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REGIONAL NETWORK ON PESTICIDES FOR ASIA AND THE PACIFIC

DP/RAS/85/023

REPUBLIC OF THE PHILIPPINES

Technical report: Findings and recommendations on occupational health aspects of the pesticide regulatory programme of the Republic of the Philippines*

Prepared for the Government of the Republic of the Philippines
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of Keith T. Maddy, consultant on occupational health assessment

Backstopping officer: B. Sugavanam, Chemical Industries Branch

United Nations Industrial Development Organization
Vienna

* This document has not been edited.

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INTRODUCTION

As a result of a request from the Fertilizer and Pesticide Authority (FPA) of the Republic of the Philippines to the United Nations Industrial Development Organization for a short term consultant on pesticide occupational health, I visited the Philippines April 9-27, 1989.

This visit was undertaken in accord with stated terms of reference given as duties on the job description; see attachment one. In accord with these terms of reference, I reviewed, 1). Presidential Decree No. 1144 of May 30, 1977 that created the Fertilizer and Pesticide Authority. 2). The rules, regulations, standards and guidelines based upon this presidential decree, 3). A listing of pesticide products currently registered, 4). A series of manuals assembled for use as training guides for conveying information on public and occupational safety, and 5). Department of Labor Rule 1960 which recently went into effect concerning general occupational safety.

Also, in accord with the terms of reference, I participated in visits on Luzon and Mindanao to pesticide formulation plants, pesticide repacking plants, a food processing plant where insect and rodent pests were being controlled, small farms, wood treatment plants and banana plantations. I identified areas of research and study that are needed in occupational health in the near future. I participated in a short after dinner seminar/discussion with supervisors/trainers related to pesticide safety in the Davao area. I presented a final wrap-up discussion of my observations to the senior staff of the FPA and Dr. Maramba of the University of the Philippines, the last day of my visit. I evaluated and recommended measures to strengthen FPA's organizational capability in implementing an occupational health program. See attachment 2 for my work schedule.

In the past 12 years, the Philippines has moved from having no pesticide regulatory program to one of the best in a developing country. This has been accomplished by a hard-working, dedicated, underpaid staff with a program that is grossly underfunded for the scope of potential and known problems for the pesticides currently registered. Credit for the program development is particularly due to its former chief, Cecilia Gaston as well as Luis T. Villa-real Jr. (current chief), Nicholas Dean and Aida Ordas. Several consultants from abroad such as Edwin Johnson, Michael Bates, Frances Davey and Brian Watts assisted in development of the program.

Credit for development of occupational health aspects of the pesticide regulatory program goes to the dedicated efforts of Dr. Nelia Maramba of the University of the Philippines. For a period of time Dr. Carlos Zapatos was a full-time Pesticide Agromedical Officer of the FPA. That position is currently vacant.

Acute toxicity, in particular of pesticides and the potential for some of them to be very toxic or even lethal when accidentally consumed, when inhaled, when spilled on the skin or when used as a suicide agent, all have been of increasing concern to the people and the government of the Philippines for a number of years.

The continuous tropical climate with its long growing seasons produces an abundance of insects and fungi. The high temperature and high humidity make it hazardous (because of heat stress) to clothe the pesticide applicator in garments that are impervious to chemicals. The current Philippine economy in general, and the size and type of most farms usually result in the use of only hand-held and hand-operated pesticide application equipment. This is a difficult combination with which to provide a low-hazard work-place for the applicator.

From the beginning of the program, it was recognized that a majority of the pesticides would be applied on small farms, with little equipment and by people with little knowledge about the hazards of use and how to avoid them. As a result, certain highly hazardous pesticides purposely were not registered such as TEPP, disulfoton, aldicarb and phorate. Other pesticides were banned: parathion ethyl, copper aceto-arsenite, certain DDT products, DBCP, Nitrophen, Leptophos, EPN, endrin, mercuric fungicides, toxaphene, elemental phosphorus, thallium sulfate, ANTU, Gophacide and sodium flouroacetate.

Currently the FFA is proposing to ban and/or restrict an additional list of pesticides. A partial impetus for these action was the publication of a list of the "Dirty Dozen" pesticides by an environmental group. The Philippine government had previously taken certain restrictive actions on most of these chemicals. See attachment 3 for my analysis of this list and recommended actions.

