

WORKING MATERIAL

***Integrated Approaches to Assess
Indicators of the Effectiveness of Pesticide
Management Practices***

REPORT OF THE CONSULTANTS MEETING

Vienna 6-9 June, 2006

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JOINT FAO/IAEA DIVISION
OF NUCLEAR TECHNIQUES IN FOOD AND AGRICULTURE
INTERNATIONAL ATOMIC ENERGY AGENCY
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

Report of the Consultants Meeting
On
INTEGRATED APPROACHES TO ASSESS INDICATORS
OF THE EFFECTIVENESS OF PESTICIDE MANAGEMENT PRACTICES

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Introduction

The Consultants Meeting on “Integrated Approaches to Assess Indicators of the Effectiveness of Pesticide Management Practices” met at IAEA Headquarters in Vienna, Austria from 6-9 June 2006.

Objectives of Meeting

- ◆ To produce recommendations on the following:
 - the scope of the CRP and the activities needed to attain the CRP objectives ;
 - the use of nuclear techniques;
 - the use of first tier risk assessment tools;
 - capacity building activities (training materials, including table of contents, training initiatives, workshops, meetings, research project proposals) to be able to directly support laboratories in the implementation of the CRP;
 - pre-requisites for laboratories for participation in the CRP;
 - minimum data set requirements
- ◆ To produce an annex to the meeting report that includes:
 - Framework for scale and sampling of pesticides in water/sediments for potential CRP participants;
 - Framework for analysis of pesticides in water/sediments for potential CRP participants;
- ◆ To prepare a list of laboratories/countries/experts in the different analytical areas (geographical and institutional representation) as potential participants in the CRP as agreement holders, research contract holders or technical contract holders.
- ◆ To advise the FAO/IAEA Joint Division on possible sources for extra-budgetary funding

The Meeting, chaired by D. Connor, discussed the above objectives in detail, made the following recommendations, and provided additional information on specific topics.

The List of Participants is attached to this report.

Intent of the Project

This CRP will bring together analytical laboratories with the required capabilities that, as members of wider groups, have a focus, or intention, to apply GAP¹ at a catchment scale and join the project to evaluate and optimize the effect of GAP on environmental sustainability as measured by the presence of selected high impact-ranking pesticides in surface water and sediments. Immediate benefits to individual groups include assistance from IAEA/FAO to improve laboratory competence for the

¹ see FAO website, http://www.fao.org/prods/GAP/archive/Development_of_GAP_Approach%20FAO.ppt

specific requirements of the project and the opportunity to interact with groups working on comparable problems in different environments. Further benefits include the opportunity to establish quality-assured competence to evaluate indicators² of GAP performance by environmental monitoring at catchment scales and strengthening of multi- disciplinary/stakeholder groups.

Recommendations

On the scope of the CRP and the activities needed to attain the CRP objectives:

- Individual contract holders should:
 - prepare for the first RCM by providing data as described in Annex 1.
 - focus on one catchment, representative of a dominant farming system, and convenient to the analytical laboratory.
 - make observations and measurements with respect to at least two insecticides, two fungicides, and two herbicides, with high environmental impact.
- Participants should evaluate the appropriateness of the chosen indicators to assess the effectiveness of GAP in reducing the environmental impact of pesticides.

On the use of nuclear techniques:

- Where facilities exist, labelled pesticides are preferable for evaluating method performance parameters, and stable isotopes for calibration purposes.

On the use of risk assessment tools:

- Participants should use the Pesticide Impact Ranking Index (PIRI) for risk characterization and *in situ* bioassays to target monitoring activities.

On capacity building activities to directly support laboratories in the implementation of the CRP,

the IAEA should:

- Establish and maintain a protected website for interaction among collaborators and provision of training materials and information.
- Prepare a draft CRP protocol for discussion at the first research coordination meeting (RCM) (see Annexes 2 and 3).
- Include training sessions within the RCMs and explore possibilities of additional training opportunities.

² OECD (1999) Environmental indicators for agriculture Volume 1 Concepts and Framework (<http://www1.oecd.org/agr/biodiversity/volume1.pdf>).

On pre-requisites for laboratories for participation in the CRP:

- Contract Holders must have:
 - experience in residue analysis
 - linkages with GAP and watershed activities and capability to conduct field work
 - an ongoing water quality programme
 - adequate funds for monitoring activities
 - a quality system in place (preferably according to ISO/IEC 17025)
 - GC-ECD/NPD(FPD) and preferably HPLC DAD/FLUO, GC/MS
 - internet access and capability/willingness to conduct training and undertake risk communication

On minimum data set requirements:

- Participants must adhere to the minimum requirements reported in Egli et al. (2003)³ and additional guidance presented in Annexes 2 and 3.

Specific Related Tasks

On preparation of a list of laboratories/countries/experts in the different analytical areas (geographical and institutional representation) as potential participants in the CRP as agreement holders, research contract holders or technical contract holders.

- See Annexes 4 and 5

On advising the FAO/IAEA Joint Division on possible sources of extra-budgetary funding.

- See Annex 6

³ Pure and Applied Chemistry, (2003) 75, 1097-1106

Issues Identified

The Consultants

1. identified the need for IAEA to facilitate the validation of cost effective analytical procedures based on mass spectrometry that enable simultaneous detection and confirmation of residues.
2. considered that a weather station is desirable in each catchment under investigation given the variability in rainfall.
3. considered that IAEA and FAO should facilitate the participation of contract holders in existing training opportunities through provision of information and active support of training applications.
4. emphasised the importance to immediately start searching for funds to support follow-up activities in research, development, and capacity building with a focus on mitigation strategies.