



## REPORT

### 10<sup>TH</sup> FAO/WHO JOINT MEETING ON PESTICIDE MANAGEMENT

10–13 April 2017  
New Delhi, India



**World Health  
Organization**



**Food and Agriculture  
Organization of the  
United Nations**

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## Contents

1.	Introduction	1
2.	Opening of the meeting	1
3.	Election of the chairperson and rapporteurs	2
4.	Administrative matters	2
4.1	Adoption of the agenda	2
4.2	Declaration of interest	2
4.3	JMPM procedures	2
5.	Developments since the previous session of the JMPM	2
5.1	WHO	2
5.2	FAO	3
5.3	OECD	3
5.4	Pesticide Action Network (PAN)	3
5.5	CropLife	3
5.6	AgroCare	4
5.7	KemI	4
5.8	Discussion and recommendation	4
6.	Review of guidelines in advanced stage of development	4
6.1	Guidelines on registration of microbials, botanicals and semiochemicals	4
6.2	Guidelines on personal protective equipment	5
7.	Planning future work on guidelines	6
7.1	Updating older guidelines in line with the Code of Conduct	6
7.2	Guidelines on licensing of pesticide distributors and retailers	7
7.3	Guidelines on household pesticides	8
7.4	Obsolete pesticides	8
7.5	Pesticides for minor uses	9
7.6	Risk reduction and communication	9
8.	Making guidelines user-friendly and widely known	9
9.	Ad hoc monitoring of the Code of Conduct	9
10.	Additional topics for discussion	10
11.	Pesticide misuse for suicide	11
12.	Visit to local institutions	11
13.	Indicators for monitoring progress in pesticide management	11
14.	Any other issues	12
15.	Recommendations	12
	Annexes	16
	Annex 1 – List of participants	16
	Annex 2 – Recent activities of the JMPM Secretariat and participants, and opening remarks by Indian officials	19
	Annex 3 – Final agenda as adopted by the JMPM	36
	Annex 4 – JMPM Response to 2015 Ad Hoc Monitoring Submission	38



## **1. Introduction**

The 10<sup>th</sup> FAO/WHO Joint Meeting on Pesticide Management (JMPM) was hosted by the World Health Organization (WHO) at its headquarters in Geneva, Switzerland and supported by the WHO Regional Office for South-East Asia and the WHO Country Office in New Delhi, India. The meeting was held at the Park Hotel in New Delhi from 10 to 13 April 2017. This was the second JMPM meeting to be held outside the headquarters of the Food and Agriculture Organization of the United Nations (FAO) and WHO, and to include a day-long field trip to allow the meeting participants to observe practices and share experiences with experts in local institutions.

The JMPM was created in 2007 to advise FAO and WHO on the implementation of the FAO/WHO International Code of Conduct on Pesticide Management (the Code of Conduct) and on new developments, problems or issues deserving of attention pertaining to pesticide regulation and management. Its members are drawn from the FAO Panel of Experts on Pesticide Management and the WHO Panel of Experts on Vector Biology and Control. Representatives of pesticide and biopesticide producer associations and certain nongovernmental organizations (NGOs) involved in pesticide risk reduction are also invited to participate in meetings as observers. Secretariat support is provided jointly by FAO and WHO. The list of participants is attached as Annex 1.

The 10<sup>th</sup> JMPM included: an update on activities of the joint Secretariat and participating organizations; a review of progress in the production of JMPM guidelines; plans for continued work on guidelines; a report on follow up to an ad hoc monitoring report concerning the reported failure of two pesticide companies to comply with the Code of Conduct; a visit to three local institutions; and recommendations for future work.

## **2. Opening of the meeting**

The opening session was coordinated by Mr Rajpal Yadav, Scientist and head of the WHO Pesticide Evaluation Scheme (WHOPES), Department of Control of Neglected Tropical Diseases, WHO, Geneva. On behalf of WHO and as joint Secretariat of the JMPM, Mr Yadav welcomed the FAO and WHO Panel members, members of the FAO and WHO Secretariat, and other meeting participants and observers to the 10<sup>th</sup> Session of the FAO/WHO JMPM. Mr Gu Bao Gen, Senior Agricultural Officer for Pest and Pesticide Management, FAO Plant Production and Protection Division, welcomed the Panel members and other participants and observers to the meeting on behalf of FAO.

Mr Fikru Tesfaye Tullu, Team Leader, Non-Communicable Diseases, read opening remarks on behalf of the WHO Representative, New Delhi. Mr A.C. Dhariwal, Director of the National Vector-Borne Disease Control Programme in Delhi; Ms Neena Valecha, Director of the National Institute of Malaria Research in Delhi, and Mr Ashwani Kumar, Joint Secretary of the Ministry of Agriculture, Government of India attended the opening of the meeting and gave opening remarks. A summary of these is appended to Annex 2.

### **3. Election of the chairperson and rapporteurs**

Ms Andrea Rother of the University of Cape Town, South Africa was nominated to chair the meeting and Mr Donald Ward of the Australian Department of Agriculture to serve as Co-Chair. Mr. Lance Wormell of the United States Environmental Protection Agency, Ms Sandhya Kulshrestha of the Indian Ministry of Agriculture, and Ms Jeannie Richards, WHO consultant, were appointed Rapporteurs.

### **4. Administrative matters**

#### **4.1 Adoption of the agenda**

A number of minor amendments were made to the agenda for the purpose of timekeeping. The final agenda as adopted is given in Annex 3.

#### **4.2 Declaration of interest**

The FAO and WHO Secretariat informed the meeting that they had received Declarations of Interest from all the Panel members participating in the 10<sup>th</sup> Session of the JMPM. The secretariat had reviewed these and concluded that no circumstances were disclosed that could give rise to a potential or reasonably perceived conflict of interest related to the subjects discussed in the JMPM.

#### **4.3 JMPM procedures**

Mr Rajpal Yadav, WHO, reviewed the meeting procedures and the schedule for the reception and field day.

### **5. Developments since the previous session of the JMPM**

Reports on activities since the last JMPM were given by WHO, FAO, the Organisation for Economic Co-operation and Development (OECD), the Pesticide Action Network (PAN), CropLife International, AgroCare and KemI. These reports are summarized below and detailed more extensively in Annex 2.

#### **5.1 WHO**

Activities conducted by WHO since the previous JMPM involve those undertaken by WHOPES, the Global Malaria Programme, the Programme on Chemical Safety and by the Organization's regional offices. They include: progress with the Organization's normative functions such as developing guidelines and technical reports; providing training and technical support in pesticide management in countries and regions; organizing meetings on vector control and pesticide specifications; responding to the Zika virus disease 2016 Public Health Emergency of International Concern by expanding vector control activity in affected countries and preparing guidance documents; hosting a meeting on the use of malathion in vector control and resulting health risks; providing a report to the DDT Expert Group of the Stockholm Convention on health risks from the continued use of DDT for vector control;

publishing an update the Atlas of Children's Health and the Environment with sections relating to the use of pesticides in agriculture and vector control; and contributing to a wide variety of activities carried out under the WHO Global Malaria Programme.

## **5.2 FAO**

FAO activities carried out since the previous JMPM include: publishing guidelines on legislation and highly hazardous pesticides (HHPs); organizing regular meetings on pesticide specifications (JMPS) and pesticide residues (JMPS) as well as a special meeting to discuss glyphosate, malathion and diazinon; organizing a meeting of the Chemical Review Committee of the Rotterdam Convention to review decision guidance on carbofuran and carbosulfan and to take action on benzidine, carbofuran suspension concentrate and atrazine; continued updating of the pesticide registration toolkit and organization of training sessions, workshops and webinars; producing radio spots on pesticide risk reduction for airing in Mozambique; continued disposal of obsolete pesticides and remediation of contaminated sites; launching of a web-based platform for information exchange on farmer field schools; promoting harmonized pesticide registration in West Africa and the Pacific; and conducting various capacity-building activities.

## **5.3 OECD**

OECD activities undertaken since the previous JMPM include: implementing various actions to combat the illegal trade in counterfeit, fake and substandard pesticides including creation of a rapid alert system for countries to exchange information on suspicious or rejected shipments of pesticides and preparation of guidance on the identification and handling of such pesticides; developing test guidelines for honeybees and planning a seminar (June 2017) for countries to identify ways to address this issue together; creating a database of information about pesticide risk indicators used in different countries; publishing various guidance documents and seminar reports on biopesticides; convening a workshop on sustainable pest management; and conducting various other projects.

## **5.4 Pesticide Action Network (PAN)**

PAN's recent activities have focused on removing HHPs and promoting agro-ecology. Activities undertaken since the previous JMPM include: providing community support; publishing documents about what is happening on the ground; advocating for policy change; participating in international forums and conventions; and contributing to numerous awareness-raising activities. PAN is now using apps to capture real-time information from the field on pesticide use and impacts, and to create profiles of companies and their sales techniques.

## **5.5 CropLife**

CropLife International's recent activities include: launching of an e-learning training tool on the Code of Conduct; training of farmers in integrated pest management (IPM) in programmes done jointly with local NGOs; training of "spray service providers" in a programme begun in West Africa and now being expanded to other areas of the world; and initiating risk mitigation in West Africa. CropLife has also continued its "portfolio review", reported at the last JMPM meeting, in which its member companies determine whether their products include any HHPs and take action if they do. To date, 6400 products have been

evaluated and mitigation has been undertaken or is under way for the products that triggered the HHP and exposure criteria.

## **5.6 AgroCare**

AgroCare gave a quick overview of its situation as a small association of generic pesticide manufacturers with many small members, making it difficult to speak with a unified voice. AgroCare expects that it will closely align with CropLife and be more active in the JMPM in future.