In addition, the FPA is now initiating a review of possible acute toxic hazard of all pesticide products currently registered that are in toxicity category one as to whether they should relabeled, reformulated, restricted or banned because of safety considerations.

All of the above discussed actions on the highly toxic pesticides have very significant occupational health implications.

Organization, Staffing and Budget of the FPA

The organizational structure of the FPA is adequate, but the staffing level, facilities, equipment, and salary levels are not adequate to assure the general public that the many pesticide products in use are not creating public health, occupational health and/or environmental safety hazards. In fact, the combination of high acute toxicity of many of the products, the inadequate training and the use of hand-held equipment by most applicators, almost guarantees that numerous overexposure problems will occur, even if they are not being detected.

The operational budget of the FPA needs a substantial increase. Besides general funding, an annual license fee of 10,000 pesos per product and a 2% sales tax on pesticide products, collected at the wholesale level, would provide needed additional funds. A citation system of assessing fines for pesticide misuse (similar to the process of issuing traffic tickets) might be implemented with the collected fines being used by the FPA. These new fund-raising measures, if properly presented to agricultural groups and pesticide manufacturers and dealers should receive their support so that

problems can be identified early and solved rather than uncovered later as major problems that then lead to immediate public demands for bans on sales of specific pesticides which are then difficult to later reverse.

Staffing level increases should be substantial to adequately impact occupational safety as well as consumer, public and environmental safety aspects of the regulatory program. A group of enforcement inspectors are needed. Visits by such inspectors could be in a training and educational mode during the first visit with only a no-cost warning being issued for safety violations.

The medical officer position should be filled immediately by a qualified physician at a salary level that will guarantee some degree of tenure. Two or three occupational nurses and/or industrial hygienists should be hired to supplement the physician's work and to conduct the more routine follow-up visits and audits of the program. Dr. Maramba has been very helpful in getting the program started, but a full-time physician is needed to move it along. Upgrading of laboratory capability is needed for all aspects of the pesticide program, especially the occupational health program. A long series of exposure studies are needed and should be conducted on the work conditions and pesticide usage situation specific to the Philippines. Also reference laboratory capability is needed to upgrade cholinesterase test quality throughout the country.

The detailed occupational health guidelines that have been developed by Dr. Maramba should be implemented as fully and as soon as possible.

The new DOL rule 1960 appears to be a good, general occupational health standard. It is desirable for the FPA to obtain a signed memorandum of agreement for a separate occupational health program for pesticides. However, if the agreement signing is delayed any longer, it appears that the FPA should proceed with the occupational health program anyway under their broad mandate on promoting pesticide safety responsibility as given in the original presidential decree.

Occupational Health Program

Once a physician is hired, the occupational health guidelines should be implemented. Visits by him/her should be made throughout the country to observe the many diverse ways pesticides are used and how exposure occurs. Pesticide exposure studies should be undertaken to measure the worst-first exposure situations.

A major effort should be made to gather in at least for the current year all possible pesticide illness/death information from all possible sources. A great deal of such data exists in hospital files but it needs to be extracted. Letters, telephone calls, and finally visits should be made to get as complete as possible a current year update of these important data upon which an occupational and public health safety program should be based.

A process needs to be set up to advise employers and physicians of the laboratories that are expected to conduct acceptable biological monitoring

tests such as for cholinesterase. A system of sending blood samples with known cholinesterase test values to laboratories running these tests needs to be set up in order to monitor laboratory performance. Information needs to be provided on how and when to draw blood and run test samples for workers exposed to n-methyl carbamates and how this is different from organophosphate exposure.

There is a need to develop and update list for distribution to physicians of pesticides products currently registered that gives the general chemical classifications as well as both oral and dermal LD₅₀ data for the product. If one of the FPA current lists is updated, benomyl and thiophanate methyl (which are not n-methyl carbamates) should be removed from that category.

Information needs to be developed to point out to physicians that of the several carbamates, only n-methyl carbamates are cholinesterase inhibitors and that thio-carbamates, di-thio-carbamates, and other carbamate pesticides such as some herbicides are not cholinesterase inhibitors. It is important for physicians to avoid inducing atropine poisoning of a person so treated if the exposure was not to a cholinesterase inhibitor.

Physicians likely to encounter pesticide illness cases should be provided these source materials along with any other that the FPA determines would be useful:

- 1). An Agromedical Approach To Pesticide Management by John Davies M.D. and others. This book was published by and is available from the US AID.
- 2). Recognition and Management of Pesticide Poisonings, Donald Morgan. M.D. Third edition. This book is published by and is available from the US EPA.

