



a toxics-free future

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International SAICM Implementation Project (ISIP)

In 2010, in an effort to demonstrate SAICM implementation via IPEN Participating Organizations, IPEN launched an International SAICM Implementation Project, also known as ISIP. ISIP aims to mobilize resources for initial enabling activities pertaining to national priorities, in keeping with the work areas set out in the strategic objectives of section IV of the SAICM Overarching Policy Strategy.

In particular, the ISIP supports the Governance objective of SAICM's Overarching Policy Strategy paragraph 26, which calls for enhanced "cooperation on the sound management of chemicals between Governments, the private sector and civil society at the national, regional and global levels."

In addition, ISIP builds on the 2008-2009 Global SAICM Outreach Campaign to raise awareness about SAICM and strengthen collaboration among the public interest, health and labor sectors.

ISIP Objectives

ISIP's four objectives include:

- Promoting the need for sound chemicals management
- Advancing National SAICM Implementation
- Promoting global SAICM implementation by global civil society
- Building capacity among NGOs developing countries and countries with economies in transition

Title of activity: Preliminary Investigation on the Health Effects of Paraquat in Mindanao, Philippines

NGO: CAUSE-DS/PAN Philippines

Country: Philippines

Date: August, 2012

Elements of SAICM Covered:

Promote substitution for highly toxic pesticides including effective non-chemical alternatives (27); Provide training in alternative and ecological agricultural practices, including non-chemical alternatives (51); Encourage industry to extend product stewardship and to voluntarily withdraw highly toxic pesticides which are hazardous and cannot be used safely under prevalent conditions (30); Promote integrated pest and integrated vector management (29); Establish programmes for monitoring chemicals and pesticides to assess exposure (66)

Description of:

The highly hazardous pesticide(s) registered/sold and/or in use in your country:

There are approximately 150 pesticide active ingredients registered in the Philippines and among these, about 100 (67%) are considered highly hazardous pesticides according to PAN International criteria. A pesticide is considered to be highly hazardous by Pesticide Action Network if it has one of the following characteristics:

- high acute toxicity (including inhalation toxicity) and/or,
- long-term toxic effects at chronic exposure (carcinogenicity, mutagenicity, reproductive toxicity, endocrine disruption) and/or,
- high environmental concern either through ubiquitous exposure, bioaccumulation or toxicity, and/or
- known to cause a high incidence of severe or irreversible adverse effects on human health or the environment

Alternatives and/or bio pesticides available, if any:

There are alternatives available, including what the regulatory authorities call “biorational pesticides”. They are two major categories: the biochemical pest control agents (e.g. pheromones, hormones, natural plant growth regulators and enzymes) and the microbial pest control agents (e.g. microorganisms). The government has recently issued regulatory guidelines on these types of pesticides. Crude preparations of botanical pesticides are not covered by the existing regulations. Organic farming groups and other practitioners of sustainable, ecological agriculture are the main users of alternatives (including nonchemical alternatives) in pest management and control.

Health and environmental effects of the pesticides:

Immediate effects may include dizziness, headache, nausea and vomiting, abdominal pain, difficulty of breathing, palpitations, weakness, and many other symptoms which, very often, may not be readily recognized as pesticide poisoning. Depending on the degree and circumstances of the exposure, the health effects may be mild, moderate or severe.

In pesticide applicators, dizziness, headache, abdominal pain, and difficulty of breathing are a common occurrence. People predisposed to asthma are in greater risk of developing acute respiratory symptoms after exposure to pesticides. Difficulty of breathing may occur even with very little exposure in predisposed individuals. Weakness and tingling sensation in the extremities are also common symptoms observed in occupationally exposed individuals. These symptoms occur usually upon exposure to the organophosphate and carbamate pesticides.

Skin irritation, allergic reaction, and other skin ailments occur when there is direct contact with the pesticide. Fungicides and certain herbicides like paraquat are the more likely culprits although most other pesticides can cause these ailments.

Eye irritation and blurring of vision more commonly occur with organophosphate and carbamate pesticides. These are usually transient in nature but in certain instances, like with the triphenyltin compounds or paraquat, permanent damage to the eye leading to blindness may occur.

