

Mail

November 17, 2004

P.5.18.1

Dr C D Mayee,  
Agriculture commissioner,  
Union Agriculture ministry,  
Government of India,  
Krishi Bhavan  
New Delhi

Dear Dr Mayee,

We understand that the Ministry of Agriculture has set up a committee under your chairmanship to review the recommendations of various committees including the O P Dubey committee on the issue of endosulfan contamination in Kerala. We are looking forward to the deliberations of the committee, as we believe this matter concerns an important public health imperative. The Centre for Science and Environment has been involved in this matter since 2001 and we want to take the opportunity to put before the committee, critical issues that we believe need to be considered.

It is clear that the key issue you will need to examine, concerns the conclusions of the O P Dubey committee, which stated "there is no link between the use of endosulfan in PCK (Plantation Corporation of Kerala) plantations and health problems reported from Padre." The fact is that the Dubey committee in arriving at this conclusion had dismissed the NIOH study, observing that its findings were "not in conformity with the known and accepted properties, chemistry and toxicology of endosulfan". You will note that the NIOH report, submitted in early 2002, noted the presence of alpha and beta endosulfan — the pesticide's isomers — in soil, water as well as human blood samples of children collected from the region. This implies that the pesticide persists in the environment. The report also found that the samples of blood collected from Padre showed high levels of endosulfan as compared to samples collected from the control village of Meenja Panchayat. In its considered view "endosulfan was the causative factor" for health problems in the village.

Instead, the Dubey committee went by the report of the Tamil Nadu based FIPPAT laboratory, which had not detected endosulfan residues in the blood of people and detected very low residues in environmental samples. Unsurprisingly, the industry also supported the methodology adopted by FIPPAT and had rejected the NIOH report.

#### **1. The problems with the findings of the FIPPAT (2001)**

It is important, in this context, for the committee to examine the evidence that we have published in *Down To Earth (Annexure 1)*, which show that the scientific study done by Tamil Nadu-based accredited private laboratory Fredrick Institute of Plant Protection and Toxicology (FIPPAT) (now known as International Institute of Biotechnology and Toxicology), was doctored. Not only was evidence against endosulfan suppressed, facts and figures were deliberately manipulated and misreported. Why do we say this?

**a. Alpha and beta endosulfan found but not reported:** A copy of the FIPPAT's analytical report, dated June 4, 2001, shows that the institute had actually found both alpha and beta endosulfan residues in human blood samples and in samples of leaf and soil that it tested. However, it reported its findings as endosulfan sulfate. With this subtle sleight of hand, the institute conveyed the impression that the pesticide is not persistent and that the isomers had broken down quickly to form endosulfan sulphate — a metabolite of endosulfan. This supports the pesticide industry position, that "once endosulfan enters the body of mammals, it quickly disintegrates and turns into endosulfan sulphate."

**b. Endosulfan residues found in blood but not reported and underreported in environmental samples:** For instance, in the blood sample numbered HB 18, FIPPAT calculated and reported the total endosulfan residues to be less than 0.001 parts per million (ppm). But when the actual figures arrived at by the institute are used and formula applied the total residue level works out to 186 parts per billion (ppb) of endosulfan (alpha+beta). Significantly, the NIOH had found a maximum level of 78.74 ppb of the pesticide's residues in blood samples collected from Padre.

On July 23, 2004, the Ministry of Agriculture responding to the parliament question 1041 explained that endosulfan in blood was not reported by FIPPAT, because it had not been detected in confirmatory tests. However, this is strange, as the final and complete report of FIPPAT does not contain the confirmatory test reports.

Similarly, the FIPPAT has underreported the amount of residues found in many leaf samples. For instance, it reports that it detected less than 0.001 ppm of residues in leaf sample code L-17. When FIPPAT's standard is applied using the actual data, it is found that the sample contains 0.479 ppm of total endosulfan residue. Down To Earth has found this misreporting in many other samples as well. A similar trend has been detected in some of FIPPAT's soil samples as well.

## **2. The issues regarding the NIOH report**

The other issue to consider and review will be the questioning of the NIOH report regarding its scientific rigour by the chair and industry members of the committee. We have very carefully scrutinised the documents of the Dubey committee, including its minutes and have found it strange that replies given by NIOH, on record, were never considered in the final report. The issues that were raised and replied, on record, as we found were:

- a. The selection of the control village:** One of the doubts pertains to the selection of the control village — Meenja Panchayat. According to the NIOH, the key reason for selecting Meenja was because there had never been any aerial spray of endosulfan in the vicinity of this village. Therefore, while its proximity to Padre would minimise the various confounding variables — lifestyle, diet, socio-economic status — it would protect information about populations which are not exposed to the extensive effects of aerial spraying of pesticides. Furthermore, as small rivers separate Meenja from Padre, the possibility of cross-contamination of water sources is excluded, notes the NIOH report.
- b. The detection of alpha endosulfan in blood:** How did it detect alpha endosulfan in the blood samples drawn 10 months after the last spraying? Similarly, how did it detect the isomer in the environment — soil and water — samples. Endosulfan, maintains pesticide industry, does not persist in the

environment, and in human bodies it converts into endosulfan sulphate. NIOH explains that in its view the cessation of aerial spraying does not necessarily mean end of exposure. This is simply because endosulfan is persistent in the surrounding environment. For instance, it has a very long half-life in soil. The peculiar topography of the region also leaves the area more exposed. The spraying was done in the hilly areas adjoining the village. The satellite mapping of the area, done by the Regional Remote Sensing Service Centre of the Department of Space, found that the water streams originate in the cashew plantations and flow into the valley, where the people live. So, for example, the Padre village micro-watershed has 12 streams originating from the plantations in the hills above. Pesticide contamination moves through the water and then gets deposited in soil and underground water sources. The remote sensing report confirms this saying: "The pollutants brought down through runoff or seepage tend to get accumulated in the soils. The crops cultivated on these soils may act as stores through which the toxicant gets entry into the target organisms (including human populations)."