## **5.7 KemI**

KemI, Sweden has developed test versions of guidance on chemicals including pesticides; these include guidance potentially useful for JMPM consideration on enforcement, on how to finance and structure institutional capacity, and on capacity-building for sound management of chemicals.

## **5.8 Discussion and recommendations**

In the discussion that followed the presentations, the group asked the JMPM Secretariat to:

- consider the telephone application technology used by PAN to collect information in real-time, notably as a way to make the technical guidelines more accessible and user-friendly;
- consider agro-ecology when revising the guidelines; and
- add relevant guidelines from other organizations (e.g. UN Environment, OECD, KemI, European Union, United States Environmental Protection Agency) to the annotated list of FAO and WHO guidelines.

The JMPM also noted that comments were invited on CropLife's e-learning tool on the Code of Conduct, and that it would be useful to consider whether new monitoring technology could be used to demonstrate the results of different stewardship activities.

# **6. Review of guidelines in advanced stage of development**

## **6.1 Guidelines on registration of microbials, botanicals and semiochemicals**

The JMPM reviewed the latest draft of the guidelines on microbials, botanicals and semiochemicals, prepared by an FAO consultant and under development since October 2012. Several minor changes were suggested and were incorporated into the document by the consultant during the course of the meeting, after which the JMPM reviewed and approved the new and final draft and recommended that the guidelines be finalized and published. The JMPM recommended that these guidelines remain a "live" document with a mechanism for providing feedback and an opportunity for users to pilot test them. WHO noted that it had a system for publishing documents as a trial edition open to improvement, and that this guideline could be published as a trial edition.



## 6.2 Guidelines on personal protective equipment

The JMPM considered a draft revision of the FAO guidelines on personal protection when working with pesticides in tropical climates, and agreed to reconsider the size, scope and target audience of the document. In particular, it debated whether the guidelines should provide a “high standard” for establishing regulations on personal protective equipment (PPE) or whether they should acknowledge the reality of the situation in many developing countries where the high standard may not be practical or available and instead provide more basic guidance, for example a simple system based on pesticide data requirements and hazard classification, to help reduce exposure. The JMPM also noted that the revised guidelines should be linked to the pesticide registration toolkit, which has useful information about exposure and is currently being used for training of trainers and users in many regions.

As background to the updating of the guidelines on personal protection when working with pesticides in tropical climates, WHO reminded the JMPM that the document was originally planned as a WHO guideline for use by public health workers who were engaged in spraying insecticides for vector control. The JMPM had later suggested making it a joint FAO and WHO guideline to include protection of agricultural workers.

Based on the discussion, an ad hoc sub-group was created at the meeting to draft an outline for the revision of the guidelines as follows:

### *Target audience*

- Primarily pesticide regulators in low- and middle-income countries (LMICs), but may also be useful to industry, NGOs and other stakeholders.

### *Technical information*

To address:

- What is PPE and how is it used in a regulatory framework?
- How do governments ensure appropriate PPE on labels (e.g. determine which gloves are appropriate for each product)?
- What assumptions should be used in risk assessment exposure calculations (e.g. no PPE, basic PPE such as gloves and long clothing, product specific PPE)?

### *Policy information*

To address:

- What minimum PPE and infrastructure considerations (e.g. availability of required PPE) are encouraged for governments to allow pesticide use, including specific types of pesticides (like HHPs; pesticide in various WHO hazard classes)?
- What steps can governments take to increase availability and use of PPE?
- What feedback mechanism can be adopted to monitor PPE use and compliance?
- How can pesticide exposure be minimized for handlers and workers?
- How can pesticide exposure be minimized for bystanders and residents?
- What are the realities of pesticide use and PPE in warm climates?
- What information on pesticide exposure and hazard should be made available to all pesticide handlers (such as suggested basic PPE)?
- How do governments ensure PPE is available to users and what are the considerations when PPE or adequate enforcement is not available?

- How does PPE relate to establishing restricted entry intervals?
- What are the roles of governments, industry and NGOs in the context of PPE?

The JMPM thanked the ad hoc sub-group for its proposal and recommended that the PPE working group undertake this work on the guidelines as follows:

- The target audience should be primarily regulators and vector-borne disease control programmes in LMICs.
- The guidelines should have two parts: a policy section and a technical section with minimum PPE requirements.
- The PPE working group should develop a new outline for discussion at an inter-sessional meeting, and a draft document should be prepared for finalization at the next JMPM meeting.

Volunteers for the PPE working group were confirmed as: Richard Brown, Jayakumar Chelaton, Béatrice Grenier, Sandhya Kulshrestha, Hans Mattaar and Malverne Spencer.

## **7. Planning future work on guidelines**

### **7.1 Updating older guidelines in line with the Code of Conduct**

The JMPM began the discussion of updating older FAO/WHO guidelines by considering the focus and objective of the updates and how to prioritize the work. FAO noted that the older guidelines needed to be more in line with the International Code of Conduct on Pesticide Management, including its “pesticide management” scope and inclusion of integrated vector management (IVM), and consistent with the most recent and updated guidelines such as those on labelling and HHPs.

Concerning how to prioritize the work, reference was made to the 2011 FAO survey of the use and usefulness of the guidelines (whose recommendations resulted in the creation of the registration toolkit), which showed that some guidelines are more widely used than others and which recommended that the guidelines reflect user needs and acknowledge real-world situations and limited government capacity and resources. Several JMPM participants suggested that it would be useful to do a new, simpler survey to find out what countries need today. It was also suggested that the Secretariat should draft a table showing how the existing guidelines fit into the pesticide life-cycle structure used in the Code of Conduct, as this would help to identify gaps and prioritize future work.

A number of participants observed that there was a demand for case studies, and it was suggested that case studies available from the Strategic Approach to International Chemicals Management (SAICM) and other sources might be incorporated into FAO/WHO technical guidance or in the pesticide registration toolkit, to make the guidance more relevant.

The JMPM concluded the discussion by recommending:

- that the Secretariat should develop a schedule and process for conducting regular reviews of guidance documents to prevent their going out-of-date and to facilitate prioritization;
- that a working group be established to identify priorities for updating guidance documents;
- that relevant guidelines from other organizations (e.g. UN Environment, OECD, KemI, EU, US-EPA) be added to the table/list of FAO and WHO guidelines to avoid duplication of work;
- that a “risk communication and risk reduction” section be added at the end of each new guideline, when appropriate, to provide the target audience with practical mechanisms for communicating and managing risks that are related to the subject of the guideline;
- that text be included at the beginning of new guidelines seeking readers’ comments and a mechanism be provided for collecting this feedback;
- that guidelines indicate that case studies can be found in the FAO registration toolkit;
- that references to HHPs clearly state the criteria used to identify products as HHPs, and that use of the criteria given in the FAO/WHO guidelines on HHPs be encouraged;
- that the JMPM support the current revision of the WHO Recommended Classification of Pesticides by Hazards, 2009<sup>1</sup> and encourage WHO to classify pesticides previously unclassified (e.g. obsolete) but still used in LMICs;
- that when referring to exposure, the definition given in the HHP guideline be used; and
- that the results of the FAO 2011 survey on the use of technical guidelines be used when updating old guidelines and prioritizing the development of new ones.

## **7.2 Guidelines on licensing of pesticide distributors and retailers**

The JMPM discussed issues related to the sales and distribution of pesticides, and of how to address the common practice in developing countries of pesticides being sold out of small roadside shops and even e-shops, where untrained re-sellers may be the primary source of information for pesticide users. The group agreed that future guidance for pesticide distribution and retail would need to target producers and importers, where greater control is possible, in hopes that at least some components of the guidance would trickle down to small-scale sellers and distributors. The JMPM noted that this could be done using a tiered approach focusing first on importers and producers. It also observed that there is a contractual relationship between importers and retailers, and that future guidance could discuss the contractual obligations and relationship between producers and retailers.

The group noted that the control of manufacturers would not entail an inspection of the pesticide production plant alone but of the quality of the technical materials, formulations,

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<sup>1</sup> [http://www.who.int/ipcs/publications/pesticides\\_hazard/en/](http://www.who.int/ipcs/publications/pesticides_hazard/en/)

packaging and labelling to ensure conformity with the national registration of pesticides. It was further noted that certain documents could serve as resources for the drafting of the new guidance, namely the forthcoming KemI guidance for chemicals, the regulations on distribution and retail of pesticides of the Institute for the Control of Agrochemicals of the Ministry of Agriculture of the People's Republic of China, as well as a draft FAO document for West Africa that gives advice to inspectors. The JMPM confirmed that the guidelines should stay focused on the minimum requirements for pesticide distribution and retail and should not address pesticide control operators, as guidance for the latter is already available.

The JMPM recommended that a working group be established to propose a title and start drafting guidelines on issues related to the sale and distribution of pesticides. Volunteers for the working group were: Richard Brown, Tao Chuanjiang, Michael Eddleston, Sandhya Kulshrestha, Somchai Preechathaveekid and Lilian Tornqvist.

### **7.3 Guidelines on household pesticides**

The JMPM was informed that work on guidelines on household pesticides had stopped due to other priorities, but that many related guidelines existed already and a considerable amount of related work was under way: for example, WHO was working on guidance on treated clothing, OECD and the EU were working on biocides, and the registration toolkit indicated how to find risk assessments, guidelines and other information related to the subject.

The JMPM recommended that work continue on the guidelines for household pesticides, that a working group be established and that a draft be prepared for review at the next JMPM meeting. Work should begin by identifying the other guidelines and resources available. The JMPM also noted that the working group would need to clarify what pesticides are included in "household pesticides", especially in the context of other terms such as biocides. Volunteers for the working group were: Jayakumar Chelaton, Tao Chuanjiang, Sandhya Kulshrestha, Somchai Preechathaveekid, Andrea Rother, Malverne Spencer and the JMPM Secretariat.