It is not only the acute or immediate effects that make pesticides dangerous. The adverse effects of pesticides may manifest only after months or years of exposure. These chronic or longterm effects may occur even with low levels of exposure. The weight of scientific evidence show that even low levels of exposure to pesticides can cause serious immune and metabolic disorders, neurologic effects, reproductive anomalies, cancer and other chronic diseases in animals and in humans. Death rates of people are higher in areas with high pesticide usage compared to those living in areas with low pesticide usage. The higher number of deaths is not only caused by a higher rate of acute pesticide poisoning but also by a higher rate of chronic debilitating diseases.

Recent studies have shown that certain pesticides can disrupt the human endocrine system, which includes the glands that control the release of hormones in our bodies. There are also pesticides that can actually “mimic” hormones found in the human body. Such pesticides are commonly found in several countries of the South. In the Philippines, for example, countrywide surveys reveal that pesticide residues of these “hormone mimickers”, some of which are already “banned” in developed countries, are found in a wide range of vegetables and fruits. One such pesticide found in food is endosulfan. This pesticide belongs to a chemical group called “organochlorines”. Such chemicals can “mimic” the hormones in our bodies and have been associated with higher incidences of breast cancer, testicular and prostate cancer, reduction in male fertility, and defects in male sex organs.

One of the more serious long term effects of pesticides on people’s health is cancer. Several pesticides are already known to cause cancer in humans. Others may not have direct evidence of causation but have shown to be associated with increased cancer incidence. Many others have been shown to cause cancer in animals but evidence of causation in humans is non-conclusive or lacking. Many more have not been shown to cause cancer, mainly because they have not been studied well. Many pesticides exhibit similarities in chemical structure and actions as other chemicals previously shown to cause cancer. Many other indirect evidences, for example, steroid-like effects, production of by-products indicating cellular damage, and disruption of intercellular communication point to the carcinogenic effects of pesticides. Indication of genetic damage, like mutations and chromosomal aberrations, as well as embryotoxicity and immunotoxicity, are also commonly associated with exposure to pesticides. Practically all pesticides are potentially cancer producing or at least cancer promoting. Even the so-called “Green Label” pesticides are potentially cancer-producing.

Many of these pesticides being “poured” into this planet by the pesticide industry consist of pollutants that resist physical, biological, and chemical degradation. They are called “persistent organic pollutants”. They accumulate as they are taken up in the food chain and their concentrations are increased tremendously in certain tissues, like the liver. Their chemical characteristics enable them to move long distances through the atmosphere and are deposited even in areas very far away from the actual area of application. Thus, even the arctic seas are contaminated with these “persistent organic pollutants”. Examples of these “persistent organic pollutants” are DDT, endrin, lindane, endosulfan, and many other organochlorines.

Pesticides contaminate the environment in many ways. Widespread application of pesticides leads to drifting and contamination of land and waterways adjacent to target fields. Pesticide residues in soil contaminate crops subsequently grown on the same land. Pesticides in contaminated crops used as animal feeds eventually are found in meat and dairy products. Pesticides in the soil eventually also contaminate ground water, which is a source of drinking water.

A consequence of environmental contamination is the widespread killing of non-target organisms, including wildlife, cattle, birds, fish, bees, and pest’s natural enemies. This leads to loss of biodiversity and upsets the delicate balance in various ecosystems in various areas. This is made worse by the vicious cycle of pesticide-resistance. Eventually, pesticides become ineffective because of the inevitable emergence of resistant pests and crop losses ensue. This leads to the creation of new and more toxic pesticides which again eventually become ineffective because resistance will again emerge. The effect of this vicious cycle is the increasing number and amount of highly toxic pesticides in our environment leading in turn to greater loss of biodiversity and increased exposure risks to people.

Information on pesticide levels in the environment, in food, or in people:

In 2006, a study done by the Department of Health, National Poison Control Center and the Philippine Society of Clinical and Occupational Toxicology to assess the health and environmental effects of pesticides in the village of Kamukhaan, Davao del Sur, Philippines, revealed that blood ETU (ethylene thiourea), a biomarker for the fungicide Mancozeb, were

elevated in 34.3% of the residents. Blood RBC cholinesterase levels, a biomarker for exposure to organophosphate and carbamate pesticides, were abnormal in 57.1% of the sampled residents.

