COMMITTEE ON DISARMAMENT

CD/349
21 February 1983
Original: ENGLISH

LETTER DATED 21 FEBRUARY 1983 FROM THE PERMANENT REPRESENTATIVE OF THE REPUBLIC OF CUBA TRANSMITTING THE FINAL SUMMARY REPORT OF THE INTERNATIONAL SYMPOSIUM ON HERBICIDES AND DEFOLIANTS IN WAR: THE LONG-TERM EFFECTS ON MAN AND NATURE, HELD IN HO CHI MINH CITY FROM 13 TO 20 JANUARY 1983

I have the honour to transmit herewith the Final Summary Report of the International Symposium on Herbicides and Defoliants in War: The Long-Term Effects on Man and Nature, which was held in Ho Chi Minh City from 13 to 20 January 1983.

In the Symposium participated more than 160 scientists and experts from 21 countries, including Cuba, as well as Observers from FAO, UNEP and UNESCO.

I request that this Report be distributed as an Official Document of the Committee on Disarmament.

(Signed): Louis Sola Vila
Ambassador

GE.83-60370

INTERNATIONAL SYMPOSIUM ON HERBICIES AND-DEFOLIANTS
IN WAR: THE LONG-TERM EFFECTS ON MAN AND NATURE
Ho Chi Minh City, 13-20 January 1983

FINAL SUMMARY REPORT OF THE SYMPOSIUM

The "International Symposium on herbicides and defoliants in war: the long-term effects on man and nature" was held in Ho Chi Minh City from 13 to 20 January 1983.

Attending the symposium were more than 160 scientists and experts from 21 countries as well as Observers from FAO, UNEP and UNESCO. The symposium discussed the long-term effects of herbicides and defoliants used by the United States army forces together with the agreement of the Saigon administration on man and nature during the second Indochina war, 1961-1975.

At the plenary sessions and working groups the scientists presented some 72 scientific reports and papers dealing with the following problems:

- The scope and nature of operation Ranch hand conducted in Vietnam from 1961-1971,

- The long-term effects of military herbicides and defoliants on man (about 29 reports) and on nature (about 43 reports),

- The results of experimental studies on herbicides in laboratories or in the field on a small scale,

- The results of studies on the consequences of herbicides from accidents occurring in factories producing them and their effects on groups of workers dealing with chemicals used in agriculture.

Scientists exchanged views, evaluated the results of studies in laboratories and in field experiments. They discussed the research work to be conducted in the near future aimed at eliminating the consequences of the indiscriminate use of herbicides and defoliants on a large scale. They also discussed the possibilities of international co-operation in the field of research.

During the time the symposium was held the scientists visited an exhibition displaying all kinds of chemical weapons used during the war and the effects of herbicides and defoliants on nature and man.

Participants to the symposium also visited the Mada - forest area, Dong Nai province (in the former Long Khanh province, war zone of South Vietnam). Here wartime destruction caused to nature remains very apparent. Mada can in effects be considered one model for experimental field studies as regards the direct and indirect effects of herbicides and defoliants on tropical inland forests, the latter including fire. The visit to the Mada forest gave participants a clear idea of the lengthy duration of effects of herbicides disturbance on the natural restoration of tropical inland forests.

At the symposium scientists were engaged in active work in a friendly atmosphere. Although most scientists met one another for the first time, their discussions and exchanges of views were conducted in an open, straightforward and frank way and in their private capacities, and this helped ensure good results for the symposium.

The majority of the participants have reached agreement on the following:

1. Operation Ranch hand was essentially a chemical war conducted with herbicides on a large scale in space and time, the first such massive employment in mankind's history of war and differed completely from explosion accidents or failures in chemical factories.

It was conducted in a tropical country and a geographical area which differs from much smaller-scale experiments in laboratories in any country in the world, or from small experiments of partial usefulness to evaluate what had happened to Vietnam and the Vietnamese people during operation Ranch hand.

The herbicide employed in operation Ranch hand included primarily:

(1) 2,4-d

(2) 2,4,5-t (containing dioxin)

(3) picloram

(4) dimethyl arsini (cacodylic acid)

These four chemicals were applied primarily in the following three mixtures:

(1) agent orange (a mixture of 2,4-d and 2,4,5-t)

(2) agent white (a mixture of 2,4-d and picloram)

(3) agent blue (dimethyl arsinic or cacodylic acid).

According to official United States figures, about 44 million litres of agent orange were used between 1961-1970, about 20 million litres of agent white were used between 1966-1971, and about 8 million litres of agent blue were used between 1961-1971. There is no source of independent verification. It is impossible to determine how much dioxin was in the agent orange, but a conservative estimate is that the total amount was no less than 170 kg.

2. Over the last twenty-odd years, many experimental studies on herbicides and defoliants have been conducted in research bases of many countries. No full agreement has been reached yet on the results and conclusions regarding the effects of chemicals on experimental animals. However, through many years of research with admirable patience and increasingly precise methods, the majority of scientists recognize that phenoxy and certain other herbicides and defoliants used at a high dose or at a low dose for a long period of time will affect animals: they may be variously mutagenic, carcinogenic or teratogenic.

3. Studies on workers in factories over the last few years. Those studies confirm the toxicity of herbicides, especially of 2,4,5-t (2,4,5-trichloro phenoxy acetic acid) and of 2,3,7,8,- tetrachlorodibenzo-para-dioxin (TCDD) or dioxin.

The signs of immediate and long-term poisoning due to chlorophenoxy acetic substances have been described in the medical literature in which manifestations considered as characterizing such poisoning are: chlorane, porphyria cutanea tarda, asthenia, etc. In human pathology reactions to the pathogenic agents differ from one individual to another, so do the manifestations of the reactions, which render evaluation and statistics difficult.

