, stinging, burning and cough; skin rashes and itching are also common.
- ♦ allergic dermatitis: pesticides reported to cause allergic dermatitis include benomyl, captan, chlorothalonil, dazomet, dichlorvos, malathion, maneb, naled, and PCNB
- ♦ headache
- ♦ dizziness
- ♦ nausea and vomiting
- ♦ cramps
- ♦ difficulty in breathing
- ♦ blurry vision
- ♦ affects the renal system, leading to failure of kidneys
- ♦ affects the central nervous system, leading to convulsions, semi-consciousness or unconsciousness
- ♦ heart failure
- ♦ severe poisoning causes death of the victim.

Long-term effects: The delayed, long-term or chronic effects can occur months or years after exposure. They can also occur in cases of low levels of exposure over a long period of time, for example, through consumption of pesticide residues in food and water. The three major chronic effects from pesticides are cancer, neurological damage, and reproductive problems.

Cancer is by far the most well-known effect of exposure to pesticides. Studies across the world strongly suggest a link

between pesticides and breast cancer, cancer of lymphatic and blood tissues in women, skin melanoma, bladder cancer and lung cancer (Jacobs and Dinham, 2003). Women working in horticulture have higher risks of getting leukaemia (Miligi and Settini, 2003). Leukaemia and cervical cancer have also been associated with women working in banana plantations (Jacobs and Dinham, 2003). Increased breast cancer risk has been found with occupational exposure to pesticides in China (Petrulia et al, 1998). Other cancers linked with pesticides include non-Hodgkin lymphoma, brain cancer, soft tissue sarcoma, pancreatic cancer, testicular cancer and cancer of the prostate (Moses, 1999). Studies done in the United States, several European countries, Brazil and China show that children whose parents are occupationally exposed to pesticides or whose parents use pesticides in and around the home are more likely to get leukaemia, brain cancer, non-Hodgkin lymphoma, soft tissue sarcoma, and Wilm's tumour (Moses, 1999).

As for reproductive effects the most famous case is of male sterility among Costa Rican banana workers caused by the pesticide called dibromochloro-propane (DBCP). However, women also complained of sterility and congenital malformations but this was not studied (Jacobs and Dinham, 2003). While women have continuously experienced increases in abortions, premature births and congenital malformations after working with pesticides, these have not been studied adequately. The case of severe and extensive congenital malformations in the children affected by aerial spraying of endosulfan in India show adequate reasons for immediate studies in this area. Pesticides have also been linked with genetic mutations but few studies have been carried out

(Standing Committee on Environment and Sustainable Development, 2000).

In South Africa, a study looking at associations between exposure to agricultural chemicals and certain birth defects revealed babies with defects were seven times more likely to be born to women exposed to chemicals used in gardens and fields compared to no reported exposures and were almost twice as likely to be born to women who were involved in dipping livestock in pesticide used to prevent ticks. The study also showed that babies with defects were 6.5 times more likely to be born to women who were using plastic containers for fetching water. Some of these containers had previously contained pesticides. The researchers, Heeren et al (2003) concluded “that their findings suggest a link between exposure to pesticides and certain birth defects among the children of rural South African women who work on the land”.

There is increasing evidence also of the neurotoxic effects of pesticides on the developing brain and nervous system of foetuses, infants and children (e.g. Colborn, 2006). The case of endosulfan exposure in India in particular shows a vast array of neurological effects caused by the pesticide. These include growing paralysis, permanent brain damage and lowering of mental ability in children who were normal till seven or eight years of age.

A new study also links persistent organic pollutants (POPs) including DDE (a metabolite or breakdown compound of DDT) to increased risk of type II diabetes (Duk-Hee Lee et al, 2006).

Pesticides violate child rights

A study was conducted to compare the abilities of children with high exposure to pesticides in six cotton-growing locations in India with five matched control (minimal pesticide exposure) groups to perform development tasks involving memory, stamina, analytical, motor and tactile perception. It was found that in more than 80 per cent of the tasks tested, the former performed significantly worse than the less-exposed children. The findings demonstrate that basic child rights of survival, growth, and development are being violated and denied by technologies such as chemical pesticides.

Kuruganti, 2005

Endocrine (hormone) Disrupting Effects: The endocrine-disrupting effects depend on which hormone system is the target of the pesticide. For example, if an organism in the womb is exposed to pesticides that disrupt the sex hormones, the consequences may include effects on sexual behaviour, structural deformities of the reproductive tract, undescended testis, deficits in sperm counts, effects on sex ratios, and even breast cancer late in life. However, if the primary action is on the thyroid hormone, then as these hormones are responsible for metabolism and normal brain development, exposure in the womb may affect the foetuses' intelligence and growth. Laboratory tests have confirmed that endocrine-disrupting chemicals do indeed cause such effects in exposed animals,

but all the effects listed above have also been noted in humans heavily exposed to endocrine-disrupting pesticides or industrial chemicals (Pesticide News, 1999). Some endocrine disruptors may exert their action by interfering with the brain's release of hormones. Hormone disruptors have also been linked to many health problems including reproductive cancers. So far, 90 pesticides have been identified as confirmed, suspected or potential endocrine-disrupting pesticide by various European regulatory agencies (PAN UK, 2005). Many of these pesticides are used in agriculture. Some of these are seen as "safe" and are used for household and garden pesticides. However, these pesticides may show adverse effects even at low levels, sometimes at levels tens of thousands of times lower than the levels considered as having "no effect" in toxicology.

Today there is increasing evidence that pesticides suppress immune responses to bacteria, viruses, parasites and tumours, making people significantly more vulnerable to infectious diseases. Insecticides, herbicides and fungicides can alter the immune system and suppress normal immune system responses. These changes can reduce the body's normal resistance to bacterial, viral and other infections (Repetto and Baliga, 1996). The report highlighted studies that were new or little is known especially from the Soviet Union and Northern Canada. One study done with Canadian Inuits, who eat fish and other marine life contaminated by organochlorine pesticides and other chemicals were found to suffer pronounced immune system deficiencies (Repetto and Baliga, 1996). Another recent study by Dewailly et al (2000) also indicates similar immune system deficiency of Inuit children. According to Dewailly et al, "for many years, young native children from Nunavik have had a high incidence of infectious

diseases, in particular meningitis, bronchopulmonary, and middle ear infections. In fact, the Inuits in Nunavik report hearing loss as their most common chronic health problem” (Dewailly et al, 2000). They find that an increased rate of these infections among the Inuit children are associated with the exposure to higher levels of organochlorine chemicals at the prenatal stage in the womb. Owing to the fact that, these results suggest the link between infections and the prenatal organochlorine chemical exposures, they recommend that the Inuit women’s exposure to organochlorine chemicals be reduced.

Rural women, their unborn babies and children are exposed to many of these pesticides that have the potential to cause hormonal disruption and immune system deficiency. As a result of a combination of poverty and marginalisation, women face undernourishment and are anaemic and this situation makes them more vulnerable not only to the effects of the pesticides but also more vulnerable to infectious diseases. Their inability to access health care in many cases worsens the situation.

Other health Effects: Pesticides aggravate existing conditions of ill health. People with asthma and allergies, especially children, can react to very low levels of pesticides. The pesticides most likely to precipitate or aggravate asthma are the pyrethrins, pyrethroids, organophosphates and methyl carbamates (Moses, 1999). Pesticides can also cause irregular heart rhythms and people with heart disease may have a worsening of their condition when exposed. Pesticides can thus affect almost any part of the human body and its functions from even before birth. Adequate information and

adequate health care are vital to minimising their impacts. Women have access to neither, and thus are extremely vulnerable to their effects.

Women agricultural workers are often exposed to a cocktail of pesticides in their workplace particularly in the plantations. Women farmers also spray a mixture of several pesticides on their crops. Unfortunately, these mixtures of pesticides may have synergistic effects, i.e. the effects of several pesticides mixed together can be more potent than might be expected by just adding their effects one at a time. While studies are few, they do indicate synergistic effects of pesticides. For example, several animal studies² suggest that the mixtures of paraquat and maneb could play a role in the development of Parkinson's Disease. Another study by Hayes et al showed the synergistic effect of nine pesticide mixtures on frogs that increased the negative effects on frog populations, immunosuppression, retarded growth, etc. (Hayes et al, 2006). At present however, regulatory assessments rarely look at such pesticides interactions; in fact it is incapable to cope with synergistic effects of pesticides. Meanwhile, thousands of women and men agricultural workers and farmers continue to be exposed to deadly cocktails of pesticides.

² *Animal studies are used to understand the effects of chemicals on the health of animals and these are then used to predict the impact of that chemical on human health. There is a large body of scientific literature that indicates the predictive nature of animal studies for human effects. In fact, animal studies are important that it reminds us that a precautionary approach is necessary, i.e. whenever there is serious threat to health and the environment, lack of scientific certainty should not postpone cost-effective measures to prevent harm. However, there is controversy on animal testing and animal activists continue to campaign to protect animals from the pain, suffering and stress of being used as test animals.*

SECTION III

THROUGH NO FAULT OF OURS: Pesticide Victims' Struggle

CASE STUDY OF PARAQUAT CAMPAIGN IN MALAYSIA

Paraquat is a highly toxic herbicide used widely across the world, primarily for grass and weed control. In about 120 countries, it is used on large and small farms, plantations, fruit orchards and estates as well as in non-agricultural weed control.

Spraying of paraquat occurs with high frequency, especially under humid weather conditions with rapid plant growth. For example, spraying is undertaken every six to eight weeks in a

**Some common brand names of pesticides
containing paraquat**

Barclay Total	PDQ	Weedol
Actor	Gramuron	Herbikill
Anuron	Esgram	Katalon
Crisquat	Preeglox L	Osaquat
Dukatalon	Tota-Col	Parakill
Dexuron	Efoxon	Pilarxone
Cyclone	Preglone	Plusquat
Opal	Goldquat	Priquat
Gramocil	Seccatuto	R-Bix
Dextrone X	Gramoxone	Scythe
Pathclear	Spray Seed	Speeder
Gramonol	Herbaxon	Speedway
Dragocson		Starfire
		Sweep

Source: Poisons Information Monograph 399
<http://www.inchem.org/documents/pims/chemical/pim399.html>

banana plantation, and almost every day in a Malaysian palm oil plantation.

Agricultural workers in plantations and large estates, whose full-time job is to spray pesticides, are the most seriously affected. Thousands of untrained small-scale farmers in developing countries who use pesticides weekly or more frequently, all those who handle pesticides or work in areas where the pesticide has been sprayed, are also at risk. Spillage, leaking or poorly insulated knapsack spraying equipment,

Paraquat is highly toxic, with no known antidote. Less than one teaspoon of concentrated paraquat, if ingested, is fatal. Skin contact can cause systemic damage. Even at very low levels of exposure, paraquat can cause, among other symptoms, severe dermatitis, second-degree burns, a rash all over the body and discoloured or itching hands. Paraquat's extreme toxicity makes protective clothing such as rubber aprons, rubber gloves, full-face shields and rubber boot coverings essential for mixers and applicators. In reality, the herbicide is extensively used in hot and humid climates where such clothing is intolerable or unavailable. In these conditions, paraquat poses an unacceptable threat to workers' health and safety.

consumption of pesticide-contaminated food, and lack of washing facilities for workers compound the problems.

Means of exposure

Generally, people are exposed to paraquat through ingestion, absorption through the skin and inhalation. Paraquat can be fatal on ingestion, and it has no known antidote. Although often recommended as a supportive treatment, the use of Fuller's Earth as an absorbent has not been demonstrated to be clinically effective (Isenring, 2005).

Treatment is usually symptomatic, starting with the victim being made to vomit. In a few developed countries, a specific dye is added to paraquat solutions to ensure there is no accidental ingestion. However, this is not so in the case of

most developing countries. Conditions in many developing countries such as poverty, lack of clean water supplies and adequate sanitation facilities, re-use of pesticide containers, and so on, cause food and water to be easily contaminated with paraquat leading to several cases of accidental ingestion, often with fatal consequences. Due to its easy availability as well as acute toxicity, its use in suicide is also escalating.