See Attachments 4 and 5 for title pages.

Dr. Davies book was written after he observed pesticide occupational health issues and pesticide poisoning issues in the Philippines where he consulted with Drs. Maramba and Zapatos. Dr. Morgan's book has more detailed discussions of managing more types of serious chemical poisonings such as due to the copper salts and organic complexes, endosulfan, nicotine sulfate phenylmercuric salts, and sodium chlorate. Also, Morgan's book has a section on a symptoms and signs index to use to help identify a specific chemical group as a possible cause of an illness.

Besides the list of recommended drugs and supplies recommended by Dr. Maramba through FPA to be available to physicians who might deal with occupational poisonings, a listing and discussion is also needed of outdated treatment procedures including the use of certain drugs.

Concerning fumigants, only two are still in use in the Philippines: methyl bromide and phosphine (as produced from aluminum or magnesium phosphide). The FPA guidelines on conducting physical examinations for general pesticide exposure should be amended as they affect workers persons who will wear carbon filter or SCBA respirators and who may be exposed to pure gases such as methyl bromide or phosphines. Such person need careful examination of lung function, heart performance and a determination that they have no

perforated ear drums. Blood bromine studies should be conducted on applicators working with methyl bromide.

Regarding required biologic monitoring programs such as for cholinesterase, the frequency of the test intervals as recommended in FPA documents should be amended with a clause that indicates that when testing at the directed intervals identifies no adverse effects, "upon consultation with and approval by FPA, the time between the tests can be extended."

Policy on Reentry

The state of California in the U.S. has identified the most pressing problems of reentry hazards. They center upon 1). Conversion of parent organophosphate chemicals to oxones that are much more toxic than the parent compounds. These involve chemicals such as ethyl and methyl parathion, azinphos methyl, ethion and phosalone. Some reentry intervals are in California as long as 90 days and are primarily the result of a no-rainfall hot summer with irrigation water supplied in furrows in the soil. This allows the parent chemicals to cook on hot leaves and soil; these chemicals convert to more toxic chemicals. This also occurs in other states of the U.S. and in other countries but at a slower rate because of lower temperatures, higher humidities, and more rainfall.

For some reentry considerations, the EPA has recently divided the US into three climate zones. The southwest, the north and the southeast. The Southeastern area is more comparable to the Philippine climate. The FPA is advised to determine the reentry intervals that EPA sets for this area as data is developed and submitted to EPA.

In the interim, most possible reentry hazards in the Philippines from the toxicity of the parent chemical could be avoided, if for all pesticides applied to foliage, a 2 day reentry period is required for all products with a dermal LD₅₀ number smaller than 200, and 1 day reentry period for all products with a dermal LD₅₀ figure greater than 200 and up through 1000 mg/kg. When time and staff are available, some specific reentry data could be collected in Philippine fields to compare with the kind of data that is being developed for southeastern US at considerable expense.

For setting reentry intervals for enclosed rooms and similar areas treated with fumigants or aerosolized insecticides, reentry as early as 2 hours later should be safe after very good ventilation, and only after 24 hours after treatment if the only ventilation results from the opening of a door and or window. If actual measurements of air levels are made, more exact intervals can be set for specific situations.

The complexities of setting reentry intervals are described in attachment 6.

Planned Review of acute hazards of all Toxicity

Category One Pesticide Products

This review of acute hazards should center primarily on liquid organophosphate and n-methyl carbamate products that have dermal LD₅₀ numbers smaller than 200. These present the major occupational health problems in that when the concentrate is being mixed and loaded and spilled on the skin, it can pass thru the skin usually of the hands. Most of these toxic active ingredients could be saved for safer use as non-restricted products if they are reformulated so that the dermal LD₅₀ number is greater than 200.

Also for products that are formulated as powders or as granules that dust-off badly, the oral LD₅₀ or LC₅₀ values more closely approximate the hazard. These can be made safer by requiring the powders to be reformulated into more dilute concentrations or by placing them into water-soluble packets. For the granules, they must be monitored so that sale and use stops if dusting off is encountered. For example if a 90% Lannate Powder or a 1.5 EC formulation of Phosdrin are still registered, they should be considered as very high hazard formulations; worker exposure studies should be conducted on applicators using such products.

