



INTERNATIONAL COFFEE ORGANIZATION  
ORGANIZACIÓN INTERNACIONAL DEL CAFÉ  
ORGANIZAÇÃO INTERNACIONAL DO CAFÉ  
ORGANISATION INTERNATIONALE DU CAFÉ

ED 2105/10

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**Cooperation with the International Coffee  
Genome Network (ICGN):  
request to send information on coffee  
genome by 30 April 2011**

1. The Executive Director a. i. presents his compliments and, following the meeting with the ICGN on 22 September 2010 (see documents ED-2086/10 and ED-2094/10), wishes to request Members, in consultation with their research institutions and coffee sectors in their countries, to send him all relevant information (data and research on the coffee genome including documents and reports on existing projects and proposals and past or ongoing research) **by 30 April 2011**. Members are also invited to send their views on proposals already submitted to the ICO (see summary of proposals discussed at the ICGN meeting in September 2010 contained in Annex I) and to suggest donors to implement this type of initiative. Submissions should be sent in English as this is the language used by the international scientific research community.

2. The purpose of this request is to assist Members and the ICGN to take stock of what has been achieved in individual countries and to establish priorities for a future programme of work on for the coffee genome with long-term benefits for the coffee sector. A meeting with the ICGN will be arranged at the time of the 107<sup>th</sup> Session at the ICO headquarters in London from 26 to 30 September 2011 to review the different initiatives and work being carried out, and building on existing expertise and findings, to establish priorities for the future and explore potential sources of financing.

3. Members may wish to note that Brazil, Colombia, Costa Rica, Côte d'Ivoire, Ethiopia, Guatemala, India, Indonesia, Kenya, Malawi, Mexico, Vietnam and the InterAfrican Coffee Organisation (IACO) are among those interested in exploring future cooperation on this initiative which is open to all interested Members.

4. A copy of an ICGN concept note is attached for information (Annex II).

**EXTRACT FROM THE COFFEE DEVELOPMENT PROJECTS DOCUMENT (EB-3972/10 Rev. 1)  
PROJECTS RELEVANT TO THE COFFEE GENOME**

Section/ ICO staff	Project title and ID [related Fast Track]	Location/ PEA/ Duration	1. Total cost 2. CFC financing 3. Co-financing Agency/donor 4. Counterpart contribution	ICO document(s) available at the ICO website	Description	Approval / Consideration  Progress VSC recommendations and follow-up
<b>SECTION III: PROJECT PROPOSALS REQUIRING REFORMULATION/ALTERNATIVE SOURCES OF FINANCE</b>						
3.1  LV	International research and development services for the durable genetic control of two destructive diseases affecting Arabica coffee	Location: Worldwide  PEA: IICT-CIFC  Duration: 5 years	1. US\$2,695,602 2. US\$1,566,750 3. US\$0 4. US\$1,128,852	Proposal: WP-Board 1033/07 VSC comments: EB-3935/07  Relevant document: ED-2094/10	Research into plant-pathogen interactions of two quarantine diseases, CLR and CBD; identification and maintenance of races/isolates of the pathogens and of critical coffee germplasm; pre-breeding for resistance; training of research personnel from coffee producing countries.	<b>ICO VSC – Sep 2007:</b> The VSC recommended that the proposal should be revised.  <b>Follow-up:</b> In Sep 2007, the Executive Board noted that some VSC Members considered this proposal suitable for submitting to the EU for financing. The proponents are exploring ways of securing EU financing for this project.
3.2  LV	Characterization, enhanced utilization and conservation of <i>Coffea</i> germplasm diversity	Location: Worldwide  PEA: Cenicafé of FEDECFAFE and Cornell University  Duration: 5 years	1. US\$3,000,000 2. US\$3,000,000 3. US\$0 4. US\$0	Proposal: WP-Board 1054/08 and Rev. 1 VSC comments: EB-3951/08 EB-3965/09  See also Projects 3.1, 3.3, 3.4, 3.5 and 4.9  Relevant document: ED-2094/10	This project is designed to facilitate genetic diversity characterization, preservation and utilization in <i>Coffea</i> and ensure long-term sustainability of coffee production (social, economic and environmental). Estimation of genetic diversity in cultivated crops is essential for breeding programmes and for the conservation of genetic resources. All genetic-resource conservation activities require the characterization of the diversity present in both the gene pools and the gene banks.	<b>ICO VSC – Sep 2008 and Sep 2009</b>  <b>ICO EB – Sep 2008:</b> The Board recommended that the project should be revised and that alternative sources of financing should be identified as it might not be suitable for funding by the CFC in its current format. In Sep 2009 the Board noted that the proponents had requested that the revised proposal should be withdrawn from the Agenda so that a more comprehensive proposal could be developed.  <b>Follow up:</b> A revised proposal is awaited from Cenicafé. The Executive Director, through document ED-2086/10 has invited Members to consider ways of coordinating and cooperating with the ICGN on developing a project or programme of work for the coffee genome with long term benefits for the coffee industry. A meeting with the ICGN and Members will take place on 22 Sep 2010 at the ICO.
3.3  DS	Coffee genetic resources conservation and sustainable use: global perspective	Location: Ethiopia, Uganda and others to be identified  PEA: IACO, Bioversity International  Duration: 1 year	1. US\$472,563 2. US\$472,563 3. US\$0 4. US\$0	Proposal: WP-Board 1058/09 VSC comments: EB-3965/09  Relevant document: ED-2094/10	The aim of this project is to build consensus on a realistic vision for conservation of coffee genetic resources and the use of these resources for the sustainable development of the global coffee industry and to improve the livelihoods of smallholder farmers in coffee producing countries.	<b>ICO VSC – Sep 2009</b>  <b>ICO ICC – Sep 2009:</b> The Council approved the proposal noting that procedures would need to be established to enable all African countries to have access to resources and centres of excellence, and that the Secretariat would consider whether it should be submitted to the GEF or CFC.  <b>Follow-up:</b> The proposal was considered by the CFC PAC in Apr 2010, which decided that it is not eligible for CFC funding.