Dermal exposure is the most likely route of paraquat uptake and happens most frequently during handling, mixing and loading. The worst cases occur during knapsack spraying, the primary mode of application in Asian plantations and farms. Penetration is considerably increased by damaged skin, which is of particular concern because paraquat itself is a skin irritant. Dermal exposures vary due to differences between plantations (Wesseling et al, 2001), including the terrain. For example, in Malaysia and Indonesia there have been cases where sprayers (mostly women) who carry heavy loads on their backs, have slipped and fallen in sloppy terrain especially during rainy spells. Thus getting cuts on exposed parts of their bodies, as well as getting splashed with pesticides.

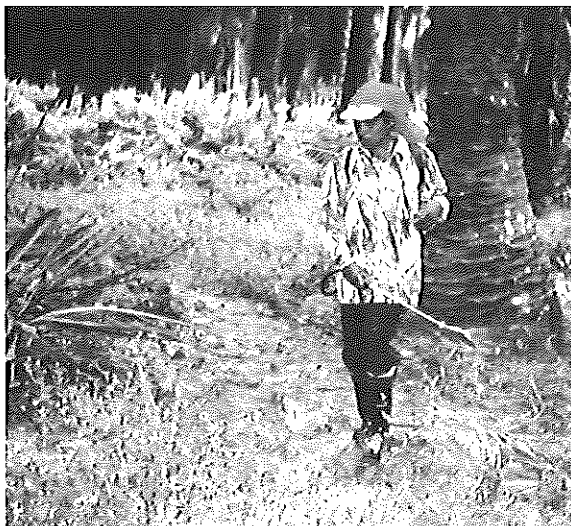
Exposure occurs especially in body areas involved in a lot of movement (knees, elbow, wrists) and those becoming damp by transpiration or pressure from belts of the knapsack (armpits and shoulder region). Despite the use of gloves, hands remain exposed due to cross contamination by taking gloves off and on. The sprayers often experience nose-bleeds after spraying sessions indicating that the paraquat particles enter through inhalation thus causing irritation of the upper respiratory tract. These incidents contradict the claims that particles of paraquat are supposed to be too large to be inhaled easily (Isenring, 2005).

Symptoms and consequences of poisoning

Continued exposure to paraquat, as encountered by spray operators on plantations, is reported to affect the skin, eyes, nose and fingernails. The various types of skin problems include mild irritation, blistering and ulceration, desquamation (peeling of the outer layer of the skin), necrosis (cell-death in skin tissue), and dermatitis of the hands and scrotal areas (leakage from spraying equipment soaks trousers). Splashes or drifts of paraquat into the eye result not only in irritation and inflamed eyelids (blepharitis) but also cause decrease in visual acuity (PAN AP, 2003).

Interviews in March 2002 with women in Indonesian palm oil estates describe routine exposure through leaking knapsack sprayers, spray drift, and walking through sprayed vegetation. They link the spraying of paraquat to their symptoms of blurred vision, breathing difficulties, skin damage and diarrhoea.

*Plantation
workers in
Malaysia
often spray
pesticides for
up to 8 hours
a day, 7 days
a week.*



*Source:
Tenaganita*

*A woman sprayer
from Malaysia, who
suffered severe skin
problems due to
handling paraquat
and other pesticides.*



*Source:
PAN AP*

Most sprayers in Malaysian plantations are women, who work with an average 4-gallon load on their backs, for 262 days a year. A 1991 study conducted by Tenaganita and PAN AP found that 50 per cent of women farmers interviewed have no access to protective gear that contributed to the high rate of pesticide poisoning cases in the plantations (Arumugam, 1992). Most plantation workers did not use protective clothing as they found it too uncomfortable in hot weather. Boots, which are commonly worn because of dense undergrowth and fear for snakes, are used to tuck in trousers and thereby catch pesticide drips too.

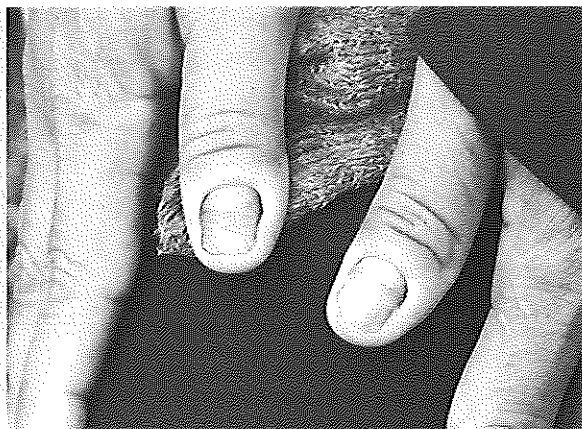
In June 2004, Pesticide Action Network Asia Pacific (PAN AP) held a discussion with paraquat sprayers in Kapar and Teluk Intan in Malaysia. Women listed their major health complaints (including problems linked to the knapsack method of application) as:

- ♦ itchy skin and eyes
- ♦ breathing problems
- ♦ back, stomach and chest pain
- ♦ headache
- ♦ body ache
- ♦ blurred vision
- ♦ ulcers in the mouth
- ♦ sores on the back and abdomen
- ♦ weight loss
- ♦ fatigue
- ♦ giddiness
- ♦ swelling of the hands and feet
- ♦ discolouration of the skin and nails
- ♦ scaly skin on the neck and feet
- ♦ swollen knees
- ♦ joint pains
- ♦ prolapsed womb
- ♦ still births
- ♦ dehydration
- ♦ varicose veins
- ♦ prolapsed disc

In fact, weakness of the womb and reproductive problems are so common that many of the women sprayers who are in their mid 30s and early 40s are already opting for hysterectomy (removal of the uterus).

Erosion of the finger nails of a woman sprayer in Indonesia, a tell-tale sign of paraquat exposure.

*Source:
PAN AP*



Toxicity

Acute toxicity

Paraquat is highly acutely toxic and has serious and irreversible delayed effects if absorbed. As little as one teaspoonful of the active ingredient is fatal. Death occurs within 30 days after ingestion. Absorbed paraquat is distributed via the bloodstream to practically all areas of the body. The lungs accumulate paraquat, and therefore contain higher concentrations than other tissues. This develops into pulmonary oedema and other lung damage, leading to fibrosis. Liver damage occurs and renal failure may follow as the kidneys start to remove the absorbed paraquat.

Chronic Health Effects

Exposure to relatively low doses of paraquat over a long period of time can affect the lungs, nerve system, brain and skin (Isenring, 2005). A number of studies have drawn strong links between paraquat exposure and development of Parkinsons Disease (PAN AP, 2003).

THE CAMPAIGN TO BAN PARAQUAT

Empowering women workers in Malaysia

The battle against paraquat has been going on for a long time: it was on Pesticide Action Network's (PAN) Dirty Dozen list for elimination inception in 1985, and had been the subject of a campaign for a ban in countries like Malaysia for more than 20 years!

From early days, PAN AP had noted that the use of pesticides had permeated even the remotest village in rural Asia, and was a central part of operations in plantations. For the millions of women farming the land and working the plantations, exposure to pesticide hazards was nothing new. Farmers and agricultural workers were exposed to pesticides directly while mixing and spraying these pesticides. But as pesticide sprayers, women's problems—especially their health problems—were trivialised and rarely addressed. While women suffer ill effects due to pesticide exposure, many do not seek medical help, nor can they afford the luxury of consulting doctors or even local traditional health practitioners. In many countries, women's subordinate positions in the community and family, and their often low self-esteem as well as their lack of awareness of the hazards, have not allowed for an expression or an assertion of their rights.

Due to the dearth of information on the real impacts of pesticides on women, and the lack of information and understanding specific to women, PAN AP initiated the Women and Pesticides Project between 1991 and 1994. Studies of women and pesticides were undertaken in collaboration with network partners in Indonesia, Malaysia, Sri Lanka,

Pakistan, the Philippines, and India, and these revealed and confirmed the extent of the problem. It also revealed the invisibility and marginalisation of women's problems caused by pesticide use.

In 1991, PAN AP first began its productive collaboration with Malaysian group Tenaganita (meaning 'Women's Force' in Malay), with a study of the impact of pesticides on women workers in Malaysian plantations. The imperative came from the fact that there were more than 30,000 women pesticide sprayers employed throughout the country in the plantation sector, facing hazards from pesticides every day. Fifty women were randomly chosen from six estates in the state of Selangor for interviews, and surveys were undertaken by Tenaganita. Tenaganita's programme officers interacted with the community under study and participated fully in community life, keeping detailed notes on what they heard, saw or felt about women working with pesticides. PAN AP analysed the findings and did research into the pesticides used, the health effects and available legislation on pesticides.

*Women
plantation
workers
analysing self
surveillance
records
together with
Tenaganita
field workers.*

*Source :
Tenaganita*



The study concluded that there was “a high incidence of specific occupational and safety hazards”, which were “consistent with the work conditions in the cases of: i) dermal exposure to highly toxic pesticides; ii) prolonged periods of exposure to pesticides; iii) inhalation of pesticides daily; and iv) lack of awareness of skin absorption”. The study recommended that the sprayers’ health complaints should be investigated by independent medical experts. The survey results noted that most of the pesticides used freely in the plantations were in the Dirty Dozen list; had been banned in one or more countries; or severely restricted in some industrialised countries.

Misleading claims by the industry about Gramoxone

- ♦ Gramoxone® (common trade name for paraquat) has been used safely and effectively by farmers in some 120 countries worldwide for more than 40 years.
- ♦ The herbicide plays a key role in the development of minimum tillage practices and is used increasingly to reduce soil erosion and maintain water quality.
- ♦ In developing countries, its use has released huge amounts of labour from arduous and time-consuming hand-weeding.

The study revealed that paraquat (sold under the trade name Gramoxone) was the most popular pesticide as 100 per cent of the plantations surveyed used it. The herbicide, also known

locally in the plantations as “kopi-O”, had been the cause of accidental and intentional poisoning among workers for many years due to its high toxicity.

Unsurprisingly, at the very first workshop on Women and Pesticides which PAN AP and Tenaganita held in Serdang, Malaysia, in June 1991, the groups released a Declaration which, among other demands, called for paraquat to be banned since this pesticide was implicated in a large number of pesticide poisonings, and pesticide-related deaths. The media was also alerted to this issue. The results of the impact of pesticides on the women sprayers and the additional research and analysis on the Malaysian plantation sector were collated in the report, “Victims Without Voice”, published and launched in May 1992.

In spite of the strong advocacy by PAN AP and Tenaganita in support of the women workers’ campaign against this pesticide, and global PAN’s targeting of paraquat within the Dirty Dozen campaign, paraquat was not banned in Malaysia. Nonetheless, efforts to curb the sale and promotion of paraquat continued. More groups were involved in monitoring effects of paraquat and the activities of the industry. In 1993, ICI, which at the time was producing paraquat, ran an advertisement in the main Malaysian newspapers claiming that paraquat was environmentally friendly and did not harm birds and bees. ERA Consumer along with several other groups, as well as the Malaysian public strongly criticised the company and demanded that the advert be withdrawn. ERA lodged complaints with three different government institutions: the National Consumers Protection Council (over violations of the 1972 Trade Description Act), the Department of Environment, and the Pesticides Board. The advert was

subsequently withdrawn. The Pesticides Board responded by attempting to amend relevant legislation to close the loopholes which the company had used to advertise paraquat.

As a result of the initial study and interest raised among women workers, Tenaganita and PAN AP continued to conscientise the women in plantations on the effects of pesticides, in particular paraquat, and the exploitative and subjugated nature of their situation in the plantations. Leadership training programmes were developed so that the women could take up leadership positions in the trade union and thus bring the issue of pesticide poisoning into the union agenda. In two plantations, women workers were motivated to negotiate with the plantation management to reassign them to non-pesticide spraying activities and other work that did not expose them to pesticides. The organisation also developed a health referral system to the Kuala Lumpur government hospital to investigate the health hazards faced by the women, in particular nerve disorders, asthma and reproductive health problems.

*Women
plantation
workers
participating
in the medical
monitoring
programme
organised by
Tenaganita.*

*Source:
Tenaganita*



Tenaganita then began to train women agricultural workers using the Community Pesticide Action Kits (CPAK) in 1997 and simultaneously started its monitoring programme. The methodology of the monitoring involved:

- ♦ Visits and general discussion group sessions to build rapport with workers, and to especially facilitate sharing among women to voice out concerns they have as mothers, wives, care-givers and workers within the community they live in.
- ♦ Further visits and rapport building, and administration of a descriptive questionnaire to gather general demographic information, and specific data on pesticides usage patterns and related health problems.
- ♦ Awareness-building processes, which included continuous interaction via training workshops, health camps and focused discussion groups.
- ♦ Follow-up visits to explain the objectives of the research and seek the support of women workers in the sampling programme.
- ♦ Participatory involvement of women in blood sampling and testing initiative as well as health check-ups.
- ♦ A self-health monitoring programme, which was subsequently implemented.