### **7.4 Obsolete pesticides**

The JMPM reviewed the current situation with respect to obsolete pesticides, observing that new stocks and empty containers for both agricultural pesticides and vector control insecticides and bed nets were accumulating. The meeting noted that FAO had published several guidance documents and tools on the management and disposal of obsolete pesticide stocks and containers; although the guidelines were still valid, their pre-2010 dates made them appear old. It was also noted that the environmental management toolkit (EMTK) developed by FAO also provides good and detailed advice in this area.

The JMPM agreed that it was important to keep the guidelines "alive", so it recommended that a working group be created to review these and other available guidance and tools on disposal of obsolete pesticides so as to decide whether an update of the existing FAO guidelines including further work by the JMPM was needed. Volunteers for the working group were: Richard Brown, Jayakumar Chelaton, Sandhya Kulshrestha, Hans Mattaar, Malverne Spencer and the FAO Secretariat.

It was agreed that UN Environment should be urged to take part in this activity as it deals with disposal of obsolete pesticides. The JMPM noted that the guidelines should focus on

how to avoid accumulating unwanted or obsolete, unneeded pesticides and that the working group should consider the drivers behind the accumulation of stocks (donations, phase-outs, cost of pesticides, etc.). The working group was also asked to consider whether it would be possible to have a user-friendly training tool for the vector control sector.

### **7.5 Pesticides for minor uses**

After discussing the subject, the JMPM recommended that work to develop guidelines for registration of pesticide products for minor uses be postponed until information about other international activities in this area has been considered.

### **7.6 Risk reduction and communication**

The JMPM agreed not to produce guidance on risk reduction and communication but rather to append a section on the subject to each technical guideline.

## **8. Making guidelines user-friendly and widely known**

The JMPM reviewed the report of the internal working group on ways to make the technical guidelines more user-friendly and widely known, which included the findings of a 2011 FAO survey on the use and usefulness of the guidelines. On this basis, the JMPM welcomed the translation of new guidelines published since the last JMPM meeting (on legislation and HHPs) and recommended additional actions to publicize and encourage their use, including:

- exploring the feasibility of developing a mobile app for the Code of Conduct, with a quick response code to access FAO/WHO guidelines;
- updating and linking the pesticide glossary to the pesticide registration toolkit;
- revising the 2011 annotated list of all FAO/WHO pesticide guidelines as a companion document to the Code of Conduct;
- continuing to translate new and revised guidelines;
- producing materials such as mouse pads and memory sticks using an interactive graphic with the pesticide life-cycle to advertise the guidelines; and
- having the working group continue to explore options.

## **9. Ad hoc monitoring of the Code of Conduct**

FAO reported on the inter-sessional follow up to the ad hoc monitoring report discussed at the last JMPM meeting concerning non-adherence by two pesticide manufacturers to the Code of Conduct provisions on labelling, PPE, and training and monitoring, in Punjab, India.

- The complaint was submitted by the European Center for Constitutional and Human Rights (ECCHR) on behalf of PAN Asia Pacific (PAN AP), the Kheti Virasat Mission, Bread for the World and the Berne Declaration, as per the mechanism described in the FAO Guidelines on Monitoring and Observance of the Code of Conduct. Under the procedure for responding to such ad hoc reports, FAO presents a report of the case to the JMPM, and the Panel of Experts is asked to review it and recommend any follow-up action.
- In response to the complaint, in early 2016, FAO contacted the two companies, Bayer and Syngenta, and the Government of India to seek their reaction to the claims contained in the report. The companies replied that they were in compliance with national legislation but would be willing to participate in a national stakeholder meeting to discuss gaps between pesticide labelling and actual practice. The NGOs contacted by FAO would be willing to participate in such a meeting. The Government of India did not respond to FAO, but FAO found a report of a Parliamentary hearing on pesticide management from 2016 that confirmed the Indian government's willingness to address issues such as those raised in the NGO report. The report recommended that the government make greater efforts to raise awareness, impose a stricter monitoring process and make more funds available for these purposes.

Following the FAO introduction to the JMPM, the meeting heard statements from ECCHR, the Kheti Virasat Mission, CropLife International and CropLife India.

The JMPM Panel then reviewed the case in closed session and drafted the JMPM response as attached in Annex 4. In summary, JMPM supports the stakeholders collaborating to promote practices that minimize pesticide risks, and encourages multi-stakeholder dialogue to further improve pesticide risk reduction in India.

Overall, the JMPM encourages further monitoring of the implementation of the Code of Conduct through, for example, ad hoc reports that provide a reality check and feedback for improving pesticide-related issues such as labels or quality of farmer training.

## **10. Additional topics for discussion**

The JMPM considered a number of issues proposed by the participants and agreed the following ways to address them:

- It agreed to discuss in an inter-sessional virtual meeting the recent report by two United Nations special rapporteurs that calls for a comprehensive new global treaty to regulate and phase out the use of dangerous pesticides in farming, and move towards sustainable agricultural practices.
- It agreed that WHO pesticide hazard classifications would benefit from being revised, and, notably, that there is a need to identify which products listed under “Fumigant” or “Obsolete” should be updated.
- It recommended that existing documents that describe nanomaterials or nanopesticides be identified so as to guide countries to regulate such products rather than developing a JMPM guidance document in this regard.

- It agreed to discuss the “hierarchy of control” risk management technique, used in industrial hygiene, in an inter-sessional meeting.
- It recommended that further guidance on how to apply the HHP criteria be added to the FAO registration toolkit.
- It recommended that guidance be provided on accessing data for the HHP criterion 8 to help countries identify HHPs, and that guidance on how to implement the criterion be available through the registration toolkit.

## **11. Pesticide misuse for suicide**

A report was presented on the misuse of pesticides for intentional suicide in Sri Lanka, and the success of a project that worked with local shops to alert them to the problem. The project instituted better and quicker treatment of acute poisoning cases; better control of pesticide purchasing, use and storage; and better pesticide regulation to control product availability. The conclusion (based on the 230 000-person study) was that providing a box to lock up pesticides in the home does not reduce intentional poisonings or deaths but removing HHPs from local markets reduces suicide rates and does not reduce agricultural yield.

## **12. Visit to local institutions**

The JMPM spent a day visiting three institutions in Delhi that work on pesticide research and testing: the Sriram Institute for Industrial Research, which carries out hazard and exposure testing of pesticides; the Indian Agricultural Research Institute, which evaluates agrochemicals and monitors pesticide residues on huge numbers of food samples from around the country as well as from other countries; and the National Institute of Malaria Research, which carries out research on malaria and other vector-borne diseases including laboratory and field testing of vector control pesticides for their registration.

In their reflections on the field day, the participants thanked the WHO Secretariat for preparing the visits which were instructive and enjoyable. The group was impressed by the capacity of the institutes, the quality of their equipment, the amount of work being done, the cooperation and assistance with other countries, and the skills and enthusiasm of the staff. Certain areas of mutual interest and for collaboration with WHO were discussed in these visits. In reflecting on how to organize future visits, the JMPM said it would be useful to prepare specific issues and questions in advance so as to focus the discussions, and to visit markets or retailers and farms (or at least “field-level” sites) as well as institutes, so as to inform the development of more practical and feasible guidelines.

## **13. Indicators for monitoring progress in pesticide management**

The JMPM considered a background paper drafted by the Secretariat and the possibility of developing indicators to track progress in pesticide management, for example by tracking the adoption of pesticide legislation or regulatory measures that referred to the Code of Conduct.

A key question asked was whether the goal of the indicator(s) was to measure the adoption of legislation or to measure improvement in pesticide management. The discussion acknowledged the difficulty in (i) identifying something clear to measure, as even new pesticide laws and regulation in countries do not necessarily refer to the Code of Conduct, and (ii) measuring compliance with pesticide laws and rules.

As part of this discussion in measuring progress in pesticide management, WHO indicated that they had conducted a global survey of pesticide registration and management practices in 2010 and have planned a similar survey in 2017. WHO plans to review the questionnaire that was used in the 2010 survey as a starting point and will include certain questions on the use and usefulness of the FAO/WHO guidelines.

In conclusion, the JMPM agreed to reflect on the development of two indicators, the first providing a measure of sound pesticide management in a country (whether through legislation, registration and/or management of pesticide risks in general), and the second measuring steps taken specifically to address pesticides of concern, particularly HHPs identified using the JMPM criteria.

#### **14. Any other issues**

At the end of the meeting the JMPM reflected on its work and way of working, noting that the older guidelines were very technical and more “rough and ready” than the new guidelines which include more policy support. It concluded that in future the guidelines should have both technical and policy information, and that this should be taken into account from the start. It also noted that the policy section should be linked to the Code of Conduct.

The JMPM agreed the need for inter-sessional skype meetings or e-mail exchanges between the main meetings so as to keep the group alive and the work progressing. The group agreed it would be useful to have such a virtual inter-sessional meeting in 6 months’ time (i.e. in October 2017).

#### **15. Recommendations**

The recommendations of the JMPM referred to in the text above are summarized below.

##### **FAO/WHO Code of Conduct on Pesticide Management**

- The JMPM recommended that FAO and WHO continue to undertake activities in countries and/or regions to promote implementation of the Code of Conduct and its guidelines. It also urged UN Environment (formerly United Nations Environment Programme) to participate in JMPM meetings and activities as it would appreciate having their environmental expertise.