As this review is undertaken, it should be noted that WHO is moving some chemicals into toxicity category one because of chronic effects. Also because of the reregistration effort in the U.S. and California, a great volume of new animal exposure studies (that meet the 1984 EPA test standards) are identifying many adverse effects. This is resulting in cancellations, withdrawal of registrations and the imposition of severe restrictions on a sizable number of pesticides.

At EPA and the California Department of Food and Agriculture (CDFA), failure of a registrant to promptly notify the registering agency of a finding of a significant adverse effects in test animal data or in man is a serious criminal offense. It appears that the FPA is not being notified by registrants of the existence of this very extensive new data base.

Registrations have been withdrawn and cancellations of some or all uses have been imposed, for example, because of cancer findings on captan, folpet, and captafol. Similar actions have been taken against Metasystox R because of adverse effects on the male reproductive system, against cyanazine and actidione because of causation of birth defects and against propargite and monocrotophos (Azodrin) because of adverse reproductive effects of females. Attachments No 7 through 14 give a sampling of current or recent risk assessment reviews of chemicals that were conducted because of the significant adverse effects that have been identified in the new tests listed. The Philippines needs to have up-to-date access to regulatory actions that are occurring in countries where an extensive reregistration effort is underway. Subscribing to the weekly newsletter, Pesticide and Toxic Chemical News is the best source of such information.

It is important to realize that besides suspensions and cancellations, when such actions appear to be likely some registrants withdraw their

registration, causing such actions to cease even if a body of adverse information is known to that state or country.

Farm Visit

This visit demonstrated the typical foliar application method of applying Azodrin (monocrotophos) liquid concentrate diluted with water with a back-pack hand-operated sprayer. This was no more or less hazardous than such applications in most developing countries. The ideal for such applications would be to allow use only toxicity category 3 and 4 products. Toxicity category one products can not be safely used with such equipment. If protective gloves and an impervious apron are used carefully when doing all mixing, loading, and clean-up, then most toxicity category 2 products can also be applied with this equipment. Use of such equipment should be for no more than 2 or 3 hours after sunrise and then the worker should shower with plenty of soap and warm water. The agricultural extension service should be encouraged to include pesticide applications as a part of their safety educational programs.

Formulation and Repackaging Plants

We visited five formulation and/or repackaging plants. Three of the plants selected were of the quality typical of current U.S. or European plants and were capable of handling all toxicity categories of pesticides. The fourth was totally lacking in meeting any safety requirements. In the latter plant, toxicity category 3 or 4 products could be handled after some upgrading, but no toxicity 1 or 2 products should be permitted to be handled without an entire new structure and a real functional occupational health program.

Four of the plants had minor shortcomings which could all be brought up to an acceptable occupational health standard with regular (every 6 months) inspections using the new Occupational Health Inspection Form and having a citation system to assure compliance. The deficiencies included some lack of clean vs soiled clothing locker room areas as well as inoperative showers, incomplete separation of eating activities from contact with work clothing, some lack of up-to-date training in occupational health of nurses and physicians. Lack of coordination of proper test times for workers exposed to n-methyl carbamates and incomplete fire protection plans. (Many chemicals if they catch on fire should not have water applied which is often what an outside fire company will apply upon arrival. Plants should be well-equipped to handle most fires immediately to avoid major occupational health and public health hazards).

Salvage of returned unused pesticides needs to be further investigated. For two plants, this was a major activity. Such products should be retested for compliance with stated amounts of active ingredient. Also products such as malathion should be tested for isomalathion levels.

Plastic Extrusion Plants

Two plants were visited that made plastic tubing that contained impregnated chlorpyrifos to then place around banana fruit bunches. In general they were both low-hazard operations. One plant was quite acceptable, the other plant needed some attention. It had a high noise level at unacceptable decibels. Pesticide bags were being reused to pack treated plastic for shipment. Adequate locker rooms with both clean vs soiled areas, showers, etc. were needed.