The process of workers monitoring their health on a daily basis through the self-health monitoring cards is an important aspect of monitoring. The workers were able to understand and record the signs and symptoms they experienced themselves after spraying. Since the women workers are the best judges of their own health, they not only understand the impact of pesticides on their health but realise that the daily exposure to pesticides has a particularly adverse effect. For

the Malaysian study, the workers were recording the signs and symptoms of poisoning systematically during the three months of the study. The three aspects of the monitoring, i.e., survey, acetyl-cholinesterase blood sampling and self-surveillance, were analysed and produced as a report.

The study confirmed women plantation workers were constantly being poisoned by the use of highly toxic pesticides, especially paraquat. Poisoning due to paraquat was clearly demonstrated in the surveys and interviews with workers, and also indicated in the medical examinations. The women suffered nose-bleeds, tearing of the eyes, contact dermatitis, skin irritation and sores, nail discolouration, dropping of the nails, and abdominal ulceration which are symptoms of paraquat poisoning. Paraquat use is rampant in the plantation sector, with the next choice of herbicide in the plantations being glyphosate.

The Tenaganita and PAN AP pesticide monitoring report, *Poisoned and Silenced*, launched in 2002, had therefore identified paraquat as a main offender in palm oil plantations, and recommendations were made for it to be banned along with all WHO Class 1 pesticides. The involvement of the Malaysian National Poisons Centre in the report, and related activities by Tenaganita and PAN AP contributed to the Malaysian government officials banning of paraquat in August 2002. Specifically, the Pesticide Control Division of the Agriculture Department issued a circular (endorsed by the Secretary of Malaysia's Pesticides Control Board), stating that as of August 27, 2002, and with immediate effect, applications to register or re-register paraquat would be rejected. All applications under process at the time to register or re-register paraquat would be stopped. Previously registered products (such as

Syngenta's Gramoxone) was to be phased out in stages. In terms of advertisements, new applications to advertise would not be entertained and all applications under consideration at the time for approval would be rejected.

Paraquat is the most important product of Syngenta (based in Switzerland), the world's second largest agrochemical company. The company has been trying to persuade the Pesticides Board to overturn its decision. Tenaganita launched a Malaysia-wide campaign to gather signatures to support the government action while PAN AP launched an international signature campaign to gather support for the ban. PAN AP also sent letters to the Prime Minister, Deputy Prime Minister and several other ministries (See Annex 1 for letter to the Prime Minister). It also became clear to both groups that it was time to pursue a campaign that went beyond Malaysian shores.

Prior to the ban, PAN AP and Tenaganita had established contact with groups like Berne Declaration (BD) based in Switzerland, a public interest group monitoring Swiss company activities, as a strategic move to link up with groups in the home country of the major agro-chemical TNC Syngenta. One activity included sending a former plantation worker, Arjunan Ramasamy, to Switzerland to join BD in their action at Syngenta's annual general meeting in April 2002.

The circle of collaboration on the paraquat campaign widened with the involvement of PAN UK, Berne Declaration, Swedish Society for Nature Conservation (SSNC), and Foro Emaús (NGO based in Costa Rica)—facilitated by Berne Declaration, these groups together with PAN AP jointly published a report, "Paraquat – Syngenta's Controversial

Herbicide”, in 2002 (See Berne Declaration website: http://www.evb.ch/cm_data/public/Syngenta_paraquat.pdf).

PAN AP and Tenaganita also took the opportunity of the People’s Movement Encounter (PME) at the Asian Social Forum in January 2003 to give affected communities and their leaders a platform to raise concerns on pesticide issues. During the Public Hearing on the Impact of Pesticides on Human and Environmental Health, these people recounted the realities of the impact of pesticides on their lives and their communities as well as the violation of their rights. Two women workers from Malaysia who had been part of the community pesticides monitoring process, recounted their grave experiences of spraying paraquat (which they knew by its trade name Gramoxone) for many years. Despite work hazards, they were paid extremely low wages and were not offered other duties in the plantation other than spraying pesticides. But the women had begun organising and initiating campaigns against pesticide use, the companies that profit from these chemicals, and the trade union that had betrayed their trust. They ended with an appeal to support the campaign to ban paraquat globally. Meanwhile, a series of “Round Tables” with media were hosted by Syngenta, to inform the media that paraquat was not harmful. PAN AP immediately responded by issuing a press statement on February 27, 2003 expressing its concerns, which were used by some media to question the company’s claims.

Meanwhile in Europe, in 2003, partner groups had been monitoring the meeting of the European Commission Standing Committee on the Food Chain and Animal Health (SCFA) which concluded with the inclusion of paraquat as an active substance authorised for use in plant protection

6 SATURDAY, NOVEMBER 8, 2023 (14210 27-0112)

Call to lift
ban on
paraquat

PETALING JAYA, Wed.
Government has been urged
the ban on parasympathetic
European Union's
pesticide to be
asked
8-11

HEALTH EFFECTS OF PARAQUAT

End page 200. Page 201 is blank.

100-443887-100

11

AMONG THE EFFECTS



According to the Pastoralists' Union, Halimi had been ordered to leave the area by the military.

He said the Government felt that there were many other cost-effective and less risky alternatives possible in the market.

Control

heard a
Muslim
country
would
board
plane?
The
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19
1



Govt bans paraquat

HERBICIDE HORRORS

FOCUS

Paraquat makes its exit but controversy remains

are less enthusiastic. YEANG SOO CHENG listens to both sides.

Fate of herbicide

• We were not told what sort
of work we were doing and

an Open Letter was sent from PAN Germany and other German NGOs (BUND, Greenpeace Germany, DNR) to the responsible German Ministries and Administrative Bodies demanding a position against the inclusion. Unfortunately, the EU decided to register paraquat on its "Positive List", which meant it would not be banned.

In response, Syngenta undertook activities in a bid to overturn the ban in Malaysia. After the EU decision not to ban, articles appeared in all the major papers referring to the decision as proof of paraquat's 'safety'. For example, on November 6, 2003, the *New Straits Times*, one of Malaysia's largest-selling English newspapers, covered the Syngenta Crop Protection Sdn. Bhd. press conference which urged the Malaysian government to lift the ban on paraquat, *"based on the European Union's findings that the pesticide no longer posed a danger to health"*. The company's general manager, John McGillivray, was quoted as saying: *"The EU has one of the highest standards and having it approved there is a clear indication that the product is safe."* Earlier, the paper had quoted the Malaysian regulator noting that the company argued that a 12-year study by the EU showed that paraquat was safe. However, the Malaysian National Institute of Occupational Safety and Health pointed out that *"it was difficult to verify the authenticity of the EU's study as the result was not made public"* (Ramil, 2003). PAN AP held a press conference, involving Tenaganita and other partners, to discuss regional concerns over paraquat, issued press releases, and was subsequently interviewed and quoted in various newspapers on why paraquat is a problem and should remain banned. Meanwhile the Pesticides Board remained firm on their decision.

The Malaysian Palm Oil Association (MPOA) then placed full-page 'advertorials' in Malaysian newspapers in October

and November 2003 promoting the “safety” of paraquat. These advertisements extensively quoted the SCFA approval as evidence for continued registration, stating that the “decision is relevant to the Malaysia use situation because the extensive database reviewed included an occupational health survey conducted in Malaysia”.

In response to the fact that Syngenta was using the EU decision to undermine the Malaysian ban, PAN AP, PAN Europe and the Swedish Society for Nature Conservation also sent a Joint Open Letter to the European Commission for the meeting of the SCFA. The Letter called on the Standing Committee to take urgent action following the inclusion of paraquat in Annex 1 of the Pesticides Authorisation Directive 91/414. It stated that the Commission’s authorisation was being used to challenge regulatory decisions taken to protect human health in other countries, like Malaysia, and to demand registration even when local conditions pose significant risks to pesticide users (See SSNC webpage: <http://www.snf.se/snf/english/nyhet.cfm?CFID=449177&id=868#>).

The national campaign by Tenaganita, assisted by PAN AP, to enforce the ban was the story of sheer persistence and numerous strategies including a postcard signature campaign that involved 10,000 people, and more letter-writing campaigns, and greater public mobilisation to support the ban. All of this took place in the midst of the trial of Dr. Irene Fernandez, human rights defender and the director of Tenaganita, who was charged with ‘false reporting’ for publicising the plight of migrant workers in detention camps in Malaysia. In November 2003, PAN AP and its partners participated in Forum IV of the Intergovernmental Forum

on Chemical Safety (IFCS). PAN AP facilitated participation of Tenaganita field staff and a plantation worker to share their concerns over paraquat.

To further strengthen the call for a global ban on paraquat, PAN International launched a common campaign on December 3, 2003, the International Day of No Pesticide Use, sending out its position paper on paraquat and a press release from each regional centre on the day (See: http://www.panap.net/uploads/media/PAN_Intl_PP_Paraquat_Dec03.pdf).

Meanwhile, in Sweden, two initiatives emerged as a challenge to the EU decision on paraquat in the courts. Firstly, the Swedish government brought a suit before the European Court of Justice, to overrule the Commission's approval of paraquat (See SSNC webpage: <http://www.snf.se/pdf/dok-inter-parakvat-engoverklaga.pdf>)

Secondly, a civil society suit was initiated by a coalition of groups composed of the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco and Allied Workers' Associations (IUF), the IUF's European regional organisation EFFAT-IUF, the European Environmental Bureau (EEB), PAN Europe, the Dutch Society for Nature and Environment and the Swedish Society for Nature Conservation (SSNC). (See SSNC webpage: <http://www.snf.se/pdf/dok-parakvat-overklagande.pdf>).

On April 27, 2004, PAN AP, EcoNexus of the UK, and Berne Declaration undertook a joint action and issued a press release to highlight farmers' protest and rejection of Syngenta—both in terms of the company's development of genetically

engineered (GE) rice technologies, and the production of paraquat (See PAN AP website: <http://www.panap.net/151.0.html>). In Switzerland, Berne Declaration, with Greenpeace Switzerland and SWISSAID, intervened at the Annual General Meeting of Syngenta by jointly presenting protest letters from Asian farmers and peasant groups. At the same time, food rights and anti-GE campaigners, scientists and farmer organisations delivered similar protest letters to the Secretary of State for International Development in the UK, Hilary Benn. *"Syngenta has already caused massive damage with its chemical paraquat. Now it is genetic engineering and taking control of staple crops such as rice"*, explained Rowan Tilly of Genetic Engineering Network. For this action, PAN AP mobilised numerous letters from our regional partners, and protest letters were sent from various countries.

On July 28, 2004, PAN AP, together with PAN UK, PAN Germany and Berne Declaration, collaborated to send letters of protest to UN FAO's Director General, Mr. Jacques Diouf, about an advertisement campaign by Syngenta Crop Protection Limited in Thailand. The advertisement in question was part of Syngenta's marketing promotion in the country for its new formulation of paraquat, under the trade name 'Gramoxone Gold Cap.' PAN AP collaborated with the Sustainable Development Foundation in Bangkok for translations of the advertisement. In the advert, the promotion of Gramoxone Gold Cap took the form of a lucky drive competition, where entry afforded people a chance to win prizes. These prizes included 1 litre of the formulated Gramoxone Gold Cap or a safety kit; a 'Yamaha Fresh' motorcycle, and a Nissan 'King Cab' truck. Additionally, the advert stated that every purchase of Gramoxone would

contribute to 'Syngenta's Fund for New Generation Farmers' to support safe food. Other prizes included Gramoxone jackets and shirts.

