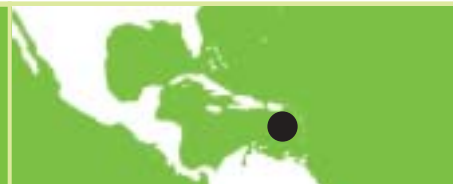


# Researchers as communicators

Solving agro-chemical pollution problems in the Caribbean



The Caribbean region is especially vulnerable to agro-chemical pollution. The predominance of small islands means there is an intimate link between the land, rivers and the sea. This increases the potential for environmental pollution and can directly impact on human health and livelihoods with the poor most at risk. Researchers are often criticised for focusing only on the technicalities of pollution. But in the Caribbean researchers are moving beyond their 'traditional' territory and supporting the development of national strategies for agro-chemical management and use which involves harmonising legislation, establishing administrative controls for chemical distribution, introducing good on-farm practices and, setting up effective health and environmental monitoring systems.

## The poor are most affected

Agriculture, fishing and tourism are the major sources of employment in the Caribbean but farmers and fishers are among the poorest people in the region. Farmers' livelihoods are critically dependent on fertile soils and fishers' on healthy marine ecosystems. But the misuse of agro-chemicals adversely affects them all. It increases food production costs, contaminates soil and water, increases phyto-toxicity and pest resistance, and renders exports uncompetitive. It affects global trade that demands exporting countries provide proof that their systems produce safe food, and tourism by damaging the coral reefs that draw visitors to the islands.



In St Lucia the intense use of pesticides on banana smallholdings has led to significant environmental pollution. This stems mainly from inappropriate chemical handling, storage, and disposal, and poor soil and water conservation practices that encourage soil erosion and the movement of pesticides into the groundwater and nearby streams. Similar problems occur in Jamaica with additional pollution coming from the intensive plantation farming of coffee, sugar and bananas. In several environmental studies in the region more than 75 percent of water samples were found to contain pesticide residues higher than the European Community general guidelines for drinking water.

Poor farmers in the Caribbean are least able to develop strategies and coping mechanisms to mitigate the effects of flawed pesticide management practices. Product labelling is often poor and farmers are usually inadequately trained in the use of hazardous chemicals. So incorrect applications are likely. Most farmers do not have appropriate application equipment and fail to wear protective clothing.

## At national and regional levels

An important step to improving agro-chemical management was taken by the Cartagena Convention (1983) and its Protocol on Land-Based Sources of Pollution. This sets out the obligations of Caribbean states to formulate national plans, policies and legal mechanisms to prevent and ameliorate land-based pollution. However, a lack of capacity has meant that little has been achieved since the convention and national plans of action have yet to be put in place.

This lack of action has meant that the management of agro-chemicals at a national and regional level is generally poor. At a national level there are few effective controls over the importation of toxic pesticides, their

Poor farmers are least able to develop strategies and coping mechanisms to mitigate the effects of flawed pesticide management practices

administration and the distribution chain. There is a lack of targeted research on agro-chemicals and their impacts and there is no long-term monitoring in place. Current research tends to be technically focused on pesticides breakdown in soils, the bio-accumulation in species and to a lesser extent on the links between chemical use in agriculture and their impact on river systems and coastal waters.

At a regional level there is as yet no common approach to agro-chemical management shared by all the nations. This disharmony in legislation and management practices reduces the effectiveness of national controls as chemicals are moved from one island to another.

### A course of action

The benefits of improved agro-chemical management are well recognised. Improved land use and more effective and selective use of agro-chemicals will reduce costs for farmers and improve incomes. Careful application of agro-chemicals will also reduce pollution at source and reduce public health risks to farmers. It will also reduce pollution downstream in the watershed and coastal zone and so reduce public health risks in coastal communities. It may also improve fish yields as well as helping to secure new opportunities for fishers and farmers offered by the growing tourist industry.

Researchers also recognised the importance of establishing a comprehensive strategy for the management of agro-chemicals in line with the Categena Convention. To achieve this the researchers were pro-active in communicating with key policy makers – the regional Coordinating Group of Pesticide Control Boards of the Caribbean (CGPC), whose membership comprises the heads of the Pesticide Control Boards from all the countries in the Caribbean Community and Common Market (CARICOM). This led to a working partnership for the development of a strategy to improve the use of agro-chemicals.

To prepare this strategy the research team examined two case study countries – Jamaica and St Lucia. The studies involved working with resource users to assess the type and extent of agro-chemical pollution, evaluate the impacts of pollution on the livelihoods of small farmers and fishers, and examine ways of reducing impacts to benefit both farming and fishing. An assessment was then made of the pollution threats and their economic implications from which management



options for pollution control were developed. These clearly confirmed that toxic loadings need to be reduced and better health and safety practices employed to protect people and to safeguard the environment and economic resources.