## **FAO/WHO technical guidelines**

- The JMPM recommended that the Secretariat develop a schedule and process for conducting regular reviews of guidance documents to prevent documents from expiring and to facilitate prioritization. The JMPM recommended that a working group be established to identify priorities for updating guidance documents.
- The JMPM recommended that relevant guidelines from other organizations (e.g. UN Environment, OECD, KemI, EU, US-EPA) be added to the table/list of FAO and/or WHO guidelines to avoid duplication of work.
- The JMPM recommended incorporating a “risk communication and risk reduction” section at the end of each new guideline, when appropriate, to provide the target audience with practical mechanisms for communicating and managing risks that are related to the topic of the guideline.
- The JMPM recommended including text at the beginning of new guidelines seeking readers’ comment and to provide a mechanism for collecting this feedback.
- Since different definitions and processes for defining HHPs exist, the JMPM recommended that references to HHPs clearly state the criteria used to identify them as HHPs, encouraging use of the criteria in the FAO/WHO HHP guideline.
- The JMPM welcomed the current revision of the WHO Recommended Classification of Pesticides by Hazard (2009) and the willingness of WHO to classify pesticides previously unclassified but still used in LMICs, and recommended that Panel members support this process.
- The JMPM recommended that when referring to pesticide exposure, its definition given in the HHP guideline be used.
- The JMPM recommended that the results of the FAO 2011 survey on the use and usefulness of technical guidelines be used when updating old guidelines and prioritizing the development of new ones.

## **Guidelines on microbials, botanicals and semiochemicals**

- The JMPM recommended that the guidelines be finalized and published.

## **Guidelines on PPE**

The JMPM recommended that the current draft guideline be revised as follows:

- the target audience of the guideline should be primarily regulators and vector-borne disease control programmes in LMICs;
- the scope of the PPE guidelines should cover two parts – a policy section and a technical section with minimum PPE requirements; and

- a new outline of the guideline should be developed by the working group and discussed at an inter-sessional meeting; thereafter, a draft document should be prepared for finalization at the next JMPM meeting.

### **Guidelines on household pesticides**

- The JMPM recommended that work continue on the guidelines for household pesticides, a working group be established, and a draft be prepared for review at the next JMPM meeting.

### **Guidelines on sales and distribution of pesticides**

- The JMPM recommended that a working group be established to start drafting guidelines on issues related to the sales and distribution of pesticides.

### **Guidelines on minor use of pesticides**

- The JMPM recommended that work to develop guidelines for registration of pesticide products for minor uses should be postponed until information about other activities in this area has been considered.

### **Guidelines on obsolete pesticides**

- The JMPM recommended that a working group be created to review existing guidelines and tools available on accumulation and disposal of obsolete pesticides so as to decide whether further work is needed.

### **Making guidelines user-friendly and widely known**

- The JMPM recommended that the FAO and WHO secretariats explore the feasibility of developing a mobile app to promote the Code of Conduct, with quick response links to access FAO/WHO guidelines.
- The JMPM recommended that FAO/WHO consider updating the pesticide glossary and linking it to the pesticide registration toolkit.
- The JMPM recommended that the 2011 annotated list of all FAO/WHO pesticide guidelines be revised as a companion document to the Code of Conduct.
- The JMPM welcomed the translation of the three new guidelines recently published and recommended translation of new and revised guidelines in the future.
- The JMPM recommended that materials be produced to advertise WHO/FAO guidance documents such as mouse pads and memory sticks, and to use an interactive graphic with the pesticide life-cycle.

- The JMPM recommended that the working group on making the guidelines user-friendly should continue to explore various suitable options.

### **Emerging and important issues**

- The JMPM agreed to review activities already under way related to the risks and efficacy of treated textiles, insecticidal paints and other treated articles to assess the need for suitable guidance.
- The JMPM recommended that existing documents relating to nanomaterial/nano-pesticide be identified rather than creating a full JMPM guidance document in this regard.
- The JMPM recommended that the recent report co-authored by the United Nations Special Rapporteur on the Right to Food and the United Nations Special Rapporteur on Toxics be discussed inter-sessionally. The report calls for a comprehensive new global treaty to regulate and phase out the use of dangerous pesticides in farming, and move towards sustainable agricultural practices.
- The JMPM recommended that explicit guidance on use of the FAO/WHO criteria for assessing HHPs be added to the FAO registration toolkit.
- The JMPM recommended that guidance be provided on accessing data for the JMPM HHP Criterion 8 to help LMICs identify HHPs.
- The JMPM recommended that a “Hierarchy of Control” approach for pesticide risk reduction be discussed at the next inter-sessional meeting.

### **Ad hoc monitoring of the Code of Conduct**

- The JMPM recommended that feedback from stakeholders be encouraged under the process for monitoring implementation of the Code of Conduct. Such feedback could be used as a trigger to constructively address the broader issues as identified in the submitted reports.
- The JMPM recommended that the JMPM panel and secretariat evaluate the process for ad hoc monitoring and reporting and revise the respective guidelines.

### **Indicators for monitoring progress in pesticide management**

- The JMPM agreed to reflect on the development of two indicators, the first providing a measure of sound pesticide management in a country (whether through legislation, registration and/or management of pesticide risks in general), and the second measuring steps taken specifically to address pesticides of concern, particularly HHPs identified using the JMPM criteria.

## Annexes

### Annex 1 – List of participants

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## **Annex 2 – Recent activities of the JMPM Secretariat and participants, and opening remarks by Indian officials**

### **WHO headquarters**

#### *WHO Pesticide Evaluation Scheme and Vector Ecology and Management unit*

The normative functions of the Vector Ecology and Management unit and its WHO Pesticide Evaluation Scheme (WHOPES) include development of guidelines, standards, standard operating procedures and training activities, and provision of technical support to WHO Member States in vector control and sound management of pesticides. Major activities are summarized below.

#### *Guidelines and technical reports*

- A toolkit for integrated vector management in sub-Saharan Africa, June 2016
- Handbook on vector surveillance and control at ports, airports and ground crossings, 2016.
- Guidance on determining equivalence for public health pesticides, 2016
- Guidelines on highly hazardous pesticides (with FAO), 2016
- Revision of the Manual on development and use of FAO and WHO specifications for pesticides, First edition - third revision, 2016
- Use of malathion for vector control, 2016

#### *Training*

- Quality management systems workshop, Penang, Malaysia, 30 May – 3 June 2016
- National Vector Borne Disease Control Programme of India (NVBDCP)–WHO brainstorming workshop on integrated vector management and national training workshop on indoor residual spraying for malaria and leishmaniasis vector control, 2–7 November 2015, National Centre for Disease Control, New Delhi
- Training of trainers on indoor residual spraying for control of kala-azar (NVBDCP–CARE–WHO), 30 November – 4 December, 2015, Patna, Bihar

#### *Technical support*

- GLP (good laboratory practice) accreditation of research institutions involved in vector control product evaluation
- Zika emergency response, WHO headquarters
- Kala-azar elimination in South-East Asia
- A draft WHO Global Vector Control Response (2017–2030) was developed by NTD–GMP–TDR and was received favourably by the WHO Executive Board at its 140th session in January 2017. It will be considered at the 70th session of the World Health Assembly in May 2017.

#### *Meetings organized since the last JMPM include:*

- WHO consultation on multi-centre validation of insecticide-discriminating concentrations for insecticide-resistance monitoring, Geneva, 13–14 February 2017
- WHO consultation on revision of guidelines on long-lasting insecticide-treated nets (LLINs) and indoor residual spraying (IRS), Geneva, 17 February – 4 March 2017
- 20th WHOPES working group meeting, WHO/HQ, Geneva, 20–24 March 2017

- 19th WHOPEP working group meeting, WHO/HQ, Geneva, 8–11 February 2016
- 5th Vector Control Advisory Group (VCAG5), Geneva, 2–4 November 2016
- 4th Vector Control Advisory Group (VCAG4), Geneva, 16–18 November 2015
- Extraordinary meeting on Zika vector control, Geneva, 14–15 March 2016
- 10th meeting of the Global Collaboration for the Development of Pesticides for Public health (GCDPP), Geneva, Switzerland, 20–21 September 2016
- 15th FAO/WHO Joint Meeting on Pesticide Specifications, Tokyo, Japan, 7–13 June 2016
- 9th FAO/WHO Joint Meeting on Pesticide Management, October 2015, China.

#### *WHO Chemical Safety activities relevant to the JMPM*

WHO Chemical Safety has been engaged in the following activities relating to pesticide management since the previous JMPM in October 2015:

- The Zika virus Public Health Emergency of International Concern declared by WHO in early 2016 resulted in a significant expansion of vector control activity in affected countries, with a corresponding demand for up-to-date guidance from WHO produced urgently in line with the procedures for responding to a declared emergency. WHO's International Programme on Chemical Safety provided inputs into a number of Zika-related emergency activities, including: guidance on the use of WHO-recommended skin-applied repellents; International Health Regulations Advisory Group on methods for aircraft disinsection.<sup>1</sup>
- In May 2016 a WHO expert meeting on the use of malathion in vector control was convened to review the risk of malathion used in public health and discuss the implications of WHO's recommendations on the use of malathion in vector control following the evaluation of malathion as “probably carcinogenic to humans” by the International Agency for Research on Cancer (IARC). This expert meeting was held back-to-back with a meeting of the WHO/FAO Joint Meeting on Pesticide Residues (JMPPR), which considered the risk to consumers from exposure to malathion via residues in food. This additional expert meeting for vector control was organized jointly between three WHO units –Chemical Safety, Control of Neglected Tropical Diseases, and Food Safety – with Chemical Safety taking the lead role in selecting the experts and updating the risk assessment.
- The continuing use of DDT for disease vector control is discussed by the Conference of the Parties to the Stockholm Convention (COP) every 2 years. In anticipation of the COP in April 2017, WHO Chemical Safety attended the 2016 meeting of the

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<sup>1</sup> WHO Ad-hoc Advisory Group on aircraft disinsection for controlling the international spread of vector-borne diseases. Geneva, Switzerland, 21–22 April 2016 ([http://www.who.int/ihr/publications/WHO\\_HSE\\_GCR\\_2016\\_12/en/](http://www.who.int/ihr/publications/WHO_HSE_GCR_2016_12/en/)); and Interim guidance for vector control and health workers on protecting the health and safety of workers in emergency vector control of Aedes mosquitoes. Geneva: World Health Organization; 2016 ([http://apps.who.int/iris/bitstream/10665/204612/1/WHO\\_ZIKV\\_VC\\_16.3\\_eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/204612/1/WHO_ZIKV_VC_16.3_eng.pdf?ua=1)).