In 2007, a study done by IDIS, Ateneo de Davao University, Bureau of Plant Industry Davao, and PAN Philippines entitled "Pesticide Monitoring in Selected Surface and Ground waters of Panigan-Tamugan and Talomo-Lipadas Watersheds in Davao City" showed that:

- Eight of the 10 water stations monitored were positive for pesticide residue at least once during the monitoring period and usually when there is rain.
- Pesticides were commonly detected in Stations 5, 6, 7, and 9.
- Except at the control stations, all sampling stations are near to either banana or pineapple plantations that are known to use lots of pesticides.
- There were only 2 occasions where not even one pesticide was detected.
- A total of thirteen 13 pesticides were detected, seven (7) of which were detected from sediments and six (6) from water.
- Seven (7) banned organochlorine pesticides were also detected namely; 4,4 DDT, endosulfan II, endrin ketone, dieldrin, heptachlor, and gamma chlordane, all from the sediment samples except heptachlor which was detected from water.

In June, 2012, partial results from an ongoing collaborative study (NGO-Government-Academe, which included PAN Philippines) entitled: "Pesticide Monitoring in the Air and Water in Selected Areas within Four Watersheds of Davao City" showed the presence of some highly hazardous pesticides (chlorothalonil, chlorpyrifos, diazinon, DDT metabolites) in the air samples collected from watershed areas in Davao City, Philippines, near banana plantations.

Existing pesticide legislation in your country:

Presidential Decree No. 1144, the law that created the Fertilizer and Pesticide Authority of the Philippines, provides the regulatory framework within which the government exercises control over pesticide. The law states that:

- *"No pesticide x x x shall be exported, imported, manufactured, formulated, stored, distributed, sold or offered for sale, transported, delivered for transportation or used unless it has been duly registered with the FPA x x x"*
- *"No person shall engage in the business of exporting, importing, manufacturing, formulating, distributing, supplying, repacking, storing, commercially applying, selling, marketing of any pesticide x x x except under a license issued by the FPA".*

Registration is required "To ensure that pesticide products meet the prescribed standards before they are imported, manufactured, formulated, distributed and sold in the country".

Registration standards are set by the FPA and cover the following aspects:

- Quality and suitability of the active ingredients and the formulated products
- Bioefficacy
- Safety to handlers
- Safety to consumers
- Safety to the environment
- Handling, packaging, labeling and disposal

Pesticide regulation is under the Department of Agriculture which is production oriented and not health or environmental protection oriented. Nevertheless, it is the responsibility of the government, through the Department of Health and the Department of Environment, to ensure that health and environment are not compromised in the use of pesticides for agricultural production.

There is no specific legislation or regulation addressing highly hazardous pesticides as a group. This is understandable since FAO has not come up with clear recommendations to governments pertaining to highly hazardous pesticides. Pesticides listed in the Stockholm Convention on Persistent Organic Pollutants have already been effectively banned in the

Philippines.

Use of IPM and ecological agriculture:

The National Integrated Pest Management Program called Kasaganaan ng Sakahan at Kalikasan (KASAKALIKASAN) was promulgated by the government in May, 1993, purportedly promoting IPM the standard approach to crop husbandry and pest management in rice, corn and vegetable production in the country. KASAKALIKASAN claimed to have trained almost 200,000 farmers in more than 6,000 season-long Farmer Field Schools in sixty-eight provinces and three cities nation-wide. At the field level, the Program claimed to have a training force of some 2,650 IPM trainers from local government units and non-government organisations. A two-year study on the evolution of practices among IPM Farmer Field School (FFS) graduates conducted by SEARCA, the Institute of Policy Studies of the University of the Philippines at Los Banos and the FAO concluded that:

1. Total variable costs incurred by FFS farmers are significantly lower than non-FFS farmers due to technical and allocative efficiencies resulting from training. Average cost savings per hectare were estimated at Ps. 500 per season.
2. FFS farmers have more knowledge of nutrient and pesticide management; had more positive attitudes with respect the use of certified seed, water management, organic fertiliser and farm safety.