The research identified several critical intervention points for the management and amelioration of agro-chemical pollution, and the need for a common approach regionally. At the national level these included harmonising agro-chemical legislation with Caribbean partners, developing administrative procedures to control chemical use and establishing public health and environmental monitoring and feedback mechanisms. At the farm level it included inspecting and monitoring the use of pesticides as part of a wider strategy for implementing Good Agricultural Practices (GAP).

### A strategy

An holistic strategy for improved agro-chemical management, which captures the recommendations of this three year research programme, was developed directly with policy-makers during a meeting with the CGPC in June 2003. It is designed to bring together the various stakeholders/institutions involved in agro-chemical use and management from import manufacture through to monitoring the effects of application in the land water interface.

The strategy provides ten key management recommendations and translates them into actions at regional and national levels to harmonise pesticide control measures, to support and finance existing institutions and improve collaboration, and to promote good agricultural practice through information, training, and outreach work (see box). The strategy also provides detailed guidance on developing health and environmental monitoring plans and on research and planning that should be undertaken in support of these. It makes recommendations on sustainable financing, capacity building, and communication and education programmes that are required to support the strategy.

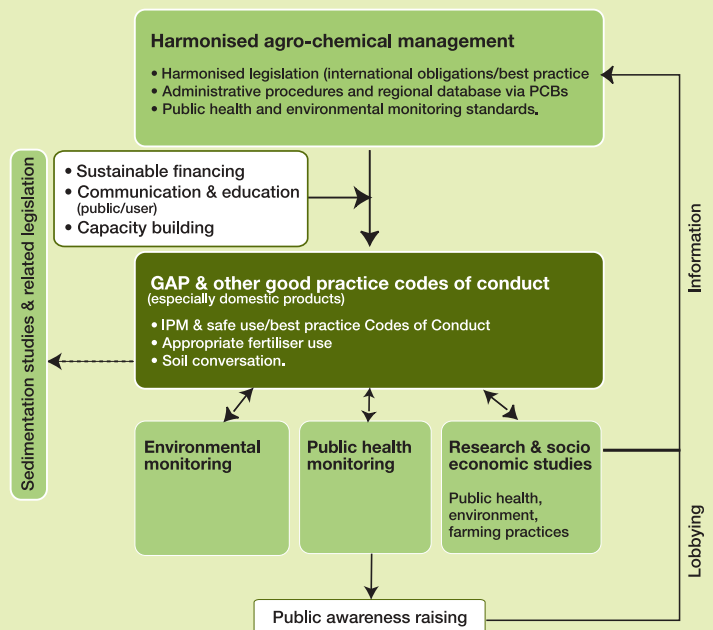
## A huge task to come

The CGPC has recommended that the strategy be promoted to national governments for adoption and implementation. This demonstrates the significant impact of this research at the policy level. It also represents a huge task to come and so implementation requires a phased approach. Priority should be given to reducing imports of the more toxic pesticides and controlling their administration and distribution chain as this would have the greatest impact on reducing toxic agro-chemical loadings. At the same time better practices should be employed in the use of agro-chemicals and their fate should be monitored.

A participatory, consultative process involving the users of agro-chemicals, those affected by pollution, and the implementing agencies will be important to achieve an effective agro-chemical management plan, and thus pollution control. In response to this a new research project was commissioned (R8634). This is largely about advocacy and communication. It seeks to increase awareness of the need for improved agro-chemical management and to promote the implementation of best practices as a means of reducing coastal zone pollution, maintaining markets for locally produced foods and improving public health. Currently, management actions of the various institutions tend not to be integrated. So the aim is to gain their engagement in broad-based participation, to accept and adopt the strategy and to develop national and regional plans of action. This will be designed to achieve the coordinated use of available limited human and financial resources.

Indicators will also be needed to measure the uptake of the strategy and the resulting benefits from its implementation. These have yet to be defined at a national level but they should ideally be available and monitored via existing mechanisms and reported in annual reports and statistics of the institutions involved (e.g. quantities of imports, numbers of licences issued). This too will form part of research project R8634 with the results expected in 2005.

A key aspect of the completed and current project is the sustained dialogue between researchers, policy-makers and policy implementers. As a result, there has been significant policy progress which should carry through to achieving sustained improvements in pollution control.



R7668 Impact and amelioration of sediment and agro-chemical pollution in Caribbean coastal waters

R8634 Promoting an holistic approach to agro-chemical management in the Caribbean (on-going)

Copies of strategy document and project briefs available on [www.mragltd.com](http://www.mragltd.com)

Also available at [www.caribpesticides.net](http://www.caribpesticides.net)

**Christopher Mees**

MRAG Ltd  
18 Queen Street  
London W1J 5PN  
Email: [c.mees@mrag.co.uk](mailto:c.mees@mrag.co.uk)

**Hyacinth Chin Sue**

Pesticides Control authority  
Kingston  
Jamaica  
Email: [chinsue@caribpesticides.net](mailto:chinsue@caribpesticides.net)