Stockholm Convention DDT Expert Group. It was reported to the Expert Group that the risk assessment of the use of DDT in IRS published by WHO in 2010 continues to be valid.

- In March 2017 WHO published an update to the *Atlas of children's health and the environment*,<sup>1</sup> in which WHO Chemical Safety contributed to the sections relating to the use of pesticides in agriculture and in vector control.
- The International Chemical Safety Cards (ICSCs), which summarize essential health and safety information on chemicals and are aimed at employees in the workplace, continue to be developed. Cards are available for 1700 chemicals, of which 240 are pesticides. ICSCs are made available in 8 languages via the Internet,<sup>2</sup> with further languages in development. The Global Harmonized System of Classification and Labelling of Chemicals (GHS) classifications are added to ICSCs as they are updated – approximately one-third of the pesticide cards currently show GHS classifications.
- The WHO Chemical Risk Assessment Network continues to grow, and includes a coordinating group of experts involved with developing methods for assessing the risks of mixtures of chemicals. These activities relating to mixtures frequently involve pesticides, especially activities of the European Union/European Commission Horizon 2020 Framework Programme project called “Euromix” which is well represented in this Network group.

### *Global Malaria Programme*

The following activities relating to vector control and pesticide management were conducted:

- Technical support provided to countries on entomological surveillance and development of national insecticide-resistance monitoring and management plans.
- Technical support provided to 20 countries to strengthen their capacity to monitor and report data.
- Data on insecticide resistance in malaria vectors were collected annually from malaria-endemic countries and compiled in a WHO global database.
- WHO e-Learning platform modules on malaria entomology and vector control were developed in November 2015.
- Training provided to national vector-borne disease control programmes on insecticide resistance in India in December 2015.
- Interim recommendations on conditions for use of LLINs treated with a pyrethroid and piperonyl butoxide were issued in December 2015.
- Procedures for monitoring and managing insecticide resistance in *Aedes* mosquitoes populations were published jointly with NTD/VEM unit as interim guidance for entomologists in February 2016 soon after the declaration of Zika virus disease as a Public Health Emergency of International Concern.

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<sup>1</sup> Inheriting a sustainable world? Atlas on children's health and the environment. Geneva: World Health Organization; 2017 (<http://apps.who.int/iris/bitstream/10665/254677/1/9789241511773-eng.pdf?ua=1>).

<sup>2</sup> [www.ilo.org/icsc](http://www.ilo.org/icsc)

- An international training course on insecticide resistance methods for 12 countries of the Region of the Americas was conducted in Brazil in July 2016.
- A meeting on insecticide resistance in malaria vectors where the principles of the global plan for insecticide resistance management were presented and discussed in Brazil, July 2016.
- Outcomes from a multi-country evaluation of the implications of insecticide resistance for malaria vector control were released in November 2016. The major finding confirmed that pyrethroid-treated LLINs provided personal protection against malaria in areas with low and high pyrethroid resistance.
- Annual meeting of the African Network on Vector Resistance convened in the Congo in November 2016.
- Contributed to the report by the DDT Expert Group on the assessment of scientific, technical, environmental and economic information on the production and use of DDT and its alternatives for disease vector control released in November 2016.
- The second edition of the test procedures for monitoring insecticide resistance in malaria vector adult mosquitoes was published in November 2016 (available at: <http://apps.who.int/iris/bitstream/10665/250677/1/9789241511575-eng.pdf>).
- A webinar seminar was conducted to discuss the new procedures incorporated in the updated edition for insecticide resistance monitoring in malaria vectors. Around 75 entomologists participated including WHO staff at regional and country offices, as well as entomologists working at national malaria programmes from all regions in February 2017.
- First meeting on a Worldwide Insecticide Resistance Network on *Aedes* involving Africa, Americas and Asia regions held in Brazil in December 2016.
- A framework for a national insecticide resistance monitoring and management plan for malaria vectors has been developed for release in March 2017.

## **WHO Regional Offices**

### *WHO African Region*

Activities on integrated vector management (IVM) were conducted in the African Region. WHO provided financial and technical support to countries in developing insecticide resistance management strategic plans in the context of IVM. Four countries (Eritrea, Ethiopia, Mozambique and Zambia) have initiated implementation of vector control programmes planned in line with insecticide resistance management approaches. Another five countries (Benin, Burkina Faso, Niger, Nigeria and Zimbabwe) have developed insecticide resistance management plans.

Four countries (Eritrea, Mauritania South Sudan and Uganda) have developed and/or updated their IVM strategic plan, while Angola has developed an IVM strategy for yellow fever vector control, including standard operating procedure, as well as a vector surveillance mapping guideline in response to the yellow fever epidemics. WHO provided technical and financial support to all these countries.

Angola, Burkina Faso, Cabo Verde and Guinea were supported in conducting situation analysis and implementation of IVM interventions in response to epidemics of yellow fever (Angola) and Zika virus disease.

Burkina Faso, Kenya, Uganda and Zimbabwe trained national, provincial and district staff in generation, analysis and utilization of local entomological data for evidence-informed IVM planning and implementation with financial and technical support from WHO.

Support to three countries (Eritrea, Ethiopia and Madagascar) in the implementation of a project funded by UN Environment on “demonstrating cost-effectiveness and sustainability of environmentally sound and locally appropriate alternatives to DDT for malaria vector control” continued throughout the year. These countries are now in the final stage of implementation; the project will conclude in early 2017.

A Letter of Agreement has been signed between WHO as the executing agency and UN Environment as the implementing agency of a project on “Demonstration of effectiveness of diversified, environmentally sound and sustainable interventions, and strengthening national capacity for innovative implementation of IVM for disease prevention and control in the WHO African Region”. The project will implement operational research and country capacity building activities in seven countries that currently use DDT. The project aims to generate the evidence required to establish the effectiveness of potential vector control interventions that are not currently mainstreamed at programme level in order to reduce the countries’ reliance on DDT.

In view of the increasing risk of arboviral transmission and epidemics in the Region, available information on arbovirus vectors has been collected and a regional report with country profiles produced to facilitate the comprehensive development and implementation of evidence-based control of disease vectors using an IVM approach. The information gathered and presented in the report will be used to develop a regional framework for integrated vector surveillance and control during emergencies.

#### *WHO Region of the Americas*

The following activities were undertaken as part of the Regional Programme of Public Health Entomology and Vector Control:

#### *Technical Advisory Group on Public Health Entomology and Vector Control (TAG-PHEVC)*

The TAG-PHEVC will serve as the Pan American Health Organization’s (PAHO) principal Advisory Group to the Director on all relevant aspects of this specialty area in the Americas. Since the creation of the TAG-PHEVC, two meetings were held in Washington, DC. The first meeting (8–10 March 2016) discussed two scenarios: vector control and prevention actions in relation to the epidemic of Zika virus infections in the Americas, and the review and analysis of the actions to be implemented for the prevention of vector borne diseases and vector control. The second meeting (1–3 February 2017) discussed an update of the situation analysis of transmission of the main vector-borne diseases affecting the Americas and progress in the implementation of the recommendations of the first meeting. Members of the TAG-PHEVC also provided guidance and recommendations on strategic actions on the use of new technologies for vector control and IVM, and reviewed and updated the technical and operational analysis of the Strategic Plan of Action on Public Health Entomology and Vector Control for the Americas.

### *Country missions for technical support*

- A technical support mission was carried out in Arica (30 May to 11 June 2016), Chile to assist in confirming the presence of *Aedes aegypti*, and to support the planning and implementation of entomological surveillance and vector control activities.
- In Uruguay, a technical advisory mission was deployed from 7–11 March 2016 to support entomological surveillance and vector control activities for interrupting dengue transmission and to strengthen knowledge and capacities for implementing the IVM strategy.
- A technical advisory mission was carried out in Paramaribo, Suriname (11–15 April 2016) to contribute to strengthening the control and surveillance of *Ae. aegypti*, to promote the updating of strategies and protocols for vector control, entomological surveillance and assessment of resistance to insecticides, and to collaborate in the development of a plan of immediate response to the outbreak of Zika virus, with emphasis on control strategies and vector surveillance.
- A technical support mission was carried in Peru (18–22 July 2016) to assess activities relating to the surveillance and control of *Aedes* spp. within the framework of the Zika emergency, to review with the national authorities the entomological situation of *Ae. aegypti* in the country taking into account the risk of transmission of dengue, chikungunya and Zika viruses, and to discuss and evaluate the possible use of pyriproxyfen for the control of *Ae. aegypti* in the country. Experts were also deployed to the interior of the country to assess the risk of transmission of urban yellow fever.
- A technical mission was carried out in the Plurinational State of Bolivia (4 October 2016) to review the strengthening of epidemiological surveillance and vector control for the response to the outbreak of Zika virus, and to contribute to the strengthening of vector control actions of *Aedes* in the context of the Zika virus emergency, contribute to the revision of the *Ae aegypti* Surveillance and Integral Control Guide, and to collaborate in the monitoring and management of insecticide resistance for the control of *Ae. aegypti*.
- A technical advisory mission was carried out in Panama (30 August –31 September 2016) in coordination with the Ministry of Health of Panama to review the entomological surveillance and vector control activities, to support the country in the revision and updating of the strategic plan for vector control, with focus on *Ae. aegypti*, and to evaluate new technologies for vector control, considering the recommendations of the WHO Vector Control Advisory Group and the TAG–PHEVC. The Regional Meeting of the Vector Control Department was also held (1–2 September) to consider the revision of the Strategic Plan and New Technologies for Vector Control.
- A technical consultation on the Integrated Management Strategy for the Prevention and Control of Arboviral Diseases (IMS-Arbovirus) for the Americas was held in Bucaramanga, Colombia (9–12 August 2016) to initiate the development of a management

plan for implementing the strategy to strengthen national technical capacities and integrated epidemiological surveillance of arboviral diseases.