In their letters, the groups expressed how appalled they were at this advertisement drive, and their concern that it violated the UN FAO International Code of Conduct on the Distribution and Use of Pesticides, in particular Article 11.2.18 which states that "advertisements and promotional activities should not include inappropriate incentives or gifts to encourage the purchase of pesticides," (FAO, 2002). Violations of other aspects of Article 11 of the Code were also noted. The coalition also argued that the advertisement and promotion drive by Syngenta went against the letter and spirit of the Code, and misrepresented the toxic herbicide paraquat, a product that could endanger both farmers and consumers. The groups also generated individual press releases to highlight and inform the media and the general public of the case. On September 10, 2004, in a letter addressed to the PAN AP secretariat office, Mr. Mahmoud Solh, Director of the Plant Production and Protection Division, of the UN FAO, stated: *"I wish to commend Pesticide Action Network for this initiative, which is in line with the provisions of the revised version of the International Code of Conduct on the Distribution and Use of Pesticides, in particular with Article 12, paragraph 12.9 on 'Monitoring and Observance of the Code'.* Mr Solh further said: *"You may note, in this regard, that FAO has written to the Ministry of Agriculture in Thailand with a view to bringing the concerns you have expressed to the attention of the responsible government entity".*

As part of the continuing process to build leadership of women plantation workers and support for the Malaysian paraquat campaign, a major effort was made during the Peoples Caravan

2004 during which two Malaysian women plantation workers, Eshwari and Anjamma, travelled through South Asia, specifically India, Bangladesh and Nepal. Both shared their experiences and struggles as pesticide sprayers, and talked about the impact of pesticides on their health and communities. Both highlighted the ill effects of working with paraquat.

In October 2004, PAN AP was invited by SSNC, our close partner in the global campaign against paraquat/Syngenta, to attend and make a presentation at their Partners Meeting. SSNC helped to arrange meetings with the Swedish regulatory authority and KEMI scientists (who were the main people providing technical information for the Swedish government's suit). Meetings were also organised with officials of the Division of Eco-management Strategies and Industrial Cooperation at the Swedish Ministry of the Environment. Overall, the meetings were fruitful and were to help the authorities to understand the realities of the struggle against paraquat in Malaysia, and to strengthen their commitment to the EU suit and support for the Malaysian government's ban, as well as the work of PAN AP, Tenaganita and most importantly, the women plantation workers.

As the women strengthened their resolve and campaign on paraquat, the main producer, Syngenta, was also stepping up its efforts to overturn the ban. In May 2005, it came to PAN AP's attention that the industry and others had made appeals to Malaysian government officials to repeal the decision to ban and phase out paraquat. PAN AP as well as local and international partners ran another campaign of letters to urge the Pesticides Board and the Minister of Agriculture to remain strong in the face of such pressure.

The women sprayers group representatives also met with different ministries to ensure that the ban was maintained. Dialogue sessions were held with the Deputy Minister of Health, and a special presentation on the study “Poisoned and Silenced”, was made to key officials of the Department of Occupational Safety and Health of the Ministry of Human Resources. But in April 2005, newspaper reports stated that the Agriculture and Agro-Based Industry Ministry would decide on whether to lift the ban on paraquat use after “a study by the National Poisons Board”.

In response, Tenaganita and PAN AP facilitated the presence of the women plantation workers at a parliamentary session on April 20, 2005, to enable them to make direct interventions on their calls to ban paraquat. “Paraquat kills!”, “There is no antidote for paraquat!”, “Don’t lift the ban on paraquat!”, these were the slogans raised by the women plantation workers at the Parliament House. Accompanied by PAN AP’s executive director, Sarojeni V. Rengam and Tenaganita director, Dr. Irene Fernandez, the women workers armed themselves with

Women plantation workers who gathered in Parliament holding up memorandum and PAN AP monograph on paraquat at a photo session with the media at Parliament House.

*Source:
PAN AP*



courage and recounted how paraquat had badly affected their lives at a press conference and in interviews held at the Parliament lobby. Following that, the group handed in a memorandum to the Agriculture Ministry's Parliamentary Secretary, as well as several Members of Parliament. Before leaving the House, the group resolved to never give up their fight to maintain the ban, "We will struggle and continue our fight to keep the ban on paraquat!" As a result of Tenaganita's support, women sprayers from 10 plantations had formed a group with the hope of forming a national pesticide sprayers movement, which will, amongst other initiatives, move forward the campaign to keep the Malaysian ban on paraquat, and also campaign for a world-wide ban.

While all efforts were made to strengthen the local paraquat campaign, PAN AP and Tenaganita decided that there was also a need to maximise the use of available international instruments to ensure that the Malaysian decision to ban paraquat remained, and that the campaign developed internationally. On February 24, 2004, the Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (PIC treaty) came into force as a legally binding convention. A significant provision within the convention is that it will consider a chemical for inclusion in a PIC list when a valid notification of a ban or severe restriction is received from two countries in two different regions of the world (indicating global concern). This provision was an opportunity for PAN AP to focus on pesticides that have been identified as a major concern from the community-based monitoring and documentation process (e.g. paraquat).

To also ensure that the concerns of women plantation workers are voiced at the international level, PAN AP took the opportunity of the second Conference of Parties of the Prior Informed Consent Convention (PIC COP2) in 2005 to facilitate an intervention by Nagamah Raman during a PAN-organised side-event. The lunchtime meeting focussing on paraquat and endosulfan was a real success. Nagamah recounted the realities of working conditions in the plantation where she sprayed pesticides, especially paraquat: the unsuitability and ineffectiveness of whatever protective gear the women are provided (if at all provided by management); and the terrible impact on her health. Overall, it was an extremely well-attended event, with about 50 government participants (with all continents represented), FAO officials and industry representatives. Even if nervous at the prospect of speaking to officials at such a high level meeting, she resolutely made them listen to the concerns of the workers. After her presentation, delegates were heard saying, *‘Why isn’t she giving a presentation in the main PIC meeting?’* and *‘This is what we all need to hear!’*

On December 10, 2005, on the occasion of “International Human Rights Day”, PAN AP, PAN UK and Berne Declaration published a report “Paraquat - Unacceptable Health Risks for Users”, highlighting once more the unacceptable effects of paraquat. To stop the continuous poisoning of countless workers and farmers, the groups demanded that Syngenta, the main producer of the herbicide, stop production and take the product off the market; and governments were urged to ban paraquat at the national level. (See: http://www.evb.ch/cm_data/EvB_Paraquat_E.pdf)

CASE STUDY OF ENDOSULFAN CAMPAIGN IN INDIA

"All of us here have a disease – it is called endosulfan!"

School student in an affected village

Kerala, the picturesque lush-green southern state in India, is known as "God's own country", and Kasaragod is the northernmost district in this state. The generally undulating landscape here is marked by hills and valleys, with numerous rivulets, streams and ponds and other water bodies.

The Plantation Corporation of Kerala (PCK), a state-owned unit, has its cashew plantations in the district. The plantations spread over hills and several villages. In the mid-70s, the PCK started aerial spraying (by helicopter) of pesticides, particularly endosulfan, on the plantation to destroy tea mosquito bugs affecting crops (for the most part of the spraying years, spraying was carried out thrice a year). As the plantations were generally on the hills, the pesticide spray drifted and settled on the villages in and around the plantations - on the soil, vegetation and the water sources in the valleys. The pesticides also ran down the slopes of the hills into the ground, ponds and streams below, contaminating the soil and the water sources.

None of the rules relating to aerial spraying was followed by the Corporation. The law said spraying must be done only between 6 am and 9 am, and after giving adequate notice to the people. The sprayers must also ensure that wells and other sources of water are securely covered.

"When the children heard the sound of helicopters, they would rush outside, and as the pesticide floated down, they would open their mouths and try to catch the particles (of endosulfan) on their tongues."

*K.A. George Kutty, Headmaster of a school
in one of the affected villages*

Endosulfan

Endosulfan is a pesticide belonging to the organochlorine group, under the cyclodiene subgroup. It kills a wide range of insects and mites on cereals, coffee, cotton, fruit, oilseeds, potato, tea, vegetables and other crops.

The US Environmental Protection Agency (EPA) classifies endosulfan as Category Ib – "Highly Hazardous". The European Union also rates it "Highly Hazardous". World Health Organisation (WHO), however, classifies endosulfan as Category II – "Moderately Hazardous". This last classification is considered inappropriate considering the classification followed in many countries and available toxicity information. Dr Romeo Quijano (MD) and toxicologist, with the University of the Philippines College of Medicine in Manila, in his assessment noted that the WHO classification is based mainly on the Lethal Dosage (LD) LD50 value for acute toxicity generated by the endosulfan-producing company (Quijano, 2000). The Industrial Toxicological Research Centre (ITRC) in India classifies endosulfan as "Extremely Hazardous" (Usha and Harikrishnan, 2005). The ITRC is the nodal centre for the regional assessment of persistent toxic substances (PTS) for the Indian Ocean region as part of the United Nations Environment Programme – Global Environment Facility (UNEP-GEF) programme.

In the past two decades, many countries have recognised the hazards of the wide application of this pesticide and have banned or restricted its use. Countries that have banned include Singapore, Belize, Tonga, Syria, Germany, Sweden, Philippines, Netherlands, St. Lucia, Columbia, Cambodia, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates, Sri Lanka and Pakistan. Restrictions on use apply in Australia, Bangladesh, Indonesia, Iran, Japan, Korea, Kazakhstan, Lithuania, Thailand, Taiwan, Denmark, Serbia and Montenegro, Norway, Finland, Russia, Venezuela, Dominican Republic, Honduras, Panama, Iceland, Canada, the United States and the United Kingdom.

India is one of the major producers of endosulfan. Three large companies produce endosulfan in India, totalling approximately 7000 tonnes a year (Kushal et al, 2002).

Exposure routes of endosulfan

- ♦ By breathing air near where endosulfan has been sprayed.
- ♦ Drinking water contaminated directly or through run-offs.
- ♦ Being in contact with endosulfan-contaminated soil.
- ♦ Eating endosulfan-contaminated food.
- ♦ Smoking cigarettes made from endosulfan-contaminated tobacco.
- ♦ Working at endosulfan production premises.
- ♦ Direct ingestion.

*Endosulfan
Survivor:
Shruti of
Kasargod,
Kerala,
India*



*Source:
Thanal*

What endosulfan does to the human body and mind

Endosulfan is a known neurotoxicant and endocrine disruptor (ATSDR,1993). It causes chromosomal changes and is embryo-toxic in animals (Quijano, 2002). It also destroys the body's immunity. Thus it is associated with cancer (especially lymphosarcoma), cerebral palsy, mental retardation, epilepsy, congenital abnormalities, and psychiatric cases including suicides (Quijano, 2002). Due to being embryo-toxic, it can cause abortions, stillbirths, and other related disorders.

"I conducted a random survey in an area stretching about 4 km around Padre village, in February 2001, and found 202 patients. The total population studied was approximately 2000 from 400 houses. The pattern of diseases and the number of suicides were as follows:

Cancer – 4 living

Cancer – 51 (dead)

Mental retardation – 38

Psychiatric problems – 49

Epilepsy – 33

Congenital abnormalities – 16

Snicide – 11

Total 202

Liver and blood cancer were the most common cancer cases.

In a separate survey conducted by the District Medical Officer, more than 400 cancer cases were recorded from a total of 800 houses.”

*Dr.Y.S. Mohan Kumar, private medical practitioner
from Padre, Kerala, India*

THE FIGHT TO BAN ENDOSULFAN IN KERALA

In 1979, a farmer in Padre, one of the villages near the cashew plantations in Kasaragod, realised that reason for three of his calves being born with deformed limbs and having stunted growth could not be just attributed to fate. He had just read that some pesticides could actually cause such effects. Though the evidence for pesticides being the cause of the deformed limbs of the calves was lacking, at that time, he reported it to a local journalist, Shree Padre, who later wrote an article “Life cheaper than cashew” in “*The Evidence*”, a local newspaper (December 1981), and raised a doubt: could endosulfan, which was being sprayed in the plantations in his village, be the cause for such environmental problems?

Some indications had already been there – dying honeybees, frogs, fish, chicken, jackals, etc. Shree Padre’s article created greater awareness among the people. They started voicing greater concern about their growing health problems and the

damage to the environment. The government, however, paid no attention to the newspaper article or the people's concerns. In 1984, two *panchayaths* (lowest village-level elected administrative units) passed a resolution demanding that the aerial sprays be stopped as the large-scale drifts were causing problems for cattle and people. Later, when the local Member of the Legislative Assembly (MLA) (state-level legislative unit), became a Minister, he ordered the suspension of the aerial spraying following which it was suspended in some areas for nearly two years.

In 1988, the PCK wrote to the National Research Centre for Cashew (NRCC) for advice on crop protection against the tea mosquito bug which was affecting the plantation, and the NRCC recommended endosulfan use at 0.05 per cent concentration (it is now learnt that this dosage was never followed as it was found to be ineffective in controlling the bug).