4. The symposium reserved most of its time for the evaluation of the long-term effect of chemical warfare in Vietnam. Scientists attending the symposium highly valued the contribution made by Vietnamese scientists who, despite the limited facilities and other difficulties during and after the war, were able to overcome these problems and made valuable research contributions. The reports and suggestions made by Vietnamese scientists at the symposium provided a crucial basis for discussions in the working groups and at the plenary session. Large-scale field studies done by Vietnamese scientists in localities in Southern Vietnam as well as Northern Vietnam have provided many materials of scientific value not previously demonstrated in other countries.

5. Nature in Vietnam has been substantially damaged. This destruction is due to a complexity of reasons. The delegates agreed that the main and most important cause of this extensive damage to nature is the use of herbicides and defoliants on a large scale.

Immediately after the spraying the toxic substances exerted their direct destructive effects on the vegetation and to some extent on animals living in inland or mangrove forests, and on saline water or fresh water animals. The direct and indirect repercussions of these immediate effects have lasted until today. Time has only slowly helped to eliminate these effects, they are not yet complete, the restoration can only be slow and occurs most readily on very small areas. Photographs taken from the air or space have reflected the real state of the restoration of tropical forests sprayed with defoliants.

6. Toxic chemicals sprayed on a large scale, with a high concentration and in a large amount, have changed the composition of some soils, destroyed useful micro-organisms, and in some areas made the soil to lose fertility and to deteriorate in other ways. Many areas which had been covered with trees and other woody plants throughout the year have become savannas of low productivity with only wild grasses or a number of secondary successional plant species having little economic value, and with rodents, which are disease-carriers. Evidence from aerial photography and elsewhere indicates that some of these savannas are continuing to expand in size. Some species of precious tropical wood are facing the danger of extermination, as are some precious terrestrial or aquatic animals and algae, etc. Transforming these savannas and building them into economic zones, areas for agricultural cultivation and reforestation, are difficult problems, the solution of which is far beyond the present abilities of the Vietnamese people. Moreover, the various impacts on nature undermined the whole human life support system.

7. Toxic chemicals sprayed on the land were washed away to lowland areas, far from the sprayed areas and decomposed in time. The most dangerous among them was agent orange, which was widely used from 1961-1970. Agent orange contains an impurity, 2,3,7,8-tetrachlorodibenzo-para-dioxin (TCDD) generally known as dioxin, a very toxic and resistant substance which exists for a long time in nature. What was the amount of toxic chemicals sprayed? According to published data, more than 90,000 tons of herbicides were sprayed including more than 57,000 tons of agent orange, containing the toxic substance dioxin. The most important thing one should know is whether there still exists dioxin in nature in Vietnam. In 1981 analysis was made of seven soil samples taken in a rural area of Ho Chi Minh City, at different depth levels. On a sample taken at a depth of 1 metre there was a trace of dioxin, with a concentration below 5PPT of soil. On wet sample on the soil surface the concentration was 15PPT of soil.

8. There are as yet not many scientific studies identifying the biological cycle of dioxin from the soil into plant, species, into food, into animals and people.

Dioxin and decomposition products, herbicides and defoliants have probably been carried to lowland areas in Vietnam and neighbour countries, and into the seas around Vietnam. Where will substances end up? How will they be decomposed? What danger will they cause? When will the dioxin be decomposed? These points could not yet be established. The opinions put forward at the symposium were only estimates which must be verified over a long period of time.

9. The evaluation of the long-term effects of herbicides and defoliants is a most difficult and complex task. It is therefore difficult to reach full agreement, since the conditions in which scientists work differ from one country to another. However, most of the conclusions of their reports have elaborated the results of experiments conducted by the majority of scientists in the world and Vietnam. Reports by Vietnamese scientists have suggested that herbicides and defoliants affected chromosomes and caused congenital abnormalities, molar pregnancies and chorio epithelioma. Vietnam war veterans exposed to toxic chemicals for a long time during the war years may pass on those abnormalities to their offspring. The rate of monsters in families of Vietnam war veterans seems to be higher than in others. Chemicals affect man's health and how they cause cancer. Herbicides penetrating into human bodies may cause long-term effects, even though the victims have already left the contaminated areas. Of course, such effects would be clearer for those who remain in the affected areas.

Many preliminary conclusions of Vietnamese scientists are new points, which were observed in the realities of Vietnamese society, and have never been dealt with or else have been only inadequately dealt with in foreign research works.

10. During the symposium scientists agreed that:

(a) Further studies should be continued for many years on the long-term effects of herbicides and defoliants used in the war on man and nature in Vietnam.

(b) International co-operation between Vietnamese scientists and their foreign colleagues is necessary to promote study and to determine the effects of herbicides and defoliants, and find measures to cope with them, in the interest of the Vietnamese people and other peoples. Thus, this international symposium in Ho Chi Minh City has had a humanitarian character, which is serving the interest of the people.

(c) Measures to cope with the effects of herbicides and defoliants are complicated and difficult. They involve many fields of science, technology, culture, economy and management and call for appropriate governmental policies. They require a high level of science and technology divorced from politics, the co-operation and commitment of the whole population, and significant investments of money and material. Unrestricted assistance from the international community in all fields related to this endeavour is an urgent necessity.

Finally, a brief separate document provides background information on the subject of the symposium and the following seven additional documents, provide official summaries of the symposium working groups:

1. Plant ecology and forestry,

2. Animal ecology,

3. Soil ecology,

4. Coastal and aquatic ecology,

5. Cancer and clinical epidemiology,

6. Reproductive epidemiology and

7. Experimental toxicology and chemistry.

Ho Chi Minh City, 19 January 1983

ON BEHALF OF THE PRESIDIUM AND PARTICIPANTS
OF THE SYMPOSIUM