Banana Plantation Visits

We visited a major banana plantation and the facilities of a contract grower of bananas for that plantation. Since these "Institutional" operations are of the size and operate with a sufficiently well-educated staff, it could be assumed that they would be capable of handling toxic restricted pesticides with good attention to occupational safety. This was not the case. Many aspects of each plantation's operation were lacking as to proper and safe general pesticide handling and occupational health in general. There were considerable inadequacies in their storage and handling of pesticides, change rooms, lockers, showers, clothing, laundry facilities, toilets, disposal of waste etc. They did however appear to be attempting to keep applicator exposure at a minimum. The applicators begin work at sunrise and work only for 2 to 4 hours a day depending upon the amount of discomfort due to temperature and humidity. Their work suit is a full body light weight "sweat" suit with a cloth head hood. They wear gloves, respirators and boots. Applications were being made of nematocide granules at the base of the trunk of the banana plant. (Less contamination of the face would occur if these suits had a zipper or buttons from the chin to the waist to avoid pulling contaminated clothing over the face). They were currently using an n-methyl carbamate, but cholinesterase testing was not coordinated to be conducted during or at the end of the work period with the test being run in the next hour or two to give the best measure of any excess exposure.

It appeared that the toxic restricted pesticides such as paraquat for the institutional user were being given to contract farms possibly with less than the best trained workers making the applications. This transfer of custody and use of restricted materials could bear some looking into.

Some of the workers on these plantations were said to be casuals (short term-workers); these workers are difficult to provide training and occupational health services to because of their transient nature. If these institutional users wish to continue using restricted pesticides, 1) new warehousing procedures should be implemented, 2) waste disposal improved, 3) incineration procedures improved 3) new locker rooms, toilets and showers provided, 4) a new laundry facility constructed, 5) and health status of laundry workers studied. Required clean up of applicators under employer supervision is the most important occupational health practice these workers need. Once clothing is removed and the body is washed with soap and water, exposure ceases. Otherwise if total body clean-up is not accomplished rather than calculating a 2 or 3 hour exposure, a 24 hour figure is used which could lead to calculations that result in cancellation of registrations of products with only a modest potential to cause chronic health effects.

Wood Treatment Facilities

Two wood treatment facilities were visited. Both were grossly deficient in providing a low-hazard workplace for handling chemicals which have a substantial cancer-causing potential. Inorganic arsenic, a known human carcinogen that can be inhaled, ingested or absorbed through the skin was being used at both facilities, Creosote which is a known human carcinogen was used at one of the places, and pentachlorophenol was a possible chemical to use at both facilities; it is a reproductive toxin and because of its content of dioxins and furans has been determined to be a carcinogen.

All three of these chemicals will probably be phased out of wood treatment uses world-wide when the newer copper compounds now under study prove to be acceptable substitutes.

Workers in these facilities need the best possible attention given to locker rooms, clothing, showers, laundry, protective equipment, medical monitoring, chemical transfer by closed system pumping, and proper disposal of used containers.

Environmental contamination with long-term implications were considerable at these two facilities. Ground water contamination could easily occur and should be prevented by providing an impervious drying and storage area by grading, laying plastic and cement.

If alternate usage of bamboo poles were considered to be suitable in banana plantations, then trees would not have to be cut down and treated. The life of the treated wood pole and the bamboo pole was said to be about the same (five years).

Visit to the Headquarters of Philippine Federation of Labor at General Santos.

We had a short meeting with members of the Philippine Federation of Labor in General Santos. A more detailed session was promised by FPA during July. The labor group alledged that serious poisonings have occured which could have been prevented. They also stated that safe work practices were not always being required or permitted by some plantation employers. More follow up investigations should be undertaken.

Visit to a Food Production Facility

We observed the pest control operations by a licensed pesticide applicator at a large food production facility. A limited number of products are

registered for such uses. See attachment 20 for information provided on pesticides in use. Reasonably safe work practices were being employed considering the pesticides involved and their generally low toxicities.

Summary

At least until a well-trained work force of supervisors and laborers is available in the Philippines to handle pesticides with very close attention to detailed occupational safety regulations designed to prevent overexposure, there should in place a detailed occupational health plan that involves a considerable amount of monitoring of workers to be sure that overexposure is not occurring. The occupational health program for pesticide workers as outlined by Dr. Maramba for FPA, and the detailed inspection checks sheets appear to be quite acceptable for FPA to use to initiate its program, with or without the cooperation of the Department of Labor. A full-time physician should be hired as soon as possible to direct this program.