Meanwhile, more health problems were being reported from other villages in or near the cashew plantations as well. Local sports and arts clubs, cultural clubs and community organisations were taking a serious view of these problems. Many of them complained to the District Collector, who is the authority to permit aerial spraying. Due to these mounting complaints, in 1994, the Kerala Sastra Sahithya Parishad (KSSP) (a people's science movement in Kerala) carried out a study of health problems in the area. It found that the disability rate among the people in the area where spraying had been done was 73 per cent higher than the overall disability rates for the entire state. In the case of locomotor disability and mental retardation, it was 107 per cent higher (Quijano, 2002). The Parishad alleged that the problems were caused by the insecticide and asked for stricter regulations in aerial spraying.

By now, the local print media and some major dailies had also started reporting the numerous health problems in the area and the spread of some strange diseases and health disorders. These problems were serious, and included congenital abnormalities, physical deformities, mental retardation, cerebral palsy, various chronic ailments, etc. Children seemed to be the worst affected (*NewsCAPE*, 2005).

In 1997, a local medical doctor, practising in one of the affected villages, got concerned by the large number of unusual diseases and psychiatric cases he was seeing among his patients. He therefore wrote to the Indian Medical Association (IMA) and some psychiatric specialists drawing their attention to the mysterious nature of the medical problems in the village. He also reported that there was an unusually high number of psychiatric, epileptic and cancer cases in the village. Unfortunately, his report and appeal did not draw much response from the medical establishment.

As the health complaints continued to mount, people started organising themselves to address the issue. Leelakumari, a mother of two children and an agriculture assistant, had found that her son, a good singer, was losing his voice and suffering from depression. Her daughter had developed some hormonal problems and Leelakumari herself was losing her voice and experiencing hormonal problems. After appeals to the PCK, the District Collector and the authorities to stop poisoning their fields had failed, in 1998, Leelakumari along with Kottan, a farmer and a local politician, and others appealed before the local court for a stay on the aerial spray. The local court issued a stay order and observed that “the stand taken by the respondents (the PCK) is that of a heartless industrialist”.

Many local environmental groups, led by the Society for Environmental Education in Kerala (SEEK), also joined in support of the struggle of the people and filed a separate petition in the High Court asking to stop aerial spraying in another division (Periya) of the district. Two separate fact finding teams, one led by SEEK and another by Thanal (a public interest research, advocacy, education and action trust) reported the incidence of similar diseases in all the villages that had plantations or were close to plantations in Kasaragod.

The survey also found that PCK had violated the Insecticides Act of 1968 in precautionary and safety measures and even in concentrations of the chemical sprayed. In many places, PCK workers themselves reported health disorders but requested anonymity out of fear of the management. Soon after, Thanal, supported by SEEK and many community and local groups, decided to conduct a long-term monitoring of the area to study the endosulfan-caused problems. This programme was launched in October 1999. Meanwhile,

*Muthakka,
50 helps her
son Kittana
who suffers
from cerebral
palsy to walk
as he is unable
to eat or walk
without help.*



Source :
PAN AP

despite all the protest, PCK continued spraying. The environmental groups – SEEK, Indian National Trust for Art and Cultural Heritage - Natural Heritage (INTACH), National Alliance for People's Movement (NAPM), Earth Society, Kasaragod Paristhithi Samrakshana Samithi (KPSS), and Thanal - named PCK the worst polluter of the state and declared the area a silent Bhopal caused by PCK while commemorating the Bhopal disaster in December 1999. They also released a publication, "The chemical-free century - Declaring a toxic-free future", on this occasion.

In January 2000, the Government School in Enmakaje (one of the villages near the plantation area), also recorded in its internal report that most students coming from the areas around the plantation were observed to be mentally and physically deficient compared to students coming from other areas. Many of them also suffered from congenital anomalies, physical deformities, mental retardation, and were frequently ill, the report mentioned.

In October 2000, a local court ordered the permanent prohibition of use of any insecticide by air in the Periya Plantation area. This was in response to a case relating to the Periya area, and the order was not applicable to other areas. PCK went ahead with aerial spraying in other areas in the face of massive and widespread protest in those areas. People in these areas therefore resolved to continue the struggle: in the Enmakaje village, for example, the community formed the Endosulfan Spray Protest Action Committee (ESPAC) which included local doctors, farmers, teachers and a journalist.

All through this, the pesticide industry maintained that endosulfan was 'safe' to use and did not cause the health and

environmental problems found in Kasaragod. The reasons probably lay elsewhere, it said. With the issue grabbing national attention, the Centre for Science and Environment (CSE, a reputed non-governmental environmental organisation) from New Delhi decided in early 2001, to carry out a laboratory analysis of blood, water and other samples from the affected areas to determine endosulfan contamination. The analysis showed high levels of endosulfan in all samples - the first evidence of the presence of endosulfan in living tissue and the environment in the affected area and which was enough to cause the damage that was seen.

This strengthened the Kasaragod people's campaign, and several cases were now filed at different courts, local courts as well as the High Court (state-level court). In February 2001, the Kasaragod court suspended all pesticide applications in Kasaragod taluk (Thanal, 2001).

As part of the industry's and PCK's retaliation against the CSE report and the ban, PCK commissioned a separate test, to be conducted by a private lab, the Fredrick Institute of Plant Protection and Toxicology (FIPPAT). This institute analysed endosulfan levels in some samples from Padre village, and reported that its study did not show any elevated endosulfan level in the samples of blood, cow's milk and water, and showed only small amounts of endosulfan in samples of cashew leaves and soil. According to Thanal, though PCK had commissioned the study, the results were released at a press conference by the Pesticide Manufacturers and Formulators Association of India. Later the CSE journal, *Down to Earth*, after detailed scrutiny of these results, reported how "FIPPAT had actually found higher levels of endosulfan but chose not to disclose it....and had fudged the findings"

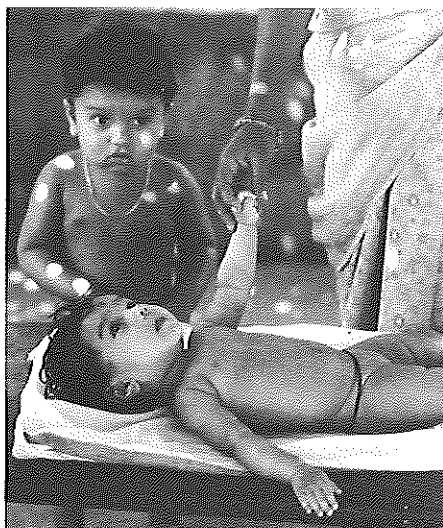
(*NewsCAPE*, 2005). The anti-endosulfan campaigners dubbed the FIPPAT report a “well-schemed industry effort”.

Under increased public pressure, a series of other studies, mainly by government organisations, followed CSE’s and FIPPAT’s reports during 2001, with each reporting different results and making different recommendations. The Kerala Agriculture University asked an expert committee to investigate the environmental effects of endosulfan spraying in the Perla Division of Kasaragod. The committee reported that even though there were problems related to the central nervous system in some families, there was no evidence to confirm the involvement of endosulfan; it also suggested a detailed study on the effects of endosulfan on the health of the people and the environment of Kasaragod. The government of Kerala appointed a committee chaired by Dr. Achyuthan (an environmental scientist), which while concluding that, “there is no evidence to implicate or exonerate endosulfan as the causative factor of the health problems....” also recommended that aerial spraying of pesticides in all PCK cashew plantations in Kasaragod be banned (Thanal, 2001). But, inexplicably, the Kerala government lifted the earlier ban on endosulfan in March 2002.

Meanwhile, in October 2001, prompted by complaints by the campaigners, the National Human Rights Commission asked the Indian Council of Medical Research (ICMR) to intervene and the council asked one of its constituents, the National Institute of Occupational Health (NIOH), to study the problems. The NIOH, which carried out a large-scale epidemiological study in the area, “pointed out that the higher prevalence of neuro-behavioural disorders, congenital malformations in female children and abnormalities related

*Children of
Kasaragod, Kerala,
India, born blind.
While their eyes
appear 'normal', the
nerves are damaged
and they are blind
as a result of the
neuro-toxicity of
endosulfan.*

*Source:
Shree Padre/
ESPAC*



to the male reproductive system had no other cause but the continuous aerial spraying of endosulfan” (*NewsCAPE*, 2005).

In 2003, endosulfan spraying was permanently stopped following directions from the Kerala High Court, based on the precautionary principle. In January 2004, the then Chief Minister of Kerala declared in a public meeting that the government would maintain the ban on endosulfan. He also promised remedial measures for the people in Kasaragod.

On 24 August 2006, the Chief Minister of Kerala Mr.V S Achutanandan, distributed Rs.50,000 each to the next of kin of 135 persons, who had died of illnesses contracted due to the use of endosulfan in Kasaragod. He also assured that the government would chalk out a plan to take care of treatment, food and other needs of the affected persons and that its promise of rehabilitation of victims would be honoured (Venugopal, 2006).

**In Kasaragod, every mother and child
DO NOT COUNT,
only Endosulfan COUNTS!**

“**M**ake every mother and child count” said the theme slogan of the World Health Day celebrations of 2005. The celebrations on April 7, 2005, also marked the release of a World Health Report highlighting the invisible health crisis which results in women and children dying.

In Kasaragod, one can see hundreds of such mothers with disabled children - many congenital, many mentally challenged, many lying like vegetables. These are the plights of the living, and the old people there tell so many stories of the many dead, of strange diseases - strange to them, and invisible to the global community.

The World Health Day would stride away as another invisible day for these mothers and children and their families. Their plight has not been addressed, and nobody has bothered to even look at what their post-impact needs are.

Meanwhile, the desperation of the government, and their officials and scientists are so visible - the lobbying, the blatant violation in setting up committees, the tension that prevails and the overt manner in which the endosulfan manufacturers have taken on a community by threatening the doctors in the community with law suits.

It appears that in this country, the mother and child do not count before the might of endosulfan.

Excerpt from *NewsCAPE*, 2005

Ways of an industry that prefers profit over people's health

The people of Padre village in Kasaragod had been waging a battle against the spraying of endosulfan in their area. Laboratory analysis conducted by the CSE revealed that all the samples collected from the village contained very high levels of the pesticide that has ironically been either banned or restricted in many countries.

As the news was splashed in the national media, public pressure forced a number of decisions. National Human Rights Commission asked government agencies, including the ICMR, to act. A study by the NIOH got underway. The Kerala government, too, set up a committee headed by eminent environmentalist A.Achyuthan to probe the matter. Both the union and state government banned aerial spraying of endosulfan. The crusade seemed headed towards its logical conclusion.

Instead, the pesticide lobby opened up a new front as it launched an offensive to fight for its existence. At stake was the fate of an industry worth Rs 41,000 million (US\$ 924 million). Thus began a virulent campaign that involved top scientists, agriculturists and officials. The agenda was two-fold; to discredit CSE's study and prove that endosulfan was safe and harmless. The campaign strategy had three components; disinformation, manufacturing data and influencing government agencies to lift the ban.

Soon articles, interviews and advertisements began appearing in the media painting endosulfan as a safe pesticide. Meanwhile, an industry-sponsored report was being concocted - PCK had commissioned FIPPAT in Tamil Nadu, to conduct a study. Not surprisingly, the results completely absolved endosulfan. Activists opposing endosulfan were threatened with legal action, and this was just the beginning. From hobnobbing with scientists and organising five-star parties to sending emissaries or accompanying officials to meetings, the pesticide lobby used every trick in the book and outside it to kill a people's campaign.

In many ways the endosulfan battle is a litmus test for the industry - a defeat here could not only hurt profits, but also encourage more communities to come out in the open and more pesticides being put on the hit list.

Kushal et al, 2002

SECTION IV

MAKING OUR VOICES HEARD: Partner Organisations and Networks

The issue of women and pesticide use is only one aspect, albeit a critical one, of the subjugation of women to fit the patriarchal norms of society. Solutions revolve around empowering women in all spheres of their lives, thus making the invisible women visible, and ensuring that their voices are heard.

Making the invisible woman farmer visible involves commitment at all levels. Most critically, actions by various groups should empower women working with pesticides. It is vital that these women understand their situation in the framework of the patriarchal forces that shape their lives and

the context in which they survive, act, and make decisions (if they can make any) within their homes, and farms and at the global level. This is vital for breaking the isolating barriers set up by patriarchy, and for creating the global counter-forces needed to make their voices heard.