There are organic producers scattered around Luzon, Visayas and Mindanao. They market their own produce with their own labels. In vegetable-growing areas in northern Luzon, there are some NGOs who purchase organic products from farmers (with little vegetable plots) and market products in urban centres. Among many farmer-NGO partners in rice production for LEISA (Low External Input Sustainable Agriculture) and OA (Organic Agriculture), the largest national network is MASIPAG (456 POs and 42 NGOs). The total organic rice area was estimated to be 2,675 hectares (which is less than 1 % of total paddy rice area) among direct members of farmer-NGO partnerships. It has been estimated (UN ESCAP, 2002) that for coconut, banana, and coffee, about 50-60 per cent of the total areas planted with these crops are traditionally organic. Coconut in small- or large-scale farms is predominantly organically produced. Only about 20 per cent of coconut lands receive applications of agrochemicals, which is generally intended for the high-value intercrops. Traditionally organic banana refers to backyard bananas and those in small-scale farms which receive no agrochemicals.

Recently, the Philippine government promulgated the Republic Act 10068 or the "Organic Agriculture Act of 2010" meant for the development and promotion of organic agriculture in the country. The RA 10068, signed into law by President Gloria Macapagal- Arroyo earlier in April, 2010, stipulates that it is a state policy to promote, propagate, and further develop the practice of organic farming in the Philippines. The new law establishes a comprehensive National Organic Agricultural Program (NOAP) which will promote, commercialize and cultivate organic farming methods through farmers' and consumers' education. The program will be carried by the by NOAB, a policy- making body that will provide the direction and general guidelines for the implementation of the national program. The NOAB will also identify funding sources to expand organic agriculture, monitor and evaluate the performance of programs for appropriate incentives. It will also promulgate rules and regulations and exercise other necessary powers and functions to effectively carry out the objectives of RA 10068.

Conditions of work:

While the total use of pesticides in rice is the largest (due to a large area under rice production) pesticides are most intensively used in banana plantations and vegetable crops. Recent expansion of oil palm plantations, especially in Mindanao, have also resulted in increased use of highly hazardous pesticides. Pesticide usage patterns in the Philippines show that insecticides are the most commonly used group. Although there has been an increase in the number of practitioners of ecological agriculture and some growers are changing to less toxic pesticides, the large majority are still using highly hazardous pesticides. Most of the users are not knowledgeable about conditions of exposure and the toxic effects of pesticides. In most

cases, applicators do not wear protective clothing or equipment, especially under conditions of use in the rural areas where educational level and safety awareness are very low. In banana plantation areas, aerial spraying of pesticides results in exacerbation of exposure to pesticides of workers and of nearby communities. Poor occupational safety conditions are common, especially in banana, oil palm and pineapple plantations where most workers are not unionized.

Project Outcomes:

Description of the activity conducted to reduce the threat posed by highly hazardous pesticides and advance this SAICM aim.

1. Social Preparation and Community Organizing

PAN Philippines conducted consultation meetings with CBHS prior to the actual fact-finding and medical mission and also made preliminary area visits to the DOLE banana plantation in Tago, Surigao del Sur and to the oil palm plantations in Rosario and Trento, Agusan del Sur. CBHS provided relevant information on the target communities and facilitated the visit to the specific areas of concern.

Additional information was obtained through key informant interviews and focus group discussions with CBHS personnel, farmers and workers. CBHS Mindanao conducted community organizing activities in the areas affected by the presence of the banana plantation. Meetings were held with key individuals in the peasant groups and with the workers' union officers. With the help of PAN Philippines, information regarding the health effects of pesticides, especially paraquat, was disseminated to the peasant groups and the workers. The objective was to build the capacity of the local groups to address highly hazardous pesticides, especially paraquat, and related concerns.

Appropriate mitigation measures, such as the utilization of herbal medicines available in the area, were also introduced to the affected peasants and workers. CBHS, in consultation with the communities concerned, have formulated a plan to address the issue of health effects of pesticides and related issues, including the conduct of medical missions, campaigns, lobbying, mobilizations and other actions.

