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**Impact evaluation of the Integrated
Management of the Coffee Berry
Borer (CBB) project**

Preliminary report

Background

1. In March 2009, the Common Fund for Commodities (CFC) commissioned an Impact Evaluation of a CFC/ICO project on the Integrated Management of the Coffee Berry Borer which was implemented from 1998 to 2002 in seven countries: Colombia, Ecuador, Guatemala, Honduras, India, Jamaica and Mexico. The Executive Summary of the project (document ICC-86-5) and a manual on CD-Rom were circulated to Members in 2002 and additional copies are available on request from the Secretariat.

2. The evaluation was carried out between May and August 2009 by two consultants (Mr Pablo Dubois and Mr Gerrit van de Klashorst). The preliminary summary of the conclusions of the evaluation is attached. The consultants will present this to the Council at its 103rd Session.

Action

The Council is invited to take note of this document.

IMPACT EVALUATION OF THE INTEGRATED MANAGEMENT OF THE COFFEE BERRY BORER (CBB) PROJECT (CFC/ICO/02)

PRELIMINARY REPORT

Background

1. The purpose of the exercise is to assess the development impact of the above project and the extent to which the project's objectives and targets have been achieved, by means of a comprehensive Impact Evaluation. It is also to examine the elements of success and failure in the project design and implementation, and the results obtained, with a view to drawing lessons from the experiences which could benefit future initiatives for CBB management. It can therefore be seen as part of the follow-up to the ICO Seminar on the CBB held in March 2009¹. The Evaluation was commissioned by the Common Fund for Commodities (CFC) and undertaken by the consultants Mr Pablo Dubois and Mr Gerrit van de Klashorst. The present document attempts to present a preliminary summary of the Evaluation's conclusions.

The project

2. Following its approval by the International Coffee Council and the Executive Board of the CFC, the project for a total cost of US\$5,467,000 was implemented between April 1998 and May 2002 in the following countries: Colombia, Ecuador, Guatemala, Honduras, India, Jamaica and Mexico. The project executing agency was CABI Bioscience with PROMECAFE playing a coordinating role with respect to its member countries. The central objective of the project was to benefit coffee producers through improved yields and coffee quality by controlling the CBB, widely considered the most important pest affecting coffee².

3. The project comprised the following components:

- Improvement and testing of mass rearing and delivery systems for natural enemies (pathogens and parasitoids) of the CBB.
- Provision of natural enemies to participating countries.
- Integration of biological control technologies and other methods for cultural and chemical control to develop IPM systems.
- Dissemination of the Integrated Pest Management (IPM) technology/information and associated training to participating and other countries.

¹ ICO document ICC-102-5.

² ICO document EB-3948/08.

The Evaluation

4. The Evaluation was carried out between May and August 2009. Apart from detailed analysis of the literature relating to the project Mr van de Klashorst undertook a field mission to three project countries (Colombia, Guatemala and Jamaica) and to three non-project countries (Brazil, Ethiopia and Indonesia). The latter were included in order to evaluate further locations where new/different strategies to the project have been implemented so as to facilitate the generation of recommendations of the widest validity. The Mission made use of a Guideline Questionnaire to assist systematic data gathering and endeavoured to meet those responsible for work under the project as well as on CBB management at the present time.

Preliminary Results

5. Details of fulfilment of specific project activities are given in the full report. This summary confines itself to an assessment of achievement of the principal components as indicated below:

Improvement and testing of mass rearing and delivery systems for natural enemies³ (pathogens and parasitoids) to combat the CBB

6. The evaluation concluded that considerable advances had been made in the biological control methods proposed. However, these were at too early a stage of development to be taken up by farmers. This is particularly the case with parasitoid wasps, although some positive results have been achieved with *Cephalonomia stephanoderis* in Guatemala. It should be noted that technologies for cost-effective automated mass-rearing of parasitoids only became available at the end of the project and require substantial investment which was not forthcoming at the time of the coffee crisis. In the case of the fungus *Beauveria bassiana*, during and after the project some of the difficulties in its cultivation and application were overcome, and at the present day it is much more commonly used than before.

Provision of natural enemies to participating countries

7. After successful rearing, the natural enemies were transferred to participating project countries. Cultures were then established there, and the biological control agents (natural enemies) were subsequently released in the field to combat the CBB during the project period. After the project terminated this was not vigorously continued in most project countries, although Jamaica and Colombia are continuing to rear parasitoids for research. The field mission found that the only country where *C. stephanoderis* is continually mass-reared was

³ Natural enemies are specific natural agents that are introduced to combat the pest – in this case the CBB.

Guatemala, where over 50 larger farmers are financing and using Rural Rearing Facilities (RRFs). They have been releasing *C. stephanoderis* for over 12 years now, which is proving effective as a CBB control method, especially in combination with cultural control.

Integration of biological control technologies and other methods for cultural and chemical control to develop IPM systems⁴

8. This was investigated through Farmers Participatory Research with varying degrees of success in the different project countries. Although biological control lagged behind, there seems to have been a substantially improved awareness of the benefits of IPM and in many cases the successful use in particular of improved cultural control methods such as 're-re'. Re-re is the most common cultural control (it encompasses the complete removal of all ripe and over-ripe berries from the trees and the ground after the harvest and during the inter-harvest period, thus reducing vital sources of re-infestation by the CBB). The results in avoiding losses have been highly positive, according to Colombian officials, who estimated a benefit in excess of US\$200 million a year in the last year of the project compared to the first year, a result which could substantially be derived from the project⁵.

Dissemination of IPM technology/information and associated training to participating and other countries

9. Although not emphasized in the final project reports, there has been a large number of officially published documents produced by the project which are useful for other countries wishing to use the techniques and methods developed during the project. Moreover the dissemination process has been assisted through the successful use in many cases of the Farmers' Participatory Method for extension.

Lessons learned

- The design of the project was complex, in terms of the range of activities and the number of countries involved, which probably made project management more difficult.
- The economic malaise in coffee from 2000 to 2004 greatly reduced the interest of coffee farmers in investing in their farming systems, which had a significant impact on the project.

⁴ *Integrated Pest Management (IPM) is the use of one or several compatible control methods to combat a pest species. These can be cultural methods, biological methods and as a last resort synthetic pesticides.*

⁵ *However improvements may also derive from other factors such as work undertaken prior to the project and occurrence of climate conditions less suitable for the CBB. For instance 1997/98 is classed as a bad year, thus giving a high initial reference point for infestation.*

- Cultural control is sustainable, effective and environmentally sound, but the cost of labour (and its availability) make its use difficult to maintain under adverse market conditions where labour costs are high and coffee market prices are low.
- Poor money management skills of farmers and lack of access to financial services have had a negative impact on the use of necessary management practices for coffee farms.
- The existence of an inter-country structural working party on CBB IPM would have enhanced the project's sustainability.

Recommendations

- Farmers' participatory methods should be central to any further projects to be conducted.
- Small farmers in Central American countries that have not participated in the original project could benefit from its results and the advances that have been made since.
- Farmers in certain parts of Indonesia need to be organized in farmers' groups and be empowered to understand and apply sound IPM techniques against CBB.
- Continued but carefully focused testing of biological control agents in the field should be encouraged.
- Greater price incentives to farmers for quality need to be adopted.
- Priority should be given, within an IPM framework, to abandoning the use of chemicals for CBB control.