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

JOB DESCRIPTION

DP/RAS/85/023/11-78

- Post title** **Consultant Occupational Health Assessment**
- Duration** **Two weeks (0.5 m/m)**
- Date required** **February 1989**
- Duty station** **Manila, Philippines with travel inside the country**
- Purpose of project** **To provide technical assistance to member countries in Asia and the Pacific in the safe development and use of pesticides.**
- Duties** **The consultant in association with the Fertilizer Pesticide Authority (FPA) of the Philippines is expected to:**
- review existing guidelines, standards and manual in occupational health related to pesticide handling.
 - conduct visits to pesticide formulating/repacking plants, banana and pineapple plantations, wood treatment plants and local farms.
 - assist in identification of research directions on pesticide safety.
 - conduct seminar to trainers related to pesticide safety.
 - evaluate and recommend measures to strengthen FPA's organizational capability in implementing occupational health program/s
- He will submit a report based on his findings and recommendations.**

.... / ...

Applications and communications regarding this Job Description should be sent to:

Project Personnel Recruitment Section, Industrial Operations Division
UNIDO, VIENNA INTERNATIONAL CENTRE, P.O. Box 300, Vienna, Austria

Qualifications: Qualified toxicologist or a physician with extensive experience in occupational-health hazards of workers in chemical industries especially dealing with hazardous chemicals. He must be familiar with safety rules and regulations among handlers of pesticides in industries, warehouses and farms and with WHO classifications based on toxicology.

Language: English

Background

Information: The Regional Network was established in 1982 through a project executed by UNIDO (DP/RAS/82/006). The initial phase of the project which was the first of its kind implemented in the region, attempted to develop a lasting co-operative system in Asia involving Government institutions and bodies dealing with pesticides at all levels of the national economy. On behalf of member Governments the project was managed by the Regional Project co-ordinator who had been assigned by the Government of the Philippines at the Fertilizer and Pesticide Authority in Manila. Members of the Network were Afghanistan, Bangladesh, India, Indonesia, the Republic of Korea, Pakistan, Sri Lanka, the Philippines and Thailand.

Due to benefits accrued in the project it was extended to 2nd phase under DP/RAS/85/023 and India took over the Regional co-ordinator position. Recently China also joined the network.

The activities of the project comprised expert consultations, workshop, study tours, fellowships, and technical advisory services rendered by experts from within and outside the region. A supplementary function of the Network was the creation of active sub-networks covering specific subject of common interest to member countries, such as data collection and exchange of information. In particular, the exchange of experience was being promoted through the implementation of various project activities relating to registration requirement, quality control, pesticide residues, toxicology, pesticide trade and tariff regulations etc.

SCHEDULE OF DR. MADDY.

APRIL 11	(Tuesday)		-	Arrival of Dr. Maddy
APRIL 12	(Wednesday)		-	Report to UNIDO/UNDP office, Manila
			-	Courtesy call - LUIS T. VILLA-REAL, JR. ATTY. NICHOLAS R. DEEN
			-	Lunch with Mr. Villa-Real, Atty. Deen, Dr. Maddy
		P.M.	-	Review of Existing Guidelines/Standards (FPA)
		3:00 P.M.	-	Briefing/Review with Dra. Maramba
APRIL 13	(Thursday)	A.M.]	-	Review of Existing
		P.M.]	-	Guidelines/Standards (FPA)
APRIL 14	(Friday)	A.M.	-	Continuation of Review of Existing Guidelines/Standards (FPA)
		P.M.	-	Continuation of Review/Discussion with Dra. Maramba
APRIL 15 - 16			-	Saturday - Sunday
APRIL 17	(Monday)	A.M.	-	Visit to Bayer Plant (Canlubang, Laguna)
		P.M.	-	Visit at Jardine Davies Repacking Plant (Parañaque, Metro Manila)
APRIL 18	(Tuesday)	A.M.	-	Bulacan Farm Visit (Rice and Vegetable farm)
		P.M.	-	Visit to Aro-Agro (Norzagaray, Bulacan)
APRIL 19	(Wednesday)	A.M.	-	Shell visit (Pandacan)
		P.M.	-	Pest Control - Observation of Operation California Manufacturing Corp. (South Superhighway)

APRIL 20 (Thursday) - Wrap-up session with Dra. Nelia C. Maramba on plant visits.