2. Fact-finding, medical mission

The first fact-finding and medical mission was conducted January 15-18, 2012. First to be visited was the DOLE plantation area in Tago, Surigao del Sur. Three individuals (two plantation workers and a rice farmer affected by the plantation) came forward to testify about the worsening of the situation of the local farmers and indigenous people after about 5 years of operation of the banana plantation. It was claimed that most of the workers remained on a contractual status without the benefits given to regular workers and were receiving wages below subsistence level. It was also claimed that workers often experienced adverse effects of the pesticides used in the plantation, including burning sensation and itchiness of the skin and face, difficulty of breathing, dizziness, abdominal pain, diarrhea and other symptoms; especially those spraying the pesticides. However, two of those who were interviewed requested to remain anonymous due to concerns about their security. The other one, a community organizer and belonging to the indigenous people who refused to surrender her land to the plantation bravely came forward and identified herself and willingly shared her experiences and views. She claimed that from the very beginning, they opposed the entry of the banana plantation because they knew that it would only worsen their situation despite all the promises of benefits. As a result, she suffered harassments and threats from the local government officials and their armed elements, including the military. She also claimed that her crops were adversely affected by the chemicals used by the plantation, especially the herbicides. She said the plantation used paraquat in the beginning and then recently, they began using round-up (glyphosate). She claimed that she and members of her family often experienced burning sensation and itchiness of the skin, difficulty of breathing, weakness and other symptoms which they suspect arise from the pesticides used in the plantation. She also complained that the plantation made it very difficult for her family to access their land because of the canal barriers built by the plantation

and the overflow of excess water from the plantation. The local medical doctor in the area was also interviewed and he confirmed that the adverse effects from the pesticides used by the plantation were indeed being experienced by those who are exposed but was not sure about the effects of paraquat.

Next to be visited were the oil palm plantation areas in the towns of Rosario and Trento in Agusan del Sur, where the FPPI (Filipinas Palm Oil Plantation Inc.) and API (Agumil Plantation Inc.) were located. About 20 workers who complained of health effects from exposure to the chemicals used in the plantation were interviewed and examined. They also complained of low wages, lack of benefits, and poor and unsafe working conditions. Most of the workers have performed different kinds of jobs, from, weeding to spraying, to utilitymen, and other types of labor. Most of them complained of various health problems from exposure to pesticides, unsafe and dilapidated equipment, and lack of protective devices. Most of the health complaints were burning sensation and damage to the skin and nails, especially on their hands and feet. Several complained of damage to their eyes, difficulty of breathing and chemical burns on their bodies due to pesticide spills from the backpack sprayer. The workers identified Gramoxone (paraquat) as the most common pesticide that caused the health problems but they could not identify most of the other pesticides they were exposed to because the containers were not labelled. The workers were examined medically and the findings were consistent with what the workers' health complaints from their exposure to pesticides used in the plantation. Most of the findings were chemical burns in the skin, mainly on the hands and feet with signs of scarring, discoloration, loss of melanin pigmentation and erosion of the nails and fingertips, which are typically the result of exposure to the herbicide paraquat. Asthma-like symptoms, coughing and easy fatigue were also common. Some complained of deterioration of their vision and one was blind in one eye due to traumatic injury and exposure to paraquat.

3. Briefings on health effects of pesticides

Two briefing-seminars on the health effects of pesticides were conducted in Rosario and Trento Agusan del Sur with about 15 participants in each session. Dr. Quijano, a medical toxicologist, provided most of the input with the CBHS physician-coordinator and the local union leader providing general information on the local situation. Highly hazardous pesticides were discussed with particular attention given to the harmful effects of the herbicide, paraquat. Other pesticides, particularly organophosphates and organochlorines were also discussed. The issue of appropriate labeling and provision of adequate information to the workers, protective clothing, appropriate equipment and other issues were also discussed. A brief report on the lobbying efforts of PAN Philippines at the national level regarding the pesticide poisoning in oil palm plantations was also shared with the workers. Dr. Quijano reported that the National Poison Management and Control Center had already committed to do a follow-up study on the reported poisoning cases at the oil palm plantations. The workers union officers and members expressed their willingness to collaborate with PAN Philippines and CBHS in addressing the health problems of the workers in the oil palm plantation.