- A technical advisory mission was held in Grenada (12–16 December 2016) to assess the IVM strategies, to contribute to the strengthening of entomological surveillance and vector control activities, and to assess the proper implementation of vector control activities.

#### *Other technical meetings*

- In January 2016, the International Meeting for the implementation of alternatives for the control of *Ae. aegypti* was held in Brasilia, Brazil, with the objective of evaluating new technologies for the control of *Ae. aegypti*, based on the available scientific evidence and according to their potential use for large scale. The recommendations of the event focused on promoting the use of these new technologies once their operational protocols have been developed and approved for use in public health. It was also defined that the Regional Program of Public Health Entomology and Vector Control/PAHO, with the PAHO/WHO Brazil Representation, should support technically the Ministry of Health in evaluating and implementing the proposed technologies and activities, and also collaborate in disseminating the results of the evaluations of new technologies.
- On 21 July 2016, in Washington, DC, a consultation on “Analysis of potential scale up of *Wolbachia*-infected mosquitoes to control *Aedes aegypti* transmitted arboviruses” was held to present plans for scaled-up releases of *Wolbachia* in Latin America, consider strategies for monitoring the impact of *Wolbachia* on arboviral disease transmission and identify a group of experts to assist in independent evaluation of the *Wolbachia* program in Latin America.
- On 20–21 October 2016, the Regional Meeting for the Surveillance and Control of Arbovirolosis was held In Havana, Cuba to discuss the identification of common actions for implementing the Strategy for arboviral disease prevention and control approved by the 55th PAHO Directing Council, and to promote harmonized efforts among countries in confronting the Zika epidemic. Likewise, experiences were exchanged between the participating countries in the prevention and control of the Zika epidemic and other causes of arboviral diseases with diagnosis and treatment, based on the components of the IVM strategy and the International Health Regulations.

#### *Training and workshops*

- On 2–4 February 2016, a workshop was carried out in Managua, Nicaragua to update the control of *Aedes* spp. strategies in the IVM framework, the situation of the arboviral diseases in the Region, as well as the laboratory diagnostic procedures and components of the IVM strategy.
- On April 19–20 2016, a sub-regional training workshop on entomological surveillance and vector control in Caribbean countries was carried out in Saint Vincent and the Grenadines, with the participation of the Caribbean Public Health Agency and 10 countries (Anguilla, Antigua and Barbuda, Barbados, British Virgin Islands, Dominica, Grenada, Montserrat,

Saint Kitts and Nevis, Saint Lucia, and Trinidad and Tobago), with the objective of building country capacities in entomological surveillance, vector control strategies and the implementation of IVM.

- On 17–20 May 2016, a workshop was carried out in Basseterre, Saint Kitts and Nevis to develop a regional network on surveillance and diagnosis of emerging vector-borne diseases in the Caribbean. The main objective was to revise the current available knowledge and experiences of national institutions related to control and research of vector control and IVM, to address the strengthening of implementation, evaluation and reporting of vector control activities or IVM. National research capacities were also assessed, and a framework developed to promote collaborative programmes both within the Region and with relevant global partners to conduct and use research in the field of IVM. The development and implementation of a plan for launching a multi-sector collaborative network to address the challenges posed by VBD in the Caribbean was also discussed.
- On 27 June–1 July 2016, a workshop was held in Rio de Janeiro in collaboration with WHO and the Oswaldo Cruz Foundation (FIOCRUZ), to update the methodologies used for monitoring resistance of *Aedes* spp. to insecticides used in public health in the Region of the Americas. The event aimed to update participating countries in the methodologies used to assess insecticide resistance in *Aedes* mosquitoes in the Americas and strengthen or develop national networks of surveillance of *Aedes* insecticide resistance. The entomologists of the countries responsible for entomological surveillance of diseases transmitted by *Aedes* mosquitoes were also trained to carry out the methodological activities of resistance surveillance.

### *Health promotion*

- In different weeks during 2016, the First Mosquito Awareness Week was held in 27 countries in the Americas. This initiative is promoted by PAHO to raise awareness of and promote actions to combat *Ae. aegypti* mosquitoes and prevent transmission of diseases such as dengue, chikungunya and Zika. The activity was aimed at strengthening the development of health policies related to vector control and promoting health education, social mobilization and community participation.

### *WHO European Region*

A training curriculum on invasive mosquitoes and (re-)emerging vector-borne diseases in the WHO European Region was developed. It draws, among other documents, on guidelines for IVM. The Region provides reference publications on IVM and recommended materials.<sup>1</sup> Based on this curriculum, a 5-day training workshop was conducted (14–18 November 2016) in Dubrovnik, Croatia for 25 Croatian specialists to provide them with understanding and

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<sup>1</sup> Training curriculum on invasive mosquitoes and (re-)emerging vector-borne diseases in the WHO European Region (2016). Copenhagen : WHO Regional Office for Europe ; 2016 (<http://www.euro.who.int/en/health-topics/communicable-diseases/vector-borne-and-parasitic-diseases/publications/2016/training-curriculum-on-invasive-mosquitoes-and-re-emerging-vector-borne-diseases-in-the-who-european-region-2016>).

analytical skills about the key issues surrounding invasive mosquitoes and (re-)emerging vector-borne diseases to enable them to improve strategic planning and implementation of activities.

#### *WHO Eastern Mediterranean Region*

Sudan: An inventory assessment training course for 11 participants was carried out with support from FAO in the Blue Nile National Institute for Communicable Diseases (12–20 December 2015). Training took place to input the collected inventory data obtained from the forthcoming inventory exercises in selected pesticide stores in Sudanese States into the FAO Pesticide Stock Management System (June 2016).

Morocco: Towards developing the public health pesticide law, the technical requirements of the law governing the entire life-cycle of public health pesticides were developed, and the Ministry of Health was assisted in integrating the various suggestions and remarks in the approval phase (2015–2016).

Jordan: A technical consultation on the implementation of the regional framework for sound management of public health pesticides, 2016-2020 was organized, and the progress made in implementing the regional framework of action on sound management of public health pesticides was reviewed (April 2016).

#### *WHO South-East Asia Region*

Indonesia: The following vector control activities were conducted in Indonesia in 2016 by the Sub-Directorates of Vector Control, malaria, arboviruses, and lymphatic filariasis and soil-transmitted helminthiasis.

- Monitoring and evaluation of insecticide resistance in five provinces in Indonesia, 2016 (supported by WHO).
- Intensification of source reduction using a family health approach – namely, the One Home One Larvae Oversight Volunteer – to reduce larval densities at the household level.
- Health education in elementary school students, especially the socialization of source reduction among elementary school students.
- In a dengue outbreak area (proven through epidemiological investigation), targeted fogging (two cycles with 1-week interval) was implemented.
- Activities under the Sub-Directorate of vector control activities for lymphatic filariasis is integrated with control of other vector-borne diseases such as the malaria control programme since in some areas endemic for lymphatic filariasis, the vector is similar to that which transmits malaria (*Anopheles*).

- For schistosomiasis control, vector distribution was mapped by the National Institute for Health Research and Development unit in Donggala, and a molluscicide was applied on a small scale in the endemic area.

Sri Lanka: IVM and pesticide management in anti-malaria campaign (AMC) in 2015 and 2016

Vector control in the IVM context changed drastically during the latter part of the malaria elimination phase and in the prevention of reintroduction phase of malaria. Both active and passive parasitological surveillance continuously generated evidence to confirm that internal transmission was no longer taking place in Sri Lanka. Continuing the policy of AMC to carry out environmental friendly methods to reduce mosquito density, the regional malaria officers had introduced larvivorous fish and were engaging in eliminating mosquito breeding sites as a routine measure. AMC has strictly restricted the use of pesticides. It was advised not to use chemical methods of vector control unless there is proven evidence or very high risk of malaria transmission. Hence, chemical methods of vector management were considered when an imported malaria case is reported. Both “vulnerability” and “receptivity” are at alarming levels: *An. culicifacies* densities were alarmingly high and there was convincing evidence of high risk of transmission of malaria.

Due to strict controls, the use of chemical mosquito control methods was minimal during the 2 years. This included distribution of 28 000 LLINs in 2015 in areas with high risk of malaria transmission in localized situations. Selection of the type of insecticides used for IRS, larviciding and space spraying took into consideration repeated susceptibility testing and bioassays. IVM was carried out based on routine entomological surveys conducted throughout the country. This included insecticide resistance monitoring.

In Thailand, the following trainings were conducted or supported:

- Workshop on use of standard equipment for vector-borne disease centre staff (15–16 December 2015)
- Workshop on efficacy testing of insecticide for mosquito control (7–8 December 2016)
- Workshop on surveillance of importance public health insects and arthropods (15–16 December 2015)
- Developed guidelines on space spray operations (2015) and a standard checklist for space spray application (2016)
- Conducted studies on durability of LLINs
  - entomological surveillance and monitoring on efficacy of LLINs in Mae Ra Mat district, Tak province;
  - study on using insecticide-treated net jacket/LLIN jacket for malaria vector control in rubber tapping population in southern Thailand; and
  - Monitoring and evaluation of LLINs and long-lasting hammock nets for malaria vector control.
- Routine sampling of public health insecticides for laboratory analysis of chemical and physical properties.
- Monitoring for insecticide resistance for dengue and malaria vectors in Thailand.
- Implementation of IVM on disease control in the District Health System.