APRIL 21 (Friday) A.M. -] Discussions on training
] modules, prep. for the
P.M.] Occupational Health Training
] to be conducted for Co. M.D.
] & nurses

APRIL 22 - Saturday - free

APRIL 23 (Sunday) P.M. - Leave Manila for Gen. Santos

APRIL 24 (Monday) A.M. - Evaluation/Inspection
Stanfilco operation and
Checkered Farm

P.M. - Leave Gen. Santos for Davao

APRIL 25 (Tuesday) A.M. - Visit to:
TADECO ARC-MEN
PALOVERDE - Dra. Paraan

P.M. - Leave Davao for Manila

APRIL 26 (Wednesday) - WRAP-UP SESSION

DEPARTMENT OF FOOD AND AGRICULTURE



1220 N Street
P.O. Box 942871
Sacramento, CA 94271-0001

April 28, 1989

Ms. Aida V. Ordas
Chief Chemist
Fertilizer and Pesticide Authority
Raha Sulayman Bldg., Benavidez St.
Legaspi Village, Makati
The Philippines

Dear Mrs. Ordas,

These are my comments and recommendations on the proposed actions by the Philippine Fertilizer and Pesticide Authority on the so-called "Dirty Dozen" pesticides. These are based upon my knowledge of these chemicals and current use conditions in the Philippines.

1. Ethyl Parathion - Continue the Ban. This is very acutely toxic. Little if any equipment is in use in the Philippines to make use after for applicators, reentering workers or the public.
2. 2,4,5-T - Convert non-registration to banned status - Adequate substitutes such as 2,4-D and triclopyr are available.
3. Paraquat - I endorse the proposed ban but FPA should be prepared for vigorous opposition to the recommendation because of cost factors. Get best information possible on current and near future costs of Monsanto's and ICI's glyphosate as well as for Hoechst's Basta, if Paraquat is not available. Current institutional-user- only status not well controlled. Contract growers and also some others appear to be able to get paraquat and use it with little or no supervision. If some compromise phase-out use is proposed, annual chest X rays and monthly urine monitoring should be considered for paraquat applicators.
4. DDT - Ban, provided the increased cost of alternates does not reduce the amount of necessary anti-malarial spraying. By today's US EPA toxicology classification scheme, if DDT were being proposed for use now as a new chemical, the toxicology data would not result in a finding of sufficient tumor-producing potential for DDT to be regulated as a carcinogen. The bioaccumulation and persistence problems would still rule against registration. The recent laboratory test data on Philippine crops by GTZ, that I looked at, were consistent with usage having been phased out 10 to 20 years ago. Current use would be expected to result in residues 10 to 100 times

April 28, 1989

greater. In the final analysis, concerns about DDT should not lead to final actions that allow more malaria infections to occur.

5. Edrin - Continue ban.

Dieldrin - Impose ban - It is difficult to justify any continued use.

Aldrin - Ban - It is difficult to justify any continued use - Alternates are available.

6. Chlordimeform - Ban - No registrations are active - No more chemical is being manufactured world-wide since findings of excess human cancers in chemical plant workers in Germany.

7. DBCP - Continue ban - Besides causing male sterility, ground water contamination potential is very high.

8. Chlordane - Obtain more data on pyrethroids and organophosphate alternate chemicals as termiticides. Some data suggests these chemicals may not be adequate substitutes against termites in Philippines. Set up fee system for each building treated to provide funds for an enforcement system to insure adequate, proper and safe applications. Require rigid control of proper applications for buildings which will be kept closed and air conditioned. Fees should provide enough funds for measurement of air levels by industrial hygienists and analysis of soil and air by chemists.

Heptachlor - Ban all remaining uses.

9. HCH - Continue ban.

Lindane - Ban - Adequate replacements are available even for human head lice.

10. EDB - Ban - All use has ceased anyway.

11. Camphechlor/Toxaphene - Ban - No current uses now anyway.

12. PCP - Continue wood-treatment use only until safer alternates such as the copper compounds under study prove to be reasonable alternates for wood treatment. Restrict severely for wood treatment plants under a tight inspection program. Workers must be under medical supervision with monthly urine tests. Worker exposure must be avoided. Ground water contamination around treatment sites must be

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avoided. Arsenic and creosote are not safer alternate chemicals; all three can cause human cancer. If bamboo poles can be used for banana plant props, do not cut down trees to then treat and use as poles.

Sincerely Yours,

A handwritten signature in cursive script that reads "Keith T. Maddy". The signature is written in black ink and is positioned above the typed name and title.

Keith T. Maddy, Staff Toxicologist
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Pest Management, Environmental Protection
and Worker Safety
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