Across the world, the movement for chemical-free agriculture is growing. At the heart of the movement are the women farmers and women labouring in agriculture, as well as women consumers. Having the ultimate responsibility of ensuring food for their families, these women are rejecting violent technologies, and keeping alive the farming practices that ensure some food in every season – practices rooted in sustainability such as mixed cropping, crop rotation, seed selection for moisture prudence, and the use of natural resources to counter pest attack and crop diseases. The following are some of the ways in which women are resisting patriarchy in all aspects of their lives, often using agriculture as the mobilising force, and some of the organisations supporting them in their struggle.

GROUPS FOCUSING ON PESTICIDES AND GENETICALLY MODIFIED ORGANISMS (GMO'S) IN AGRICULTURE AND ECOLOGICAL AGRICULTURE

The impact of chemicals on air, soil, water, ecological diversity and human health critically affects women in their diverse roles – as agriculturists, as reproductive beings and as caretakers. In all these categories, chemicals intensify the burdens that women already face. Technologies such as chemicals and genetically modified organisms in agriculture,

deepen the patriarchal bindings that enslave women in all their roles. Women's ability, knowledge and skills are further eroded with the onset of these technologies disempowering them in the process. Saying no to chemicals and GMOs is thus a resistance to both harmful technologies as well as the system of patriarchy that perpetuates them.

Farmer Initiatives for Ecological Literacy and Democracy (Field), Indonesia

Field Indonesia works for the empowerment of rural communities through the development of ecological agriculture and the development of the capacity of local people's organisations. The organisation's strategy is to empower women. The organisation is currently focusing on issues pertaining to:

- ♦ women's involvement in all phases of the local food system, participatory plant breeding (rice, local vegetables, local poultry) and organic farming
- ♦ globalisation
- ♦ efficient networking with women in the rural community.

Gita Pertiwi, Indonesia

Gita Pertiwi (Ecological Studies Programme) in Indonesia is a foundation that focuses on environmental damage caused by the economic growth of Indonesia's development systems, preserving nature and improving the role of women in agriculture. Since its inception, the foundation has carried out programmes on sustainable agriculture, empowerment of the community and environmental protection, social forestry, preservation of biodiversity-based resources,

environmental advocacy and voter education. All activities in these areas take the forms of study, research, survey, education and training, community development and facilitation, publication, and advocacy and are supported by seminars, workshops and discussions. Gita Pertiwi has established co-operation with PAN AP and other international organisations.

MASIPAG, Philippines

In 1980, the spread of rural poverty in the Philippines prompted NGOs (primarily the ACES Foundation) and a group of progressive scientists to initiate consultations with farmers in different areas of the country. These consultations dealt with the impact of HYVs on small farmers and other issues related to the rice industry. With the involvement of other farmer support groups, the consultations were co-ordinated between the three regions: Luzon, Visayas and Mindanao. This culminated in a national convention in 1985, the "BIGAS Conference" or *Bahanggunian Hinggil sa Isyu ng Bigas*. A year after that landmark gathering, a farmer-NGO-scientist partnership was formed and its first project was born - primarily to break the control of local and multinational fertiliser and pesticide companies, multilateral rice research institutes and distribution cartels over the rice industry. The Multisectoral Forum (MSF), consisting of a group of professors, scientists and researchers, took the lead role in composing the technical pool of what was then known only as the "Farmer-Scientist Partnership."

Later, in 1987, it was formally named, the "Farmer-Scientist Partnership for Agricultural Development, Inc." and launched what is now known popularly as The MASIPAG Project -

Magsasaka at Siyentipiko Para sa Pag-unlad ng Agrikultura. For the past 17 years, MASIPAG has been at the forefront of development struggles in the Philippines pursuing, among other things, a holistic approach to development, community empowerment, and people's control over agricultural biodiversity in the overall effort to improve the quality of life of small farmers.

***Reclaiming Rural Agriculture and Food Sovereignty
Action (RRAFA), Thailand***

RRAFA in Thailand promotes people's participation in development issues and human resources development, and helps strengthen peasant organisations and social organisation networks in order to bring about a more sustainable future. The focus is to empower rural women to recognise their potential in bringing about social change.

Their activities include:

- ♦ Policy study and monitoring of the World Trade Organisation (WTO) and other bodies.
- ♦ Campaigning and networking among NGOs working on issues including transnational companies in Thailand and the interference of multilateral organisations like the WTO, IMF, World Bank and Asian Development Bank in national policies.
- ♦ Developing capacity for the peasant leaders to become resource persons.
- ♦ Campaigning on local rice conservation and genetic resource management.

Thanal Conservation Action and Information Network, India

The Thanal Network in India was inspired by Leelakumari Amma, an agriculture officer in the southern state of Kerala who started the campaign to ban endosulfan in 1999. The issue of pesticides and women has gained public support from other organisations. Most of Thanal's work on community pesticide elimination involves women. In the past few years, two women's organisations, Self Employed Women's Association in Trivandrum and SAKHI Women's Resource Center, have been tackling the issue of women and pesticides, and Thanal has helped in training them. There is also a programme on zero waste, with a focus on the use of recycled material, which brings out the creativity of women. Thanal is now experimenting with the use of water energy and organic agriculture in order to build a sustainable village.

Tenaganita, Malaysia

Tenaganita (Women's Force) is a women and migrant rights organisation in Malaysia, born out of the struggles of women workers in the plantations and factories in 1991. The organisation focuses on the promotion and protection of rights of workers, especially reproductive rights and empowerment of women and migrants so that they can achieve their full potential in society.

As a grassroots organisation committed to establishing "protective tools" for women, Tenaganita works especially with women workers in plantations, factories and in the sex industry. The organisation has succeeded in establishing reform amendments to rape laws, model contracts for overseas

Tenaganita and Nagamah – an irresistible force for women’s empowerment

Nagamah is a woman pesticide sprayer who is now organising other women like her to challenge the patriarchal conditions in plantations. In 2002, she got involved in the issue of pesticides after meeting with Irene Fernandez, founder of Tenaganita. She got involved with the organisation and went around to meet with other women workers. She told them how paraquat affects their health and got a doctor to explain how pesticides poison the women workers. The women confronted the management about the poisoning but the management refused to believe it.

For Nagamah, the main hurdle is the feeling of helplessness among women, a feeling that is the deep-rooted result of patriarchy. She has been going around and campaigning with union members, but finds that some members and leaders were not supportive, even skeptical about the women’s complaints and questioned them about the effects of the chemicals on their health. Nagamah persistently continues the struggle to conscientise women plantation workers on their rights and their health.

Nagamah hopes that the ban on paraquat in Malaysia will not be lifted. She is determined to continue the campaign and said that they have succeeded in getting the ban because of continuous mobilisation of women.

domestic helpers, and a domestic violence act, which opened up complaint procedures for victims. Tenaganita offers human rights education workshops, a drop-in counselling center, special programs on women and AIDS, counselling and legal support for survivors of trafficking, and a halfway house for health recovery and HIV-positive women.

Tenaganita has also been very active on the issue of pesticides and impacts of these hazardous chemicals on peoples' health—a major campaign focus is on banning paraquat. Women working in the plantations in Malaysia have predominantly been assigned jobs as sprayers and as a result are poisoned by the pesticides they spray daily. Additionally, the living conditions in plantations are very poor, medical care is inadequate and estate management as a whole is oblivious and unsympathetic towards the social and health problems faced by workers—especially women. As such women plantation workers, pesticides (particularly paraquat) and migrant workers rights are a major emphasis of the organisation's work, which includes awareness raising, training workshops, health camps, self-surveillance on pesticides, medical and legal referrals, mobilisation and leadership building.

Tenaganita is also undertaking monitoring of the Roundtable on Sustainable Palm Oil (RSPO) initiative to reduce the use of pesticides in the plantations, and to strengthen the criteria for sustainable oil palm.

Pesticide Eco-Alternatives Centre Yunnan Thoughtful Action (PEAC), China

PEAC was founded in February 2002 to address the issue of the harmful effects of pesticide use, and create awareness on

this issue among Chinese farmers, consumers and policy-makers. The mission of PEAC is to reduce the use of harmful pesticides in China and to promote alternative ecological forms of pest control, and eventually protect human and ecological health for sustainable development. In addition to the project work of its staff, PEAC also brings together educators, experts, activists, researchers, journalists, and other interested sectors of society, to work towards reducing the use of harmful pesticides. PEAC seeks to reduce the use of harmful chemical pesticides in China through a consumer-driven and farmer-centred participatory approach.

The strategies include:

- ♦ Training and empowering farmers to operate eco-friendly alternatives and to resist the pressures of the large agrochemical manufacturers. This allows farmers to produce in ways that are safer for themselves, consumers, and the environment through the development of market-oriented eco-agriculture.
- ♦ Promoting consumer awareness on pesticide dangers in order to facilitate an increase in demand for pesticide-free and organically produced goods.
- ♦ The women's group at PEAC works together with female participants to raise awareness on risks involving pesticides so as to protect women's health and promote sustainable development—with community monitoring undertaken to monitor the effects of pesticides on the women's health, particularly their reproductive health.
- ♦ The advancing alternatives and ecological agriculture programme functions by collecting and disseminating existing indigenous knowledge of farmers on alternatives

to chemical pest control, and promoting scientific development of eco-friendly alternatives in ecological agricultural systems. Farmers are also empowered to develop low-input, pesticide-free ecological agriculture and practice organic farming.

Consumers Korea (CK), Korea

CK was formerly known as CACPK (Citizens Alliance for Consumers Protection Korea). It is a non-profit and non-governmental organisation of consumers in Korea. It is registered with the Economic Planning Board and serves consumers on their rights and providing legal kinds of regulation in favour of consumers, disseminating information to consumers and publishing information on consumer issues such as the monthly magazine called 'Sobija' (Consumer Report). Part of CK's work focuses on exposing the human health and environmental effects of pesticides, and working to promote sustainable agriculture and pesticide use reduction in food and agriculture, by working with farmers and consumers.

PAN Philippines, Philippines

PAN Philippines is a coalition of groups and individuals whose members consist mainly of toxicologists and university lecturers involved in research and advocacy on pesticides and their alternatives to help expose and curb the pesticide problem in the country. PAN Philippines is affiliated with the national peasants' group and workers union; and the Health and Environment Alliance Against Toxics (HEAL-Toxics), of which PAN Philippines is also a member. It forges partnerships with peoples' organisations in providing assistance for the conduct of research and monitoring,

campaign and advocacy against pesticide use and its adverse effects on health and environment.

PAN Philippines has collaborated with local partners to support the village of Kamukhaan, in Mindanao, to document pesticide problems, and organise the community for action to address problems on health impacts, lack of income, and harassment by LADECO (the neighbouring banana plantation that is the source of pesticides exposure). In February 2003, PAN AP, the International POPs Elimination Network (IPEN) and local groups jointly sponsored a fact-finding mission (FFM) to the area. The FFM confirmed pesticide exposure suffered by the community; and recommended more extensive studies by government agencies, related institutions and concerned parties. The FFM also emphasised protecting those who document or articulate the presence and severity of pesticide poisoning. It concluded that the criminal and civil charges brought against PAN Philippines president, Dr. Romeo Quijano, by LADECO would seriously undermine real efforts to carry out good research and studies on the impact of pesticides on health and the environment. PAN Philippines also identified the need for more objective evidence, and quantification of the extent of harm that the pesticides and the plantation's activities are inflicting on the community through laboratory analysis, and embarking on more comprehensive health investigations of households. This is not possible without simultaneously supporting the struggle for economic survival of the community. For the last 6 years, PAN Philippines has continued support to the area via community pesticides action monitoring (CPAM) activities, medical missions; a community biodiversity based herbal medicine project (involving cultivation and distilling of

essential oils), and a handicraft, production project in the area as a way towards economic sustainability.

PAN Philippines is currently monitoring the use of various pesticides in banana plantations in Mindanao, and has preliminary information that methyl bromide is being used as a fumigant. It has worked with groups across the Philippines on projects such as publishing the Pesticides Use Survey (1993), organising international conferences on pesticides, conducting outreach to farmer organisations and local NGOs on sustainable agriculture, and providing technical services to local and regional groups (evaluation of specific pesticides, technical advice, etc.).