Section/ ICO staff	Project title and ID [related Fast Track]	Location/ PEA/ Duration	1. Total cost 2. CFC financing 3. Co-financing Agency/donor 4. Counterpart contribution	ICO document(s) available at the ICO website	Description	Approval / Consideration  Progress VSC recommendations and follow-up
3.4  LV	Renovation of CATIE's international coffee collection	Location: Worldwide  PEA: PROMECAFE [P]  Duration: 6 years	1. US\$418,793 2. US\$418,793 3. US\$0 4. US\$0	Proposal: WP-Board 1036/07 VSC comments: EB-3935/07  Relevant document: ED-2094/10	The proposal aims to slow the process of genetic erosion that the collection of international coffee genetic varieties has suffered during past decades.	<b>ICO VSC – Sep 2007</b>  <b>ICO ICC– Sep 2007 and Mar 2010:</b> The Council approved this proposal, subject to clarification by the proponents on the issue of Intellectual Property Rights. In Mar 2010 the Council was requested to separate this proposal from Project 3.5.  <b>Follow-up:</b> A revised version was prepared that includes only activities that can be financed by the CFC, and will be submitted to the CFC for consideration in 2011.
3.5  LV	Enhancing use of coffee germplasm – an African perspective  <b>CFC/ICO/23</b>	Location: Sub-Saharan African countries  PEA: IPGRI [P] (new name: Bioversity International)  Duration: 5 years	1. US\$10,929,505 2. US\$8,566,425 3. US\$0 4. US\$2,363,080	Proposal: WP-Board 880/00 Rev. 1 WP-Board 894/01 WP-Board 1036/07 VSC comments: EB-3935/07  Relevant document: ED-2094/10	This project will enhance the use of coffee germplasm present both in the wild and in existing collections in sub-Saharan Africa through improved breeding and conservation strategies and methods.	<b>ICO ICC – May 2001:</b> The reformulation of this proposal taking into account CFC CC suggestions will be further discussed with Member countries and specialized agencies.  <b>Follow-up:</b> The ICO is exploring technical assistance from specialized agencies.
<b>SECTION IV: PROJECTS APPROVED BY THE CFC – UNDER IMPLEMENTATION/TO BE STARTED</b>						
4.9  LV/ DS	Increasing the resilience of coffee production to Leaf Rust and other diseases in India and four African countries  <b>CFC/ICO/40</b>	Location: India, Kenya, Rwanda, Uganda and Zimbabwe  PEA: CABI [C]  Duration: 5 years (04/08 – 03/13)	1. US\$4,014,313 2. US\$2,918,720 <i>OPEC Fund: US\$500,000</i> 3. US\$0 4. US\$1,095,593	Proposal: WP-Board 979/05 and Rev. 1; VSC comments: EB-3894/05; EB-3906/06; EB-3913/06 WP-Board 990/06 (response of Coffee Board of India) Progress reports: ICC-101-2 (Annex VIII) ICC-102-3 (Annex VIII) ICC-103-8 (Annex VIII) ICC-104-4 (Annex VIII) ICC-105-10 (Annex VII)  Relevant document: ED-2094/10	The project is focused on research and development to enhance the genetic endowments of Arabica coffee in the context of disease resistance CLR and Anthracnose.	<b>ICO VSC: Sep 2005 and Jan 2006 / May 2006</b> <b>ICO ICC: May 2006</b> <b>CFC PAC: Oct 2006 / CFC CC: Jul 2007 / CFC EB: Oct 2007</b>  <b>Follow-up:</b> The project was launched in Apr 2008. Activities have started in all participating countries and scientific information is being exchanged between India and African countries. A planning and budget workshop was organized in Kenya in Nov 2009. A planning and dissemination workshop will take place in Indonesia during the ASIC Conference in Oct 2010. A progress report will be circulated to the Council in Sep 2010.

