



International Coffee Organization  
Organización Internacional del Café  
Organização Internacional do Café  
Organisation Internationale du Café

PSCB No. 73/05

10 November 2005  
English only

E

Private Sector Consultative Board  
30 January 2006 (09.30)  
London, England

**Communication from the  
International Coffee Genome Network**

### **Background**

The attached communication has been received from the International Coffee Genome Network (ICGN).

### **Action**

The PSCB is requested to nominate a representative of the coffee industry to the ICGN Steering Committee.

Dr. Euan Paul  
Chairman  
Private Sector Consultative Board of ICO

Dear Chairman,

As a founding member of the International Coffee Genome Network (ICGN) and in agreement with the Coordinator of this network (Prof. André Charrier), I have pleasure in sending you herewith some documents that will give you some information about ICGN.

The founding members decided to have a steering committee that would include a representative of the industry.

I would thus very much appreciate if you could advise us on a personality that would be representative of the industry to become a member of the ICGN Steering Committee.

Sincerely yours,

(signed) Christophe Montagnon  
Adviser for Coffee & Cocoa Matters  
Tree Crops Department  
TA 80/PS3, Bd de la Lironde  
34398 Montpellier cedex 5  
Tel : +33 4 67 61 71 26  
Fax : +33 4 67 61 75 64  
e-mail : [cm.cafe-cacao@cirad.fr](mailto:cm.cafe-cacao@cirad.fr)  
<http://www.cirad.fr>

## CONCEPT NOTE

### Goal and mission

1. ICGN's ultimate goal is to decipher the genetic and molecular bases of important biological traits in coffee tree species that are relevant to the 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 quality and reduced economic and environmental costs.
2. ICGN represents an international commitment to work jointly for the development of common sets of genomic tools, plant populations and concepts. Specific objectives include the formulation of a global and coordinated strategy for coffee genomics, the enhancement of collaborations between research institutions worldwide, the prevention of duplicated efforts, the production of added value through complementary partnerships, and the promotion of opportunities to fund the common research.

### Research objectives

3. After an evaluation of the current status of international coffee research, high-priority areas will be identified. Working groups for the following topics could be constituted:
  1. Markers and genetic mapping
  2. BAC libraries and physical mapping
  3. ESTs and transcriptional profiling
  4. Functional analysis
  5. Bioinformatics
4. Special attention should be given to the development of common genetic and genomics resources (i.e. segregating plant populations, molecular marker sets, EST collections, BAC libraries, arrays...). The generated information will provide the basis for large-scale genome sequencing projects. As an initial step, a "white paper" describing the goals, components and timetables for the ICGN would be developed. At least one operational project should be initiated as output of the first ICGN meeting.

### Organization and management

5. A structured co-ordination to manage and foster collaboration within the ICGN is required. A steering committee of expert scientists from each participating institutions/countries will be formed. Specific responsibilities of that committee could include: 1) Co-ordinate activities, 2) Facilitate exchange of information and collaboration, 3) Monitor and communicate activity progresses, 4) Help with fundraising for the identified priority research areas ...

6. A web site presenting the ICGN will be created. This site could also serve as single virtual entry point to display all data generated from around the world for facilitating their utilization by the community. Mirrored informatics interfaces could also be developed in several participating countries. Co-ordination meetings would be organized, possibly in association with the conferences of *the Association Scientifique Internationale du Café* (ASIC).

### **Social and legal issues**

7. Success of ICGN strongly depends on the participant's agreement to share results of their individual efforts. The availability of public information as well as the benefits of sharing results will increase with the number of participants. Possibility of restrictions, which might potentially limit free exchange of ideas, information and materials would be discussed during the ICGN meeting.

8. Guidelines and applicable regulation of the country where the research activities are conducted should be followed.

### **Funding**

9. Each country, or entity, should provide financial support to the activities of its own scientists involved in the agreed projects. However, additional funding from either ICGN members or external organizations will be necessary. In that way, ICGN could serve as umbrella/scientific caution when contacting national and international funding agencies.