***Andhra Pradesh Vyavasaya Vruthidarula Union
(APVVU), India***

The APVVU is a state level federation of trade unions of 382 mandal (block) level agricultural labourers' unions spread over 15 districts of Andhra Pradesh state in India. The present membership of all federated mandal unions is 424, 000. The union came into existence in the year 1991 and became a full fledged federation at state level in 1998.

APVVU has been established:

- ♦ To articulate and address the political, economic, social, cultural, developmental, welfare and legal rights of agricultural labourers; to ventilate their grievances and articulate their demands; to negotiate and engage in advocacy and lobbying - with the state, other concerned/ relevant agencies, employers and individuals; to seek legal remedies through approaching courts and statutory commissions and authorities on behalf of its members.

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- ♦ To energise, inform and spearhead the struggles of its constituency for land reform, equal and living wages, release of bonded and child labour, providing social opportunity for women and Dalits to get their due share from national economy, advocacy, lobbying and mass actions for new legislations such as the Employment Guarantee Act, Comprehensive Agricultural Workers Act, Right to Information and for the implementation of existing favourable laws.
 - ♦ To organise small/marginal farmers and agricultural workers to collectively engage in the struggles against the globalisation of agriculture and stop the penetration of the corporate sector into agriculture.

SEARICE

SEARICE (South East Asia Regional Initiatives for Community Empowerment) works for the creation of a just and democratic civil society that upholds people's initiatives towards the creative and sustainable utilisation of the earth's resources. The organisation is an outcome of consultations and exchanges among development workers in Indonesia, Malaysia, Philippines, Singapore and Thailand who decided to help each other's grassroots work in their respective areas. SEARICE has been engaged in work with farmers, indigenous peoples, workers and urban poor with concerns such as appropriate technology, community health, land issues and other people-centred development work since its establishment in 1977.

Since then, SEARICE has been establishing contacts, facilitating exchanges of experiences and developing programmes based on the needs of its partners and key contacts in the region.

Since 1989, SEARICE has focused its efforts on community-based conservation, development and utilisation of plant genetic resources, and on policy advocacy and lobbying on issues in agricultural biodiversity, biotechnology, intellectual property rights and access to genetic resources. These activities are implemented at varying degrees in different countries in Southeast Asia.

GROUPS FOCUSING ON WOMEN AS CUSTODIANS OF SEEDS AND KNOWLEDGE

Seed saving and sustainable agriculture embody women's knowledge and creativity in ensuring food security. Technologies such as those of the Green Revolution and genetic engineering diminish the role of women's knowledge and skills in agriculture, thus marginalising women from decision-making in food production. These technologies destroy women's access to resources, impact their health and intensify the sexual division of labour. Across the world, women are resisting this domination by saving seed, organising themselves in the process to fight other forms of patriarchal domination.

The Green Foundation, India

Green Foundation (GF), India, began its work in 1996 with five women farmers and a handful of seeds in two villages. Today, 2000 farmers in 161 villages participate in its seed conservation programmes throughout the state of Karnataka.

GF's vision is to enable and empower farmers to lead a life of dignity, sustain their livelihood in agriculture in a manner

which is ecologically and economically viable and beneficial, and provide food security for themselves and the country.

GF has helped women to save seeds. Women now conserve approximately 382 indigenous seed varieties of millet, paddy, vegetables and oilseeds that would otherwise have been threatened by extinction in the face of the advance of large-scale non-organic agriculture. In the process of doing so, GF has been instrumental in improving women's economic status and reviving traditional methods and culture.

Hombalamma, seed mother

Hombalamma is a 50 year-old woman farmer, **H**owning five acres of farmland in Alappanadoddi village on the borders of Karnataka and Tamil Nadu. The land here is undulating and dry. Along with managing a large family, Hombalamma works her land very effectively. She conserves many traditional finger millet varieties, as well as paddy, groundnut and a range of vegetables. Little millet occupies the eroded patches of the uneven land while the plain areas are planted with other millets.

Hombalamma has also been gifted with a wealth of indigenous knowledge in agricultural diversity. She is very enthusiastic about organic farming and is a hard worker. During a seed festival held at Thally (a town in the district), she was honoured as 'Beeja Matha' (Seed Mother) for her invaluable contribution to and dedication in conserving the germplasm of local varieties.

Muniyamma, a torch bearer

Silagayanadoddi, a village in Kanakapura taluk situated in the Bangalore Rural District in India, has adapted traditional seed varieties and practices in agriculture for self-sufficiency and sustainable development. In a culture where women are still considered as secondary citizens, Muniyamma, a woman farmer has played a revolutionary role in the village. She has been the force behind initiating programmes introduced by the Green Foundation such as farm ponds, kitchen gardens, community seed banks, community water supply for the animals, vermicompost units, agro-forestry and other income-generating programmes. She has showed how a woman can play a key role in the development of a village, even without having a formal education. Muniyamma fought for the basic amenities of water and electricity to be provided to her village. Initially, when her request fell on the deaf ears of the government employees, she followed up by sitting on a dharna (strike) in front of government offices. Although she received no support from anyone, she did not back off; instead, she continued her lone fight with the officials till the village was finally given electricity. Muniyamma has become an acclaimed leader today in the village.

Navdanya, India

Born in the early 90's in India, Navdanya represents the search for non-violent farming, which protects biodiversity, the Earth and small farmers who are mainly women. Navdanya means nine crops that represent India's collective source of food security. The main aim of the Navdanya biodiversity conservation programme is to support local farmers, as well as to rescue and conserve crops and plants that are being pushed to extinction and make them available through direct marketing.

Navdanya is actively involved in the restoration of women's knowledge and culture. It has created awareness on the hazards of genetic engineering, defended people's knowledge from biopiracy and also their food rights in the face of globalisation.

Navdanya's efforts have resulted in the conservation of more than 2,000 rice varieties from all over the country including indigenous rice varieties that have been adapted over centuries to meet different ecological demands. The organisation has also conserved 31 varieties of wheat and hundreds of species of millets, pseudocereals, pulses, oilseeds, vegetables and multipurpose plants including medicinal plants.

Diverse Women for Diversity is a programme of Navdanya, echoing the voices of local and grassroots women in agriculture and food production.

SIBAT, Philippines

SIBAT (Wellspring of Science and Technology) in the Philippines is a national network of regional organisations on sustainable agriculture and appropriate technology. These

Bija Devi – seed keeper par excellence

Bija Devi Kaintra, whose first name, Bija itself means “seed”, has worked with Navdanya for two decades in Garhwal in India, conserving rice, millet, pulse and vegetable diversity and spreading awareness of threats to biodiversity, such as intellectual property rights (IPR) on seeds, plants and genetic engineering, both in and outside the region.

Bija Devi had worked as a farmer since she was seven. At the age of 20, along with her husband and children, she moved to the town of Dehradun where, for about 20 years, she led the life of a homemaker. However, she always found time for her small vegetable garden. When her children left school and became independent, Bija Devi joined Navdanya to look after the project's vegetable garden. It has been a long journey, from the vegetable garden, a relatively modest plot of land, to the Navdanya farm - meant to protect biodiversity, create a seed bank for the farmers in the movement so that they can exchange seeds, and convert fields into entirely organic farms, using organic fertilisers and natural pest control. With her knowledge of varieties, storage and cultivation of seeds, Bija Devi is the perfect embodiment of a seed keeper. Under her leadership, more than 600 types of vegetables are now being grown on the farm.

Bija Devi was honoured with the global Slow Food Award for her contribution to the protection of women's knowledge in agriculture.

organisations cooperate and contribute their resources to the development of appropriate technology and serve as demonstration and pilot sites for the network. SIBAT has 20 members from 12 regions and three national partners. Its network members operate in about 500 communities nationwide. SIBAT provides assistance to community-based rural development initiatives (especially in the poorest areas), specifically for appropriate technologies in agriculture, water, renewable energy and other infrastructural systems – all directed at enhancing local capacities, helping raise food productivity and the ecological management of resources.

The SIBAT network envisions a just and sovereign society and an empowered citizenry where science and technology is responsive to people's needs and development, and to the proper utilisation and management of the means of production, which reflects ecological stability, a progressive economy and a people-based scientific culture.

UBINIG, Bangladesh

The term “UBINIG” is the Bangla acronym of “Policy Research for Development Alternative.” Legally registered as a research organisation, the organisation performs social development works in a collective manner. UBINIG primarily works on the policy issues related to development, development policies and their applications in Bangladesh and their consequences on the lives of the Bangladeshi people. The work of the organisation aims to resolve the debates of development from class and gender perspective. UBINIG works persistently to improve the democratic content of its society. Its objective is to formulate strategies for development and social change that can ensure the democratic participation

of the people; equitable distribution of social wealth using productive resources as its guiding paradigm.

UBINIG started with its Dhaka office in 1984. At that time, the organisation was working in different districts for research works. UBINIG currently works with the local handloom weavers and Nayakrishi Andolon (The new agricultural movement of Bangladeshi farmers in an effort to produce healthy, environmentally conscious foods). Aside from that, the organisation also worked on the shrimp fry collectors project as well as on the mobilisation of farmers in the area of saline ecology.

WOMEN'S ORGANISATIONS AND NETWORKS

Freedom from the oppressive forces of patriarchy can only be achieved if the many faces of patriarchy are recognised and challenged. Women's oppression based on class, caste, race and gender have a common component – patriarchy – so even within the movements that fight caste, class and race-based discrimination, women are oppressed. Often, women's issues become subsumed within issues related to these other mechanisms of oppression, and are ignored or even denied. Thus, there is a critical need for autonomous women's movements within other movements, so that women's multiple enslavement can be understood and challenged.

APWLD (Asia Pacific Forum on Women, Law and Development)

The APWLD is a network of lawyers, academics, social scientists, grassroots women, and other activists from the Asian region. Originally, from the 25 women leaders who

founded the network, it has now grown to about 120 individual and organisation members and over 1,350 contacts.

The APWLD is focused on six programmes: Violence Against Women, Women's Participation in Political Processes, Labour and Migration, Women's Human Rights, Women and Environment, as well as Rural and Indigenous women.

APWLD has also initiated ongoing research on the impact of the war on terror on indigenous rural women's work in defence of their land in Bangladesh and the Philippines. Research is also being done on the landlessness resulting from the December 2004 tsunami. APWLD is also involved in supporting movement-building. For the past two years, APWLD has lent support to the Asian Indigenous Women's Network and Asian Women in Fisheries. The network is now focused on expanding to bring in non-women organisations, because there are now environmental groups that recognise the need to develop an analysis of women's issues.

Vikalpani, Sri Lanka

Vikalpani National Women's Federation was formed in Sri Lanka in 2001 integrating all regional and district-level women's organisations formed at the end of the 70's, on a national level. Today, the *Vikalpani* National Women's Federation has evolved into an independent women's movement that seeks to further advance women's empowerment.

Its activities include:

- ◆ Safeguarding of women's rights
- ◆ Protection of democracy and the maintenance of peace

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- ♦ Promotion of women's political knowledge, interest and participation
 - ♦ Monitoring pesticide use and reporting in order to increase awareness of the impact of chemical agriculture on women's health
 - ♦ Organising the campaign to ban paraquat
 - ♦ Promotion of women's knowledge, and empowering them on ecological agriculture
 - ♦ Raising awareness on globalisation, agrochemical TNCs, and GMOs.

Vikalpani also invited government officials to sign a petition to ban different pesticides, including paraquat, and handed over the petition to the President of Sri Lanka.

BAI, Philippines

BAI is an indigenous women's network at the national level in the Philippines. BAI is an indigenous term which means woman leader.

The major issues that indigenous women face include:

- ♦ the problem of militarisation because of the introduction of destructive development projects
- ♦ the issue of foreign mining companies coming in to take over indigenous people's lands
- ♦ agricultural liberalisation or the dumping of imported vegetables and rice, which displaces indigenous women from their livelihood

BAI has launched and participated in several activities including the National Day of Action of Indigenous Women

on Militarisation held on the death anniversary of a woman leader killed in Mindoro. BAI activists have been participating internationally and also working globally to highlight the issues that confront indigenous women.

Bingbing – energiser of women in Kamukhaan

Veteran woman activist Carmelita Godoy's main concern for the past few years has been the plight of women in Kamukhaan, a village in Davao del Sur, Philippines, that is being poisoned by pesticides used in an adjacent banana plantation. Bingbing, as friends and comrades call her, has been part of the national women's movement since the days of the Marcos dictatorship. She is now the chairperson of Gabriela Women's Party-Digos City and Secretary-general of Gabriela in the province of Davao del Sur.