4. Direct community assistance

The workers were provided with some medications and were provided with some simple instructions on home remedies, including utilization of herbal medicines, to alleviate their symptoms. Some of the workers needed to be sent for further medical and laboratory examination in a government hospital (about 50 kms away) and were provided with some financial support. General information on preventive health measures, including nutrition and sanitation education, was also provided. The workers were informed that they could approach the CBHS for further assistance regarding their health problems. Information materials and some financial support were also provided to the CBHS to help them in their organizing and coordination work and to help them increase their capacity to respond to the workers' needs, to undertake participatory action research and monitoring, and to conduct public awareness activities and policy advocacy.

Impact on target groups:

Through the facilitation of the CBHS, we engaged the target groups mainly by conducting fact-finding medical missions and providing direct community assistance to mitigate the health effects of pesticide exposure and unsafe working conditions. The main result was that the workers and farmers affected by the operations of DOLE banana plantation in Tago, Surigao del Sur and the oil palm plantations in Rosario and Trento (FPPI and API) were provided a venue to present their health and other complaints and were given the opportunity to access health care, even to a limited extent, through the medical services provided by PAN Philippines and CBHS. An organizational mechanism for a longer term relationship was also established to help develop the capacities of the CBHS and the workers union to address their health and related problems in relation to the operation of the plantations.

Impact on target policies:

The target policy changes are: a global ban on paraquat, ban or restriction of other highly hazardous pesticides of concern in the banana and oil palm plantations. The documentation on the health effects of highly hazardous pesticides in the banana and oil palm plantations will help provide the basis for a growing clamor for a global ban on paraquat and greater restriction or banning of some of the most highly hazardous pesticides in the world. The activities related to the project has increased not only community awareness on the issue but also helped catch the attention of policy makers at the government level. Although no bans or restrictions have been issued yet, the National Poison Management and Control Center and the Department of Health of the National Government has responded to the workers complaint by sending a team of experts to examine some of the affected workers in the oil palm plantation. Some local officials expressed willingness to discuss the issues further.

Outreach to stakeholders:

The stakeholders involved are mainly the workers at the oil palm plantation and the farmers and workers at the banana plantation area in Tago. Other community members, the indigenous people in the area, some local village officials and key individuals, and sectoral partners of PAN Phils and CBHS are also being involved. The plantation management, especially the oil palm plantation, will be invited later to be involved in dialogue. The relationships with various stakeholders are being cultivated and follow-up meetings and consultations are included in plans for the future. Follow-up activities are being planned with the PAN Asia Pacific having committed already partial support for some of the future activities.

Deliverables, outputs and/or products:

Two fact-finding and medical mission visits have been conducted in three areas: the DOLE banana plantation area in Tago, Surigao del Sur, the FPPI oil palm plantation in Rosario, Agusan del Sur, and the API oil palm plantation in Trento, Agusan del Sur. Pesticide poisoning cases were documented and medical assistance, including medications to relieve symptoms, were provided. Briefings on the health effects of pesticides and related topics were conducted with the oil palm plantation workers as the participants. Education materials on pesticide health effects and community pesticide action monitoring modules were provided to the CBHS. Video and photo documentation on the fact-finding and medical mission have been done largely with the help of PAN Asia Pacific. Booklets on the health and environmental effects of pesticides have been prepared for a larger public awareness campaign.

Communication Efforts:

No media outreach has been done yet. The activities and results of the fact-finding and medical mission will be communicated to the media and the general public at the national level later when the additional the support from PAN Asia Pacific becomes available. Local groups, however, have started to share the results within their own respective jurisdictions.

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NGO Recommendations for next steps:

1. Conduct a more comprehensive public awareness campaign using the results of the fact-finding and medical mission as campaign materials.
2. Conduct a more comprehensive community pesticide action monitoring (PAN Asia Pacific has promised to support this follow-up activity).
3. Push for the NPMCC and Department of Health study on the health effects of paraquat among the oil palm plantation workers.
4. Use documentation materials from this project and from follow-up activities to push for the global banning of paraquat and for precautionary policy directives on highly hazardous pesticides at the national and global levels.