INTERNATIONAL WATERS RESULTS NOTES

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Colombia, Costa Rica and Nicaragua - Reducing Pesticide Runoff to the Caribbean Sea

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Farmers implementing innovative pest management strategies to reduce pesticide run off to the coastal zone and marine environment

1.A set of validated Good Agricultural Practices (GAP) for some of the major crops of the Meso -Caribbean Region that are environmentally sound, socially acceptable and economically feasible, and that are transferable to other similar parts of the world.
2. An increasing number of farmers have accepted that the implementation of GAP reduces environmental impact, increases food safety and ameliorates workers welfare, while enabling better marketing opportunities.
3. The effective inter-institutional cooperation and public-private sector partnerships that were established in the project countries are going beyond the implementation of the project and are used as a platform for new projects.

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PROJECT OBJECTIVE

Reduce pesticides runoff to the Caribbean Sea through the implementation of good agricultural practices and specific measures to improve the management of pesticides in the agricultural sector.

RESULTS: PROCESS

One of the significant achievements was the effective inter-institutional cooperation and public-private sector partnerships that were established in each of the participating countries and regionally. This co operational framework has served as a platform for concerted decision making, the implementation of project activities and the development of new projects, thus contributing to the sustainability and up-scaling of the intervention. Similarly, significant progress was made towards streamlined laws and regulations for pesticide management that allow for adequate control and enforcement. Guidelines for responsible use of chemical pesticides in the agricultural sector were published and distributed in Colombia. Similarly, in Costa Rica, existing legislative frameworks were compiled as well as a new framework developed to follow-up on pesticides use in agriculture. In Nicaragua a new Norm was developed to regulate the use and management of pesticides. This Norm was vetted through consultations and will be adopted by a Ministerial Decree. Thirdly, the project has influenced market forces that motivate agricultural producers to implement Good Agricultural Practices (GAP) in which environmentally friendly production is considered an added value.

INDICATOR#1

1. Number of new projects formulated in the fields of POPs, GAP or pesticide monitoring by the national stakeholders or UNEP-CAR/RCU:

Four new projects were developed, specifically 3 national projects approved for external financing and also a new GEF regional PIF developed, thereby exceeding the original target (original goal 3 new projects).

INDICATOR#2

2. Endorsed recommendations on legal reforms by National Governments or Publications made to promote the knowledge of the existing legal frameworks among the stakeholders of the agricultural system:

The Project facilitated Government endorsed recommendations on legal reforms in all of the 3 participating countries -Colombia, Costa Rica and Nicaragua (original target 3 reforms).

RESULTS: STRESS REDUCTION

The primary objective of the GEF REPCar Project is the reduction of pesticide run-off to the Caribbean Sea. The evaluation of the runoff residues at the demonstration farms indicated a positive effect as a result of the Good Agricultural Practices implemented. Due to the complexity of the receiving environment, an accurate evaluation of the impact of these interventions at the regional ecosystem scale would require a prolonged assessment period and more extensive scope. In each participating country a set of Protocols for Good Agricultural Practices were validated for 6 combinations of crops/regions. The crops that were evaluated in the demo plots were Banana (Colombia, Costa Rica), Plantain (Colombia), Pineapple (Costa Rica), Oil Palm (Nicaragua) and Beans (Nicaragua). The GAP were implemented through extensive *in-situ* field training of over 6000 farmers and commercial producers to encourage conditions that discourage the use of highly toxic or persistent pesticides while promoting the use of alternative practices.

INDICATOR#1

1. The amount of pesticides used per hectare for the selected crops in the regions where the project is active (demo projects):

There was a reduction in the use of all pesticides (no POPs being used) that varied from crop to crop, the degree of reduction ranged from 7.6% to 53.3% (end of project target was an average 20% reduction).

INDICATOR#2

2. The number of farms applying GAP for the selected crops in the regions where the project is active:

This indicator exceeded the original end of project target of a 15 % increase from the baseline. Specifically GAP coverage improved as follows:
Colombia - banana: 95% Plantain: 67%
Costa Rica -banana: 98% Pineapple1: 74% Pineapple2: 29%
Nicaragua -beans: 95% Oil palm: 23%

RESULTS: WATER RESOURCE AND ENVIRONMENTAL STATUS

Several baseline indices on pesticides in the marine environment were collected through the coastal monitoring component of the project. The monitoring program was executed over a two year period in over 49 sample sites along the Coasts of Colombia, Costa Rica and Nicaragua. Pesticide analyses were performed on water, sediment and suspended sediment samples. Passive samplers were also used to collect data at selected sites. This data was incorporated into the national coastal monitoring programs and used as required to supplement existing environmental indices. These findings were discussed by the different stakeholders at the national level and formed part of the basis for the development of the new policies and strategies. These contributed to the anticipated outcome to facilitate an increased knowledge of the complex interactions between agriculture and environment, enabling the development of new environmentally sound agricultural policies

INDICATOR#1

1. **The percentage of water and sediment samples with quantifiable pesticide concentrations:**

   The majority of the samples analyzed in the study zone along the coasts of all three participating countries were below the limits of detection or quantification. Specifically, only 2.1% and 3.8%of all of water and sediment samples respectively showed pesticide concentrations above the quantification limits.

INDICATOR#2

2. **Reduction of pesticide runoff on the pilot farms by the end of year 3, compared to control plots:**

   Demonstration projects showed an overall reduction in the total pesticide concentration in the effluent. The evaluation is not obvious in all plots, especially where there was low initial runoff. In other cases the reduction is up to 87%. (Original target: pesticide runoff reduced by 40% when GAPs are implemented).