## LIST OF ACRONYMS USED IN THIS DOCUMENT

ASIC	Association for Science and Information on Coffee
CABI	CAB International – based in England, United Kingdom
CATIE	Tropical Agricultural Research and Higher Education Centre
CBD	Coffee Berry Disease
Centacafé	National Coffee Research Centre of FEDECAFE
CFC	Common Fund for Commodities
CFC CC	CFC Consultative Committee
CFC EB	CFC Executive Board
CFC PAC	CFC Project Appraisal Committee
CLR	Coffee Leaf Rust
EB	Executive Board
EU	European Union
FEDECAFE	National Federation of Coffee Growers of Colombia
GEF	Global Environment Facility
IACO	InterAfrican Coffee Organisation
ICC	International Coffee Council
ICGN	International Coffee Genome Network
ICO	International Coffee Organization
IICT–CIFC	Tropical Research Institute – Coffee Rust Research Centre
IPGRI	International Plant Genetic Resources Institute (new name: Bioversity International)
OPEC	Organization of the Petroleum Exporting Countries
PEA	Project Executing Agency
PROMECAFE	Regional Program for the Development and Modernization of the Coffee Industry in Central America, Panama, the Dominican Republic and Jamaica
VSC	Virtual Screening Committee

[C] Confirmed  
[P] Provisional

DS – Denis Seudieu  
LV – Lilian Volcán

## SEQUENCING THE COFFEE GENOME

*ICGN Concept Note*

September 21, 2010

The ICGN (<http://www.coffeegenome.org/>) is a worldwide network of scientists from universities, research institutes and industry within the coffee producing and consuming countries. It includes more than 50 individual and Institutional members networking scientific groups around the world in Africa, America, Europe, & Asia. Our collaborative network is focused on building the foundation for advancing agricultural research for sustainable coffee production worldwide by developing genomic tools and resources to further our understanding of the coffee genome at the molecular, biochemical, and physiological levels. ICGN membership is opened to any individual, laboratory, or institution that can contribute to this effort in genomics resource development, sequencing and genome assembly, annotation, biological scientific expertise, or funding.

Despite its economic and social importance for numerous countries around the world, coffee has received very little attention with respect to molecular genetics and genomics research. ICGN has developed a coordinated and cost efficient strategy to sequence the coffee genome using next generation sequencing technologies. ICGN is working on securing international funding for this important effort on behalf of the coffee scientific community worldwide. Support from ICO and the private sector is needed to ensure a broad international participation and a broad funding base.

Sequencing the coffee genome will help decipher the genetic and molecular bases of important biological traits in coffee that are relevant to growers, processors, and consumers. This knowledge is fundamental to allow efficient use and preservation of coffee genetic resources for the development of improved cultivars in terms of enhanced quality, yield, and resistance with reduced economic and environmental costs. Although considerable diversity exists in diploid *Coffea* species, its use in conventional coffee breeding programs has been very limited. *Coffea arabica* is characterized by a very low genetic diversity, which is attributable to its allotetraploid origin, reproductive biology, and evolution. The narrow genetic base of cultivated *C. arabica* has created a bottleneck for coffee breeding and limits cultivar improvement. Similarly, the considerable genetic diversity observed in *C. canephora* is still largely unexploited in the cultivated varieties. In the future, the ability to capture and manipulate genetic diversity and effectively utilize germplasm in traditional coffee breeding programs will be vital for sustainable coffee production.

Significant advances in our understanding of the coffee genome and its biology must be achieved in the next decades to increase quality, yield and protect the crop from major losses caused by insect pests, diseases and abiotic stress related to climatic changes. Unravelling the coffee genome will contribute significantly to the characterization and utilization of germplasm needed for future coffee improvement.