## List of participants ICGN MEETING (Paris, 4-5 April 2005)

|                      |   |                                    |  | email   | participation | Survey |
|----------------------|---|------------------------------------|--|---|---------------|--------|
| <b>GERMANY</b>       | Univ. Bonn  | T. Borsch                          |  | <a href="mailto:borsch@uni-bonn.de">borsch@uni-bonn.de</a>  | +             | +      |
| <b>BRAZIL</b>        | IAPAR<br>EMBRAPA                                  | LGE Viera                          |  | <a href="mailto:lvieira@iapar.br">lvieira@iapar.br</a>  | +             | +      |
|                      |   | Alan Andrade                       |  | <a href="mailto:alan@cenargen.embrapa.br">alan@cenargen.embrapa.br</a>  | +             |        |
| <b>COSTA RICA</b>    | CATIE   | Dr Lizz<br>Johnson                 |  | -<br><a href="mailto:ljohnson@catie.ac.cr">ljohnson@catie.ac.cr</a>   | +             |        |
|                      |   | Gabriel<br>Cadena<br>Marcela Yepes |  | -<br><a href="mailto:gabriel.cadena@cafedecolombia.com">gabriel.cadena@cafedecolombia.com</a><br><a href="mailto:my11@nysaes.cornell.edu">my11@nysaes.cornell.edu</a> | +             | +      |
| <b>COTE D'IVOIRE</b> | CNRA  | A. Sangare                         |  | <a href="mailto:abou.sangare@cnra.ci">abou.sangare@cnra.ci</a>  | +             | +      |
| <b>ETHIOPIA</b>      |   | K. Tesfaye                         |  | <a href="mailto:kassahuntesfaye@yahoo.com">kassahuntesfaye@yahoo.com</a>  | +             | +      |
| <b>FRANCE</b>        | CIRAD   | Ch.Montagnon                       |  | <a href="mailto:christophe.montagnon@cirad.fr">christophe.montagnon@cirad.fr</a>  | +             | +      |
|                      |   | T Leroy                            |  | <a href="mailto:thierry.leroy@cirad.fr">thierry.leroy@cirad.fr</a>  | +             |        |
|                      | IRD   | B Bertrand                         |  | <a href="mailto:benoit.bertrand@cirad.fr">benoit.bertrand@cirad.fr</a>  | +             |        |
|                      |   | S. Hamon                           |  | <a href="mailto:serge.hamon@mpl.ird.fr">serge.hamon@mpl.ird.fr</a>  | +             | +      |
|                      |   | A. de Kochko                       |  | <a href="mailto:alexandre.dekochko@mpl.ird.fr">alexandre.dekochko@mpl.ird.fr</a>  | +             |        |
| NESTLE               | P. Lashermes<br>V. Pétiard                        |                                    | <a href="mailto:Philippe.Lashermes@mpl.ird.fr">Philippe.Lashermes@mpl.ird.fr</a><br><a href="mailto:vincent.petiard@rdto.nestle.com">vincent.petiard@rdto.nestle.com</a> | +   | +             |        |
| <b>INDIA</b>         | TCBC Mysore<br>CCRI Chikmagalur<br>CCMB Hyderabad | HL.Sreenath                        |  | <a href="mailto:cofbiotech@vsnl.com">cofbiotech@vsnl.com</a>  | +             | +      |
|                      |   | BK Jayarama                        |  | <a href="mailto:jayarama@myway.com">jayarama@myway.com</a>  | +             |        |
|                      |   | RK Aggarwal                        |  | <a href="mailto:rameshka@ccmb.res.in">rameshka@ccmb.res.in</a>  | +             | +      |
| <b>ITALIA</b>        | Univ. Trieste                                     | G. Graziosi                        |  | <a href="mailto:graziosi@univ.trieste.it">graziosi@univ.trieste.it</a>  | +             | +      |
| <b>KENYA</b>         | CRF<br>Kew  | E. Gichuru                         |  | <a href="mailto:ekgichuru@yahoo.com">ekgichuru@yahoo.com</a>  | +             |        |
|                      |   | A. Davis                           |  | <a href="mailto:a.davis@rbgkew.org.uk">a.davis@rbgkew.org.uk</a>  | +             | +      |
| <b>USA</b>           | CORNELL   | S. Tanksley                        |  | <a href="mailto:sdt4@cornell.edu">sdt4@cornell.edu</a>  | +             |        |
| <b>HAWAI</b>         |   | Chifumi Nagai                      |  | <a href="mailto:Cnagai@harc-hspa.com">Cnagai@harc-hspa.com</a>  | +             | +      |
|                      |   | Ray Ming                           |  | <a href="mailto:rming@harc-hspa.com">rming@harc-hspa.com</a>  | +             |        |
| ASIC                 |   | A.Charrier                         |  | <a href="mailto:andre.charrier@ensam.inra.fr">andre.charrier@ensam.inra.fr</a>  | +             |        |
| CORNET               |   | C. Agwanda                         |  | <a href="mailto:c.agwanda@cabi.org">c.agwanda@cabi.org</a>  | +             | +      |
| IPGRI - INIBAP       |   | N. Roux                            |  | <a href="mailto:n.roux@cgiar.org">n.roux@cgiar.org</a>  | +             |        |
|                      |   | E. Dulloo                          |  | <a href="mailto:e.dulloo@cgiar.org">e.dulloo@cgiar.org</a>  | +             | +      |
| ORION GENOMICS       |   | U. Warek                           |  | <a href="mailto:uwarek@oriongenomics.com">uwarek@oriongenomics.com</a>  | +             |        |



## Secretariat

- Assists the steering committee
- Facilitates communication between network members
- Coordinates information exchange  
(mailing list, web pages, workshops, meetings...)