Growing up in rural poverty and discrimination, Bingbing has dedicated her life to the struggle on women's issues, such as violence against women, but her experience working with the women of Kamukhaan has stood out. She discovered the disastrous effects of pesticides on women and children, and how exploitative and unrelenting big agricultural corporations can be. Being a mother herself, she became enraged at the plight of the children of Kamukhaan, most of whom have skin diseases, mental disabilities, and other illnesses probably caused by exposure to toxic chemicals.

Bingbing organises women in Kamukhaan and raises their level of awareness against agro-chemical TNCs and social injustice. Aside from exposing and opposing these kinds of threats to the community, she also leads in developing the skills and knowledge of women and children through health, herbal medicine, and handicrafts training. She is very excited about the alternative livelihood project that the Kamukhaan villagers have recently embarked upon. Although she has no formal training in medicine, she delights in learning about and teaching what she knows about the healing properties of plants. She regularly visits the mountainside where the villagers grow medicinal plants for the project. Under Bingbing's tutelage, the women's group in Kamukhaan was reactivated and has now begun to flourish, despite continued harassment by the plantation management.

Tamil Nadu Women's Forum, India

The Tamil Nadu Women's Forum (TNWF) is a state level initiative for women's rights and gender justice. TNWF was established in 1991 in order to train women on leadership, strengthen women's movement, and to build up a strong people's movement. The Tamil Nadu Women's Forum is a member organisation of the International Movement against All forms of Discrimination and Racism (IMADR), which has consultative status with UN ECOSOC. It is active in 30 districts, and there are 450 groups as well individuals from all

over Tamil Nadu joining in the forum as members. TNWF has both women and men active members.

Tamil Nadu Women's Forum joins hands with people's movements, women's groups, trade unions, leftist political parties, human rights forums, and other organisations at local, national, regional and international levels to uphold the rights of marginalised indigenous oppressed and discriminated communities. In addition, TNWF campaigns for women's reservation, land and food without poison, food security, in combating communalism and globalisation, against violence on women, child abuses, female infanticide and foeticide, and illegal patent by the MNCs. TNWF also conducts political actions and legal activities. TNWF uses law as a tool for social change. Women leaders are enlightened on legal procedures and are encouraged to support the other women to approach the appropriate forums.

TNWF supports the initiatives taken by Society for Rural Education and Development (SRED), Rural Women's Liberation Movement (RWLM) and other civil movements for establishing Women's Ecological Farm and Schools/Day Care centres for Dalit children. TNWF envisages to achieve gender equality, justice for all, casteless and classless society as well as socio-economic, political and cultural empowerment of women.

WOMEN IN AGRICULTURE TASK FORCE

The Women in Agriculture Task Force is an initiative of the Pesticide Action Network Asia and the Pacific, and brings together many women's groups and those working on issues of women in agriculture and sustainable agriculture to

recognise and understand the patriarchal underpinnings of the problems faced by women working in food production, and to challenge these in both personal and political spheres. The Task Force sees its role as creating new spaces at the global level for such resistance to move forward, strengthening women's perspectives and focus, and in the process empowering women's lives.

Focus of the Task Force

- ♦ Perspective building of women in agriculture, in particular rural women
 - deepening the analysis on feminism and rural women
 - building women's leadership, especially rural women, and ensure their participation in movements
 - strengthening the resistance and building movements through sharing of experiences and establishing support systems.
- ♦ Addressing globalisation
 - developing frameworks of analysis to strengthen women's perspectives in resisting globalisation in issues related to the WTO (and other trade mechanisms on food and agriculture) TNCs and their control of trade and production in food and agriculture.
- ♦ Corporate agriculture and hazardous technologies
 - analysis of the role of transnational corporations (TNCs), corporate agriculture and contract farming and their impact on women, especially in the areas of:
 - control of seeds
 - increasing use of hazardous technologies

-
- impact on women's health
 - weakening of women's rights over land and productive resources.
- ♦ Food sovereignty and ecological agriculture
 - recognition of women's roles and traditional knowledge and skills in agriculture
 - assertion of women's rights to access, control and participation in decision-making in land and productive food resources.

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ANNEX 1

Sample appeal from PAN AP to the Prime Minister, Malaysia, not to lift the ban on paraquat, or to extend the time limit on its phasing out.

Dato' Seri Dr. Mahathir bin Mohamad
Prime Minister,
Prime Minister's Office,
Federal Government Administration Centre
Bangunan Perdana Putra, 62502 Putrajaya
Malaysia

(22nd January, 2003)

Your Excellency,

RE: Decision by the Government of Malaysia to Ban Paraquat
Pesticide Action Network Asia and the Pacific (PAN AP) would like to take this opportunity to sincerely thank and congratulate the Malaysian Government for its ground-breaking decision to effectively ban and phase out the production of paraquat in the country.

The decision taken on August 27th, 2002, via a circular from the Pesticide Control Division of the Agriculture Department (and endorsed by the Secretary of Malaysia's Pesticides Control Board), was a long awaited one, but is nonetheless sincerely welcomed.

PAN AP as well as other local non-governmental organisations have been involved in the campaign on this pesticide for over

17 years. Paraquat is a known poison without an antidote, and has caused severe poisonings in workers who use it. The decision to ban this poison is in fact a much-needed move by the government to protect agricultural workers, farmers and consumers, as well as the environment as a whole.

Paraquat has been widely used in plantations in this country for 40 years, and is known to cause a litany of problems for agricultural workers, including severe illness and death. We hence applaud your offices for taking such leadership to make Malaysia a pioneering country in the region in its spearheading decision to phase out the use of this controversial product.

Workers on estates are frequently employed as sprayers for six days a week, ten months a year or more, and therefore have a high degree of exposure to the chemical. The greatest risk to workers of fatal and serious accidents is during mixing and loading of spray equipment, where contact with the chemical concentrate occurs. Fatal accidents have also been described due to prolonged contact with the diluted paraquat spray during application. Conditions of use in many developing countries make it difficult to follow label instructions and recommendations.

PAN AP and local workers rights organisation, Tenaganita, in collaboration with the Penang based National Poisons Centre, undertook a 2-year study to monitor pesticides use in the plantations. The study, which was launched on March 21st 2002, was conducted in 17 plantations in Selangor, Perak and Kedah, and focussed on pesticides sprayers on the plantations-most of whom were women.

The study noted that the major pesticide used in the plantations is paraquat. Poisoning due to paraquat is clearly

demonstrated in the surveys and interviews with workers, and indicated in the medical examinations. The acute symptoms the women suffered included nose-bleeds, tearing of the eyes, contact dermatitis, skin irritation and sores, nail discolouration, dropping of the nails, and abdominal ulcerations.

The easy and ready availability of paraquat has also made it one of the main modes of suicide in the country, particularly since there is no antidote.

Concerns over impacts of paraquat have been growing across the world. A study of 126 workers on fruit farms in the Western Cape area of South Africa used a new test for measuring respiratory effects on the lungs of workers with long-term exposure to paraquat. The study, published in 'Occupational Environmental Medicine' in 1999, eliminated confounding factors such as smoking history, alcohol consumption, age, weight, and height. It found that the lung capacity of workers exposed to paraquat was consistently 10-15 per cent lower than a reference population as demonstrated by decreased arterial oxygen uptake during exercise.

In fact, such has been the concern over paraquat that six European governments-namely Austria, Denmark, Finland, Hungary, Slovenia, and Sweden-have enacted bans and restrictions on paraquat. The bans were primarily due to acute toxicity, absence of antidote, health and environmental concerns. In other countries strict guidelines are applied. For example, the US Environmental Protection Agency allows its purchase and use solely by certified applicators. In Norway, the government decided in 1993 not to accept an application for the renewed registration of a paraquat product, Preeglone, due to its toxicity. In terms of developing countries, Kuwait

has banned paraquat while Indonesia, Korea (Republic) and Togo have enacted restrictions on its use.

Paraquat is also a concern in terms of environmental health. It has been labelled a potential groundwater contaminant by the California Department of Pesticide Regulation on the basis that it has the potential to move into groundwater based on water solubility, ability to bind to soils and its half-life. The European Commission's Scientific Committee of Plants said in December 2001 that a more detailed appraisal "on the likely effects of paraquat on the rate of degradation of organic matter in soil" should be provided.

In 1994, the Danish government imposed bans and severe restrictions on 7 pesticides, including paraquat, it considered a threat to health, the environment or both. The Danish decision to ban paraquat, enacted in 1995, was based on its persistence, and its toxicity to non-target organisms.

In support of the Malaysian government's decision, we have called on all manufacturers, especially the Swiss based Syngenta corporation-the biggest manufacturer of the chemical-to follow the provisions in the directive, as well as the spirit behind the directive i.e. to safeguard the health and safety of workers, and the environment. We have also asked that they recall all stocks of paraquat immediately. We note that in Switzerland paraquat has not been approved for use since December 31, 1989.

For your kind information, the Swiss Federal government has recently taken further steps to do away with paraquat. In December 2002, it took the step of proscribing that paraquat should be added to Annex III of the Rotterdam Convention

(on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade). The Swiss Federal government has taken this step in an effort to protect developing countries from harmful consequences of this highly toxic pesticide.

It has come to our attention that the industry has made appeals, and undertaken attempts to persuade the Malaysian government to repeal the decision to ban and phase out paraquat. At the recent consultation meeting organised on January 13, 2003 by the Pesticides Board of the Department of Agriculture, we were asked to provide feedback on the ban and phase out. We reiterated our congratulations of the governments' decision, and elaborated on the negative human and environmental health impacts of this pesticide in light of claims of safety being made by the producers.

We cannot stress enough how harmful paraquat is to human and environmental health. Once again, we would like to express our deep felt thanks and congratulations to the government on this decision. But if possible, we would like to humbly urge the Malaysian government to consider an immediate, outright ban on this hazardous product.

While this is indeed a great step for the country, paraquat is still a problem elsewhere. PAN AP is part of a global coalition that will continue the campaign to ensure that paraquat is banned and withdrawn worldwide.

PAN AP would like to offer our support and help to ensure that this directive is fulfilled.

Yours Sincerely,
(signed)

ANNEX 2

Petition to help Agent Orange victims fight back, with help from friends.

The lawsuit by Vietnamese Agent Orange victims against US chemical companies hit a wall in March 10, 2005 when the Brooklyn Federal Court in New York City dismissed the lawsuit filed by Vietnamese victims of Agent Orange. Many foreigners and locals are working to make sure the issue gets the attention it deserves. Please help them by signing this petition.

Justice for Victims of Agent Orange

To: The U.S. President and others

AGENT ORANGE THE CHEMICAL, has killed, is still killing, and causing great suffering to over three million people in Vietnam.

We welcome and support the Civil Action brought by the Vietnam Association of Victims of Agent Orange/Dioxin, and three Vietnamese victims.

The documents have been submitted to a court in New York, on behalf of all affected by the chemicals used by the American Forces in their War on Vietnam. This will be the first ever such action by Vietnamese victims of Agent Orange in any court of law.

We call upon the U.S. President, Government and the Chemical Companies named as defendants in the documents,

to accept their responsibilities for the damage caused by their actions and products, and to pay full compensation to the victims.

Sincerely,
(The Undersigned)

Source: Pesticide Monitor, Vol. 2 No. 2, May-June 2005

Pesticide Action Network Asia and the Pacific (PAN AP) is one of five regional centres of PAN, a global network working to eliminate the human and environmental harm caused by pesticides, and to promote biodiversity based ecological agriculture.

"Our vision is a society that is truly democratic, equal, just, culturally diverse, and based on food sovereignty, gender justice and environmental sustainability". Thus PAN AP asserts people's food sovereignty based on the right to food for all, founded on the right to land and productive resources and the right of communities to decide on our own food and agriculture policies. We are committed to protect the safety and health of people and the environment from pesticide use, and genetic engineering in food and agriculture. We strive to protect and promote the rights, equality and dignity of women. We will promote and protect biodiversity-based ecological agriculture. Our goal is to strengthen people's movements to eliminate hunger and achieve food sovereignty. We endeavour to achieve these goals by empowering people within effective networks at the Asia and the Pacific, and global levels.

Based in Penang, Malaysia, Pesticide Action Network Asia and the Pacific is linked to more than 150 groups in 18 countries in the Asia Pacific region.



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