UNITED NATIONS

RC

UNEP/FAO/RC/CRC.6/INF/9

Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade

Distr.: General
2 February 2010

English only

Chemical Review Committee
Sixth meeting
Geneva, 15–19 March 2010
Item 5 (b) (iii) of the provisional agenda*

Listing of chemicals in Annex III to the Rotterdam Convention: review of notifications of final regulatory actions to ban or severely restrict a chemical: endosulfan

Summary of information related to outstanding questions on endosulfan

Note by the Secretariat

The Bureau of the Chemical Review Committee has prepared a document, contained in the annex to the present note, setting out initial thoughts on how to tackle the outstanding questions raised by the member from India regarding the notification on endosulfan submitted by Burkina Faso, Cape Verde, the Gambia, Mali, Mauritania, the Niger and Senegal that the Chemical Review Committee considered at its fifth meeting (UNEP/FAO/RC/CRC.5/5). The document has been reproduced as received, without formal editing.

* UNEP/FAO/RC/CRC.6/1.

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Annex

Document prepared by the Bureau of the Chemical Review Committee.

Initial thoughts on addressing the questions raised by the member from India about the notification on endosulfan from the Sahelian countries

Concerns raised about the bridging information to the risk evaluations in the notifications from the Sahelian countries

1. Selective use of information from risk evaluations carried out in circumstances with different application methods, frequency of applications, formulations used, soil and weather conditions and size of land holdings

2 (a) The model used was not peer-reviewed.

2 (b) The model used was not validated for Sahelian countries.

3 (a) There are no actual field measurements.

3 (b) Modelling is not considered as a relevant substitute for field measurements

Proposed means and measures to deal with the concerns presented above

1. Selective use of information from risk evaluations carried out in circumstances with different application methods, frequency of applications, formulations used, soil and weather conditions and size of land holdings.

Reference is selectively made to those parts of the risk evaluations that are relevant to the notifying country. These include comparable use patterns such as application methods, frequency of applications, formulations, etc.

Assessments performed by the USA and Australia under comparable use patterns and which were based on recognized scientific methods and principles, were taken into account. In Australia, pesticide monitoring in cotton growing areas consistently found endosulfan at concentrations above set guidelines and in at least 50% of the samples throughout the 1990s. As a result, application was prohibited in during irrigation, rain or during weather conditions likely to increase spray drift. In addition, the dates for ground-based application to cotton has recently been limited to 15 Nov – 15 Jan with a maximum of 3 applications at 735 g ai/ha. In Australia, use included emulsifiable concentrate (EC) formulations and ultra-low volume (ULV) formulations (Australian Pesticides & Veterinary Medicines Authority: *The reconsideration of approval of the active constituent Endosulfan, registrations of products containing Endosulfan and their associated labels*, June 2005, included in document UNEP/FAO/RC/CRC.5/5/Add.2).

In the USA endosulfan is not authorized for use in cotton in States where surface water bodies are abundant. Mitigation measures in place include reduction in maximum application rates, reduced maximum number of applications per season, implementation of setbacks from water bodies, and a vegetative buffer between treated fields and water bodies. (document UNEP/FAO/RC/CRC.5/5/Add.2)

In the Sahel, Endosulfan is applied twice at doses between 300 and 750 g ai/ha. There were 5 EC formulations and one Capsule Suspension (CS) formulation registered according to the CILSS' *Examination of pesticides for conversion from provisional sale authorization to registration* (document UNEP/FAO/RC/CRC.5/5/Add.2). In the Toe et al., 2004 report *Failure to observe good agricultural practices when using endosulfan as an insecticide on the cotton crop in Burkina Faso*, a survey revealed that 74% of the producers in the Koudougou and Fada regions apply pesticides in ULV sprayers. (document UNEP/FAO/RC/CRC.6/12 Annex 3)

Given the prevailing conditions in the Sahel, where surface waters are abundant and treatments take place in the rainy season (which is characterised by hot temperatures and heavy rainstorms, of which the locality and timing are difficult to predict), it was not possible to guarantee that risk reduction measures such as those in place in Australia or the US were followed.

2 (a) The model used was not peer-reviewed.

The algorithms in the PIRI risk indicator (Kookana et al. 2005) have been published so it is peer reviewed. The publisher Springer Link states that all articles submitted undergo a rigorous process of peer review. This process involves blind review by one of the Regional Editors and at least two other referees.

Pesticide Impact Rating Index – A Pesticide Risk Indicator for Water Quality, in Water, Air, & Soil Pollution: Focus. Issue Volume 5, Numbers 1-2 / August, 2005, Pages 45-65 (referred to in document UNEP/FAO/RC/CRC.6/12 Annex 2)

2 (b) The model used was not validated for Sahelian countries.

The Pesticide Impact Rating Index (PIRI) was developed by the Commonwealth Scientific and Industrial Research Organization (CSIRO) in Australia. The model has been validated. Validation data include the comparison of monitored drainage water from cotton farms to predictions made with the PIRI-model, but validation data from other systems within agriculture, forestry, and horticulture has also been gathered. The validation data revealed that PIRI correctly estimated the pollution potential in more than 80% of the cases.

As PIRI utilizes internationally accepted algorithms for incorporating the effect of climatic variations on the environmental fate of pesticides, and because the user inputs are specific to the field on which the chemical will be used, the model can be used in any country. Examples of user inputs are soil type, field cover, moisture condition of soil during period of interest, soil organic matter, the depth to water table, diameter of nearest water body, distance from edge of crop to water body, slope of land to water body, rainfall, irrigation, air temperature etc.

The PIRI-model includes the functionality to cater to use in tropical countries, for example by allowing for temperature correction of pesticide half-life. The model has been applied by FAO/IAEA in several countries including Brazil, Argentina, Chile, Costa Rica, India, Bulgaria, China, the Philippines, and Ecuador. Recent monitoring data from vegetable production in Ecuador has been found to be consistent with PIRI assessment in Ecuador.

In addition, Dr. Adama Toe of Burkina Faso undertook a fellowship in Australia as an IAEA trainee for six months to learn the application and use of PIRI prior to the application of the PIRI-model in the Sahelian countries.

(document UNEP/FAO/RC/CRC.6/12 Annex 2)

3 (a) There are no actual field measurements

Document UNEP/FAO/RC/CRC.5/INF/3 on guidance on the application of criteria II b (iii) (from page 98 onwards), indicates that expected or anticipated exposure established with modelling is adapted to the anticipated exposure and prevailing conditions in the notifying country.

An example of a case where a notification was accepted without field measurements is the European Community notification regarding methyl parathion (UNEP/FAO/RC/CRC.1/19). In the notification and supporting documentation (UNEP/FAO/RC/CRC.1/19.Add4) environmental toxicity data was compared with anticipated exposure levels generated using a surface water model. The resulting toxicity exposure ration (TER) was deemed unacceptable for aquatic invertebrates even if considering a 50 meter buffer zone.

3 (b) Modelling is not considered to be a relevant substitute for field measurements

The use of modelling as a substitute for field measurements is always based on a case-by-case review by the Chemical Review Committee as a body for experts on risk evaluation taking into account the wide use of modelling in other forums, vis-à-vis field evaluations and estimates. The PIRI is a mathematical model, which is recommended to use as a risk indicator in order to carry out first-tier risk assessment for pesticide impact on water quality. See above for a list of countries where it has been successfully used. (document UNEP/FAO/RC/CRC.6/12 Annex 2)