- c. **The endosulfan residues in water were lower than in human blood:** NIOH was asked how did it find endosulfan residues in water were much lower than those in human blood. NIOH contends that this would assume that the endosulfan exposure occurs only through water. It is clear from all literature that pesticide exposure occurs through a variety of mediums, including food grown on contaminated soil as well as milk of animals which consume water and feed that are similarly contaminated. It is also clear from all the studies (including FIPPAT's) that investigators found endosulfan in soil and vegetation in the vicinity of the villages.
- d. **The movement of endosulfan:** Pesticide industry has also voiced its scepticism in many articles about how the chemical reached Padre village — located 3-4 km from the plantation. Again, NIOH points to the topography of the area, with streams and a valley where people live. For instance, the Kerala Agricultural University report says that it found high levels of endosulfan in soil within the plantations (3815 ppb), 55 ppb in the soils in mid-hills and 315 ppb in the sediment of the pond water located in the house of a person living in the valley. This shows the downward movement of endosulfan. The FIPPAT study (in its corrected form) would also point to contamination of the soil, leaf and blood samples with alpha endosulfan. This implies widespread and deadly poisoning. The NIOH study found that residue concentrations were higher in the pond sediments as compared to the filtrate — which again suggests that the movement of endosulfan would be through runoff water, which then binds with soil particles. Since this water is then used for irrigation, there is a likelihood of chronic exposure through food.

**3. Was there a consensus in the Dubey committee on its final recommendations?**

The question, we hope your committee will enquire about is, if the final report was a consensus report or did it include the dissenting notes of its members in its final recommendations. This, we know, is the procedure followed with all such committees.

*Down To Earth* contacted all the members of the committee to elicit their position of the recommendations. We were extremely surprised to find that most members who responded had not even seen the final report of the committee, except, perhaps unsurprisingly, the industry representatives on the committee who supported its conclusions strongly. The key government scientific members did not agree with the recommendations, which were told to them by us. Therefore, how was this report finalised and submitted to the government, which had then accepted it believing that the process of consensus building had been followed within the committee.

We also believe that it is a breach of regulatory procedure that the constitution of the committee included representatives from the two main endosulfan manufacturing industries, but did not include representatives from the affected people. Please do see in the enclosed *Down To Earth* (annexure 1) about the letter of Mr Vijay Malya to the then health minister regarding this issue. It is well known that Mr Malya had been appointed the head of the board of directors of the Bayer group, which had earlier taken over Aventis CropSciences, the pesticide wing of the Aventis group. We presume (sadly) this would explain the membership of the committee to some extent.

#### **4. What is the toxicological evidence on endosulfan?**

The undeniable fact is that people of Padre are suffering. There is a high incidence of disorders of the central nervous system, congenital anomalies, cancer and reproductive disorders. But the industry claims that these diseases are not similar to the mechanism of toxicity of endosulfan, that is, it cannot be the cause of such disorders. The Dubey committee report concurs but does not even bother to offer any explanation for the people's ailments. But various research studies from around the world shows that there are several toxicity studies, conducted on laboratory animals, which have found that exposure to endosulfan on a long-term basis leads to similar effects.

The NIOH research has been published in *Environmental Health Perspectives (EHP)*, a peer-reviewed journal of international repute. *EHP* has agreed that this was perhaps for first time that any research throws light on the chronic health effects of a single pesticide on humans. Normally, several pesticides are sprayed in a particular area. The result is that the industry gets away by citing the alibi of the large number of pesticides in use. But the Kerala case is unique in this respect. *EHP* observes: "This is the first human study ever to measure the effects of endosulfan on the male reproductive system. Decades of spraying this, and only this, pesticide in the village provided a unique opportunity to analyse its impact...the results are quite compelling."

We hope that your committee will review this information very carefully. It is clear that this matter concerns the case of poor people, who are faced with an extraordinary health burden and diseases of their children and family members. It must be dealt with compassion and extreme care so that their interests are protected over the interests of powerful industrial groups. The industrial groups have been extremely forceful in fighting their case. *Down To Earth* has published a number of articles on these activities, which I am enclosing in annexure 2.

We are enclosing key documents (including a brief presentation we have made on the key issues: annexure 3) for your perusal.

We, however, would like to stress that it is imperative that your committee does not recommend any further studies and delays in this matter. This is what industry would want. We believe that the data from the various reports (including FIPPAT, NIOH, KAU etc) as well as data on endosulfan residues found by the IARI are sufficient to draw the policy inferences needed in this case.

This matter, was first brought to light in 2001 and since then people in the village continue to suffer, even as governments set up committee after committee to look into their plight. We hope that your committee therefore, will not recommend further deliberations, but will recommend some firm and specific measures, which will decide this case and give justice to the people of Padre.

With my very best wishes,

Yours cordially,

SUNITA NARAIN

CC: 1. Mr K R Jyothilal  
2. Dr S R Gupta

Annexures: 3