## FAO

### *Normative work*

- Since the last JMPM, FAO has issued technical guidelines on legislation and on HHPs. Translation of these and several other guidelines is under way.
- The 15<sup>th</sup> meeting of the Joint Meeting on Pesticide Specifications (JMPS), held in June 2016, evaluated more than 50 specifications and equivalences. The meeting also reviewed the Tier 2 process for determining product equivalence and it strengthened (or recommended strengthening?) the process by adding a review of additional sub-chronic toxicity data. The meeting set new specifications for five new types of formulations, and it set new policies for the revision and updating of specifications.
- A special meeting of the Joint Meeting on Pesticide Residues (JMPR), with participation of an expert from IARC, was held in May 2016 to discuss glyphosate, malathion and diazinon. The group concluded that all three pesticides, as well as the metabolites of malathion, are unlikely to pose a carcinogenic risk to humans through dietary exposure. The group also concluded that diazinon is unlikely to be genotoxic.
- The regular meeting of the JMPR, held in September 2016, evaluated 35 pesticides and recommended some 400 new MRLs for adoption by CODEX.
- The 11<sup>th</sup> Collaborative International Pesticides Analytical Council (CIPAC) /FAO/WHO open meeting was held in June 2016. A training workshop on the FAO/WHO specifications and CIPAC methods, held in China in December 2016, was attended by more than 60 participants.
- The Chemical Review Committee of the Rotterdam Convention met in September 2016 and reviewed decision guidance documents on carbofuran and carbosulfan, took final regulatory action on benzidine (Canada), on carbofuran suspension concentrate (Colombia) and on atrazine.

### *Registration toolkit*

- FAO continues to organize training sessions, regional/national workshops, and webinars on the registration toolkit, and six instructional videos are now available on YouTube. The contents of the toolkit continue to be updated and a working group on pesticide chemistry met in 2016 to develop a specific module of the toolkit.

### *Risk reduction*

- In addition to publishing the technical guidelines on highly hazardous pesticides, FAO has added a special module on HHPs, which serves as a tool to identify them, to the Pesticide Registration Toolkit. Five African countries are in the HHP “identification” phase and the Southern African Development Community (SADC) and East African Community (EAC) countries have requested FAO assistance in developing a regional strategy to address HHPs.

- FAO and the government of Mozambique together produced five educational radio spots on pesticide risk reduction that are being aired with national Radio Mozambique on two national and 10 provincial stations. The radio spots are targeted at farmers, focusing on personal protective equipment, pesticide labelling colour codes, empty pesticide containers, pre-harvest intervals and alternatives to conventional pesticides.
- FAO, the International Labour Office (ILO) and the Rotterdam Convention Secretariat together designed a 2-hour e-learning course on protecting children from pesticides. Prepared in English, the course is soon to be available in French, Russian, Portuguese and Spanish.
- FAO projects continue to address the disposal of obsolete pesticides and remediation of contaminated sites. They also encourage the development of sustainable management systems for empty pesticide containers.
- The recently launched FAO Global Farmer Field School (FFS) platform provides a space for all those involved in farmer field schools to exchange information and improve the quality and efficiency of FFS activities. The platform includes background information, FFS news and events, a library, and a roster of FFS experts and partners. It currently lists more than 250 FFS experts and more than 400 documents. The platform also provides links to a global FFS discussion group that includes 750 FFS practitioners from 94 countries. In 2016, FAO organized a series of webinars on the topic of FFS.

#### *Mainstreaming biodiversity into agriculture*

- FAO is developing tools and guidance to help policy-makers integrate biodiversity into their agricultural policies, and to help countries revise their National Biodiversity Strategies and Action Plans and attain selected Aichi biodiversity targets. In this effort it is collaborating with the Biodiversity Convention Secretariat, UN Environment, FAO regional offices, regional groups and other partners; at the country level, it is working with ministries of agriculture, environment and tourism.

#### *Capacity-building*

- FAO is helping countries to strengthen their pesticide policies, legislation, registration and enforcement. It is promoting harmonization of pesticide registration in West Africa and the Pacific.

#### *Inter-organization collaboration*

- FAO is an active participant in such international programmes and forums as SAICM, IOMC and the OECD Working Group on Pesticides, and stays connected with the main international conventions on the environment. It will follow the developments of the third Global Minor Use Summit (1–4 October 2017).

## **OECD**

### *Illegal trade in pesticides*

OECD is giving increased attention to illegal trade in counterfeit, fake and sub-standard pesticides as this practice has become a growing problem in OECD as well as non-OECD countries. OECD has set up a rapid alert system with a protected site whereby countries can exchange information on suspicious or rejected shipments of pesticides, enabling them to give advance warning. For example if a package is in transit, customs officials in the receiving country can be notified that the package is on its way. OECD has also been developing best practice guidance for regulatory authorities, customs officials and inspectors on how to identify illegal pesticides and what to do once they are identified. The guidance covers the full life-cycle of a pesticide, from manufacturing to disposal. OECD is also developing a legal framework that will be available for both OECD and non-OECD countries to establish or strengthen their programmes, and to find ways to cooperate and share information.

### *Pollinators*

OECD is looking at pollinators and colony collapse disorder, particularly in bees. It has developed a number of test guidelines for honeybees and is preparing more. In addition, it is holding a seminar open to all countries at the end of June to share information, identify assessment and risk management options, and explore ways for countries to work together to address this issue.

### *Risk indicators*

Since the last JMPM, OECD has developed a database containing detailed information about existing pesticide risk indicators from different countries and an option that allows countries to add information on new pesticide risk indicators. OECD has also written a publication for pesticide risk managers on how governments can select existing pesticide risk indicators or develop new ones.

### *Biopesticides*

As reported at previous JMPM meetings, OECD has published various guidance documents and seminar reports on biopesticides, the latter often being a first step, along with surveys of country activities, towards the development of guidance. Recent guidance documents focus on botanical active substances, storage stability, sensitization potential of microorganisms, and ways for companies to work with governments to prepare for product registration. Currently in development is a document on semiochemicals and a working document on the assessment of secondary metabolites. OECD recently drafted a “thought starter” that addressed how IPM tools and technologies (e.g. the use of biopesticides) can help fill the gaps in available plant protection products for minor use crops.

### *Other work areas*

OECD recently held a workshop on sustainable pest management. For biocides, OECD has focused on efficacy on hard surfaces and porous and non-porous treated articles, and is beginning work on efficacy of insecticide baits, contact insecticides used against cockroaches

and insecticides used against bed bugs. In the near future, OECD plans to develop guidance for the assessment of the impact on non-target organisms from the use of pesticides which cause post-transcriptional gene silencing through an RNA interference mechanism.

### **Pesticide Action Network (PAN)**

PAN provided an overview of its organization, noting that it has 103 partners around the world and five regional centres in North and South America, Europe, Asia and Africa. Past successes include the “dirty dozen” campaign and the banning of endosulfan. Today, PAN is focusing on the removal of HHPs and the promotion of agro-ecology. PAN supports communities, documents what is happening on the ground, advocates for policy change, undertakes awareness-raising activities, publishes books and is active on social media. At the international level, it has been very active in the Stockholm and Rotterdam conventions and the SAICM process, notably to promote agro-ecology.

PAN presented examples from Cambodia, China, India, the Philippines and Viet Nam to illustrate what is happening on the ground – such as the spraying of paraquat by children, the spraying of organophosphate pesticides near schools and the selling of paraquat in plastic bags – and of what PAN and its partners are doing to stop the use of HHPs and to help farmers switch to organic and agro-ecological farming.

PAN noted that it is now using apps to get information from the field in real time to better document the realities of pesticide use and effects on human health. The information gathered is also used to create profiles of companies and their sales techniques.

### **CropLife International**

#### *E-learning and training*

CropLife reported that it has launched an e-learning training tool on the Code on Conduct, which is available in 14 languages. The tool has four modules: a general overview of the Code; marketing, distribution and sales of pesticides; production, formulation and packaging; and registration, training and technical services. CropLife has been promoting it actively among its members and more than 5000 users have followed the course, receiving more than 8000 certificates (for completion of a module).

CropLife also reported on its recent training activities, noting the training in IPM of more than 100 000 farmers in India, done in partnership with local NGOs, and of more than 110 000 families in Honduras, done with the United States Agency for International Development. In particular, CropLife highlighted its training of spray service providers in the handling and application of pesticides and the use of IPM. The intention is for each spray service provider (SSP) to provide services to 20–30 farmers. The training programme began in West Africa, done in partnership with the World Cocoa Foundation, where more than 4000 SSPs have been trained for cocoa alone; more than 50 000 farmers in Côte d’Ivoire, Cameroon, Ghana and Nigeria, are using the SSP services. Following the success in West Africa, the programme is now being carried out in other parts of Africa and in Viet Nam. CropLife emphasized that the benefits of this activity include providing business for farmers as well as having pesticides applied and waste handled properly.

### *Counterfeit pesticides*

CropLife also reported that it is very much against counterfeiting, that it promotes the message to avoid counterfeiters to farmers and pesticide retailers, and that it has a training module for retailers in its pesticide training compendium. CropLife is also a member of the prominent anti-counterfeiting organizations and networks.

### *Capacity-building and risk mitigation*

CropLife's recent capacity-building activities include development of a risk assessment toolkit with tiered modules providing different levels for different levels of users, and the organization of multiple training sessions and workshops on HHP management, risk assessment, residues and implementation of the UN Globally Harmonized System of Classification and Labeling of Chemicals. CropLife has also initiated a process of risk mitigation in the West African Region, in partnership with the countries' agriculture and environment ministries and with FAO regional offices. The work represents a shift to beginning with concrete mitigation actions based on a dialogue and engagement with local stakeholders. CropLife noted that countries often know their problems very well and that listening to them is the best starting point for effective action and capacity-building.