*The offer of IPGRI's representative to host the secretariat has been positively received but remains to be endorsed.*

## Mission

ICGN is committed to advancing genomic research through international partnerships for sustainable coffee production

## WG3 - BAC Libraries & physical maps

Coordinators : Ph. Lashermes (IRD), J. Carlos Herrera (Cenicafé)

- **Objectives :**
  - Access to the available – Canephora and Arabica - BAC libraries
  - Define a common reference BAC library corresponding to one of the parent involved in the reference segregating population – high density map (see above)
  - Initiate the construction of a physical map based on BAC fingerprinting
  - Sequence BAC ends
  - Integrate the physical map with the reference genetic maps
- **Long-term goals :**
  - Construct BAC libraries with relative species
  - Sequence the complete coffee genome
  - Sequence homologous regions in different wild species

## ICGN Goals

- Facilitate information and resource sharing within the scientific community
- Provide to breeders molecular tools and relevant knowledge
- Access and share knowledge on genetics and the molecular basis of important traits
- Use and conserve genetic resources
- Ensure benefits to growers and consumers
- Ensure the sustainability of the coffee production chain (social, economical, environmental)

## WG4 - EST & transcriptional profiling

Coordinators : A. Andrade (EMBRAPA), G. Graziosi (univ. Trieste)

- **Objectives :**
  - Identify available ESTs
  - Pool the data and develop a framework for analyzing EST sequence information
  - Reduce duplication and increase EST coverage
  - Develop an EST UNIGENE set
  - Develop microarrays using UNIGENE for expression studies
  - Provide EST resource for genetic and physical mapping
  - Initiate comparative genomics (within and outside the genus e.g. SOL)
  - Identify key genes involved in different traits

## WG5 – Tools for functional analysis

Coordinators : H. Etienne (CIRAD), H.L. Sreenath (India)

- **Objectives :**
  - Develop tools for gene function validation :
    - Genetic transformation
    - Mutagenesis
  - Share the technology between ICGN members

## Upcoming announcements

- Internal communication
  - Diffusion of documents
- External communication
  - Announce the launching of ICGN on Websites (ASIC, ICGN)
  - Inform international organizations : ICO and others

*By the secretariat supervised by the Network coordinator*

## WG6 - Bio-informatics

Coordinators to be identified.

Rajkumar (Unido), B. Courtois (Cirad), Da Silva (Embrapa), L. Mueller (Cornell)

- Objectives :
- Establish bio-informatics needs
  - Encourage submissions to public repositories
  - Identify informatics solution for global coffee data system
  - Initiate a web-based community forum
  - Integrate databases (including morpho-agronomical traits)

*Institutes considered for database management :  
Cornell Univ. (USA), Cirad (France), Embrapa (Brazil), Trieste Univ. (Italy)*

## Next ICGN meetings

- **Trieste meeting** (to be confirmed by September 2005)
  - Objective : to follow up on WG activities
  - Date and place : Early 2006 in Trieste (Italy)
  - Organizer : G. Grasiozi and UNIDO (ICS)
- **XXI ASIC meeting**
  - Objective : to follow up on WG activities and network development
  - Date and place : September 2006 in Montpellier (France)

## WG coordinators

|     | WG Coordinators                                   | Members of the Steering Committee |
|-----|---|-----------------------------------|
| WG1 | C. Agwanda<br>L. Johnson                          | C. Agwanda*                       |
| WG2 | T. Leroy<br>R. Ming                               | T. Leroy**                        |
| WG3 | C. Herrera<br>P. Lashermes                        | P. Lashermes**                    |
| WG4 | A. Andrade<br>G. Graziosi                         | A. Andrade*                       |
| WG5 | H. Etienne<br>H.L. Sreenath                       | H.L. Sreenath*                    |
| WG6 | B. Courtois<br>Rajkumar<br>L. Mueller<br>Da Silva | L. Mueller**                      |

\*From producer country  
\*\* From consumer country