### *Portfolio review*

CropLife reported on the progress made with its portfolio review, which was first presented at the last JMPM. The review is being carried out by CropLife's companies to determine whether their products include any HHPs and to take action if they do. The companies were asked to identify active ingredients that met the HHP criteria, to assess the risk of the formulations and to carry out risk mitigation where needed. CropLife emphasized that a conservative approach was used for the risk assessments and that a great deal of information on local conditions and practices was gathered. CropLife also noted that the portfolio review was not a "one off" exercise but is to be continuous.

To date, 6400 products have been evaluated. Some 16% (1024 products) triggered the HHP hazard criteria, of which 11% (704 products) were judged acceptable after risk assessment based on local use scenarios and 5% (320 products) required mitigation. Half of the 5% (160 products) have mitigation under way; the remaining half are under evaluation. The mitigation measures for the 160 products include: 97 product withdrawals; 14 phase-outs of formulations; 2 phase-outs of active ingredients; and 125 country mitigations involving use withdrawals, scenario changes (often label changes) and geographic withdrawals. CropLife noted that phase-out of an additional 5 active ingredients is pending.

Based on the results of the review, CropLife member companies are now discussing the need for accelerated stewardship activities to address: the availability of protective clothing, the risks of exposure involved with backpack sprayers, the clarity of label information, and pesticide storage and container management. The review also confirmed the existence of regional hot spots already identified by CropLife officials who worked in the field, where companies had to do the highest number of mitigations: these were South-East Asia, West Africa and the Andean region. One of the key triggers, CropLife noted, was that PPE was not available or was not used correctly in these regions.

The discussion following CropLife's presentation noted that the majority of the HHPs causing problems in developing countries are produced and sold by companies that are not CropLife members. CropLife agreed this presented a challenge for their association but noted that, as revealed in the portfolio review, its companies did have some problematic products and should lead by example in addressing them. CropLife added that it would help if FAO, with its engagement with governments, could support and engage the local industry in addressing problematic compounds. It was also noted in the discussion that the criteria for identifying HHPs used in the portfolio review were not identical to the JMPM's eight criteria, but CropLife explained that in fact they were basically the same as they just combined some of the eight into one. CropLife is considering publishing the results of the project but must first resolve confidentiality issues.

## **AgroCare**

AgroCare gave a quick overview of its situation, explaining that whereas CropLife is an association with just a few very large member companies, AgroCare's members are associations that are composed of a great many small members, making it difficult to speak with a unified voice. In addition, issues of data protection and competition make the task challenging. But AgroCare expects that it will become closely aligned with CropLife and hopes to become more active in the JMPM in future.

## **KemI**

KemI Sweden reported that it is working on various guidance documents on chemicals including pesticides, and that it has test versions of these documents. Examples include guidance on enforcement, on how to finance and structure institutional capacity, and on capacity-building for sound management of chemicals. KemI offered to circulate the latter two guidelines, currently in draft, which are very basic, explaining how to establish and finance chemical/pesticide management institutions. KemI noted that it might be useful to take these guidance documents into account when the JMPM considers how to develop new guidelines.

## **Opening remarks of Indian officials**

Mr Fikru Tesfaye Tullu, Team Leader, Noncommunicable Diseases, welcomed the participants to the meeting on behalf of the WHO Representative, New Delhi, and confirmed that the JMPM deals with critical issues. He explained that vector-borne diseases are a growing problem in India, with incidence increasing and spreading to new areas. Chemical control of vectors is the most widely used approach; hence large quantities of pesticides are used for public health, and human poisoning from pesticides is a growing concern. The speaker noted the importance of routine monitoring of insecticides to manage both risks and the development of pesticide resistance. He also noted the importance of training in safe application, transport and storage, and of the use of IVM.

Mr A.C. Dhariwal, Director, National Vector-Borne Disease Control Programme, Delhi, confirmed that his programme, which deals with the most important vector-borne diseases, is the biggest user of pesticides for vector control in India. He explained that India has a strong

institutional framework for vector control and for pesticide management and monitoring. He noted that the ministries of health, environment/forests and agriculture review insecticide data together and decide on quantities used, and that the pesticides are used responsibly in accordance with the Code of Conduct. He also noted that close contact with research organizations is maintained to ensure that new tools are considered once available.

Ms Neena Valecha, Director, National Institute of Malaria Research, Delhi, reiterated that vector-borne diseases are a major cause of illness and death in South-East Asia and that pesticides are a critical tool to combat them. However, she noted that pesticides are toxic and are handled by large numbers of people at the grassroots level, and that strategies are needed to select suitable products and to manage them correctly.

Mr Ashwani Kumar, Joint Secretary, Ministry of Agriculture, Delhi focused on pesticide use in agriculture in his remarks. He explained that agriculture is critical to India and that the country has a sound pesticide management programme and subscribes to the Code of Conduct. He reported that a new pesticide management bill is being proposed, with new or revised requirements for industry (e.g. storage and disposal). India is promoting IPM farming throughout the country as well as the use of safer pesticides (e.g. biopesticides) and/or traditional methods. Organic farming without pesticides is also being promoted and is quite widely used in the North-East states. In addition, India is collecting monitoring data and working with individual farmers to address issues.

## **Annex 3 – Final agenda as adopted by the JMPM**

### **Tenth FAO/WHO Joint Meeting on Pesticide Management**

**New Delhi, India, 10–13 April 2017**

#### **Sunday 9 April**

Meeting of the FAO and WHO Secretariats

#### **Monday 10 April**

##### **Closed session (09:00–9:45)**

1. Declaration of interest
2. Panel working procedures and programme of work
3. Any other matters

##### **Open session (starting 09:45)**

1. Opening and welcome address
2. Appointment of Chairperson and Rapporteurs
3. Adoption of the agenda
4. Meeting procedure, working arrangements and housekeeping matters
5. Summary of developments and actions since the ninth JMPM in October 2015
  - Reports by FAO, WHO, OECD, NGOs and industry
6. Review of guidelines in advanced stage of development
  - Guidelines on registration of microbials, botanicals and semiochemicals
  - Guidelines on personal protective equipment (PPE)

Welcome reception and dinner

#### **Tuesday 11 April (starting 09:00)**

7. Planning new guidelines
  - Guidelines on pesticide distributors and retailers
  - Guidelines on household pesticides
  - Guidelines on disposal of obsolete pesticides
  - Guidelines on registration of minor uses
  - New guidelines on risk reduction and communication
  - Updating guidelines in line with the Code of Conduct
8. Making JMPM guidelines more user-friendly, known and used by relevant stakeholders
9. Progress of implementation of the International Code of Conduct and Phasing out Highly Hazardous Pesticides in India



10. Ad hoc monitoring of the Code of Conduct (Open and Closed sessions)
11. Emerging and priority issues in pesticide management

**Wednesday 12 April (starting 08:30)**

12. Field visit to institutes in Delhi
  - Shriram Institute for Industrial Research
  - Indian Agricultural Research Institute
  - National Institute of Malaria Research

**Thursday 13 April (starting 09:00)**

13. Reflections on the field visit
14. Indicators for monitoring progress of pesticide management
- [6. Review of guidelines in advanced stage of development (cont'd from Tuesday)
  - Revised guidelines on registration of microbials, botanicals and semiochemicals]
15. Any other issues

**Closed session**

16. Review of JMPM recommendations

**Open session**

17. Presentation and finalization of the recommendations
18. Closure of the meeting

## **Annex 4 – JMPM response to 2015 ad hoc monitoring submission**

In line with the Guidelines on Monitoring and Observance of the Code of Conduct (2006), the Food and Agriculture Organization of the United Nations (FAO) received an Ad Hoc Monitoring Report from the European Center for Constitutional and Human Rights on behalf of an alliance of nongovernmental organizations, including the Pesticide Action Network–Asia and the Pacific, the Kheti Virasat Mission, Bread for the World and the Berne Declaration in September 2015.

The report draws attention to issues related to the distribution and use of six pesticides from Bayer and Syngenta, two companies’ members of CropLife International that agreed to adhere to the Code of Conduct, in Punjab, India, including the labelling of pesticides, training of farmers, availability and use of personal protective equipment, and the monitoring of pesticide use for health and environmental effects.

The report addresses two main aspects of (non-)adherence and relates to the following articles of the Code of Conduct:

- (i) the labeling of pesticides (relating to Articles 3.5, 3.6, 7.4, 10.1 and 10.2); and
- (ii) training and protective personal equipment (relating to Articles 3.7, 3.11, 5.3 and 8.2.7).

In addition, the report draws attention to companies’ efforts to take corrective action (as outlined in Article 5.2.5 of the Code of Conduct) and illustrates the importance of collaboration between government and industry for monitoring pesticide use and the health and environmental effects (as outlined in Articles 4.5 of the Code of Conduct).

The JMPM makes the following response:

- In line with the objectives of the Code of Conduct, the JMPM has taken note of the submission on ad hoc monitoring of the Code of Conduct on Pesticide Management in India, in adherence to article 12 on monitoring and observance. It notes that FAO has informed the Government of India and the two companies of this issue.
- The JMPM supports the stakeholders’ talking and working together to promote practices that minimize pesticide risks.
- Pesticide risk reduction is a complex issue, and a multi-stakeholder approach can move it forward. Feedback should be encouraged to identify areas requiring attention. Multi-stakeholder dialogue may help further improve pesticide risk reduction in India.
- The JMPM encourages further monitoring of the implementation of the Code of Conduct.

