



# ICGN Trieste Meeting

International Coffee Genome Network

**Today research for tomorrow sustainable production**

Date & Venue: 28-29 April 2006 - 9.00AM - "D" Building, Faculty of Economics, UNITS

*Trieste – 28 – 28 April 2006*

## Minutes

Participants list annexed.

Meeting started at 9.00 am on the following activities

Welcome of the Rector of the University of Trieste Prof. Domenico Romeo

Welcome of Dr. Ernesto Illy, Illycaffè.

1. Activities of International funding agencies, World Bank, Common Fund for Commodities, European Union
2. Introduction of new participants
3. Report of WG Coordinators
4. Discussion on strategies for raising funds
5. Scientific issues and strategies connected with each Working Group
6. Promotion of the ICGN web site for communication and discussion
7. Program developments among participants
8. Scheduling the next meeting

### [1] Activities of International funding agencies

#### **Word Bank:**

The representative from World Bank, Dr. Paola Agostini, illustrated in detail the feasibility of World Bank support and the procedures. The project to be submitted should have the ultimate aim of poverty alleviation in the developing countries. The detailed procedures can be obtained from <http://www.worldbank.org>. It was explained that long term projects, can be submitted, while support would be implemented in phases.

#### **Common Fund for Commodities (CFC):**

Member of the Consultative Committee of the CFC, Dr. M. Fabian, explained the procedures to approach CFC for support. The Common Fund for Commodities is an inter-governmental financial institution established within the framework of the United Nations. The Fund's specific mandate is to support developing countries that are commodity dependent to improve and diversify commodities production and trade, while the participation can also be from developed countries. The site <http://www.common-fund.org> illustrates the detailed procedures. It was explained that CFC supports basic research, provided the ultimate aim of the project satisfies the mandate of CFC, the market development and poverty alleviation orientation.

#### **International Coffee Organisation (ICO):**

An economist from ICO, Ms. Lilian Volcan, presented the activities and project submission procedures in ICO. Examples of successful projects were presented as well as projects that were in the development phase. The detailed procedures were submitted in the meeting in Electronic form [CD] and can be obtained from <http://www.ico.org>.



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## [2] Introduction of Newcomers:

The new members were introduced to the group:

<b>Girma Adugna</b>	Jimma Agricultural Research Center Ethiopia
<b>Gloria Pellegrino</b>	L. LAVAZZA S.p.A. Italy
<b>Endashaw Bekele</b>	Addis Ababa University Ethiopia
<b>Dirk Selmar</b>	Technical University Braunschweig Germany
<b>Daniela Kramer</b>	TU Braunschweig, Institute of plant biology Germany
<b>Kim Govers</b>	University Bonn
<b>Claudine Campa</b>	IRD
<b>Domenico Carputo</b>	University of Naples Italy
<b>Peter McGrath</b>	Third World Academy of Sciences - UN
<b>Furio Suggi</b>	Illycaffè Italy
<b>Ernesto Illy</b>	Illycaffè Italy
<b>Gennaro Longo</b>	ICS-UNIDO, UN

## [3] Report of WG Coordinators

Each coordinator presented the strategy of ICGN of their respective work group

- **WG 1: Diversity:** Ethiopia was identified as a potential resource for germplasm. However, Dr. Girma Adugna suggested that sharing the material should satisfy the national regulatory rules.
- Prof. G. Graziosi expressed the need to establish a new mapping population as an essential step.

### *WG 2 and 3: Genetic and Physical Mapping:*

- Two teams involved in the WG2 offered to share markers through ICGN
- The choice of “reference maps” for arabica and canephora has been presented. For arabica map, the intraspecific cross proposed by Lashermes’ team could be considered as the reference map. Sharing on this map has not yet begun. For canephora map, the “Nestlé/Indonesia map” could be considered as the best reference, but it is not yet available. The canephora map from Cirad/IRD (INCO project) with about 150 SSR markers could be a first step for sharing. New crosses to construct a common map for all teams concerned have been initiated in French Guyana. Seeds will be available in the near future.
- The importance of links with other groups, especially WG3, has been underscored.
- Dr. P. Lashermes presented the tools of central strategic importance for marker assisted breeding, for straight-forward positional cloning of agronomical important genes, and analysis of gene structure and function. He also presented the list of teams willing to participate in this work group
- The main strategy was presented as (a) Selection of common reference BAC libraries of *C. arabica* and *C. canephora*; (b) Physical map construction based on a combination of BAC fingerprinting, BAC-end sequencing, and high density of anchor markers covering the complete



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genome; (c) Integration of the physical maps with the genetic maps obtained for the reference segregating populations and (d) Develop a cost-efficient strategy for sequencing of the coffee genome

- The participating groups have declared the available maps in their labs

## **WG 4: Transcriptomics:**

- Dr. A. Andrade presented the EU project, entitled “Sharing comprehensive knowledge on the determinism of drought tolerance in coffee plants: consequences for coffee cultivation and sustainability”. It was suggested that similar approach could be taken by ICGN.
- The difficulties of sharing EST data was discussed and Prof. Graziosi suggested that those groups having a considerable number of ESTs should share their data with other groups, taking the MTA agreement present in CoffeeDNA (<http://www.coffeedna.net>) as an example.
- Then, it was agreed that a standard MTA for exchanging all materials such as BACs, EST's, Germplasm, markers, etc., should be worked out. Dr. Lashermes proposed one model that could be used.
- Dr. Andrade stated that under MTA agreements sharing of data and materials would be facilitate. He also mentioned that multiple web-sites for access to EST data, would be better for ICGN as users would profit from different tools developed from different bio-informatics groups.

## **WG 5: Gene Validation:**

- Dr. HL. Sreenath presented the improvement of transformation methods for gene validation with the 2 major areas; (a) optimization of existing *Agrobacterium tumefaciens* and *A. rhizogenes*-mediated transformation processes and (b) development of new approaches like RNA interference (RNAi)
- The following activities were proposed under this work group
  1. Optimization of the production of embryonic tissue in terms of rapidity and quantity, and improve the plant regeneration systems
  2. Optimization of the conditions for *Agrobacterium* mediated transformation
  3. Development of selection strategies for transformed tissues
  4. Establishment of collection of vectors with promoters that are tissue specific and/or inducible
  5. Development of RNAi technology by stable and/or transient transformation for functional analysis studies
  6. Development of *Agrobacterium*-mediated transformation with large DNA fragments for coffee gene validation with the proposed approaches such as BIBAC vector and TAC vector

**WG 6: Bioinformatics:** Four names were initially proposed in the first meeting to be a representative for bioinformatics group. None of them reported to the meeting, except Dr. Rajkumar. He suggested the ICGN secretariat to re-select the coordinators for this group.



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## [4] Discussion on strategies for raising funds

### Strategies for raising funds for ICGN (meeting at Trieste 28<sup>th</sup>, April)

This session was chaired by Dr. Jayarama, Director of Research, Coffee Board, India and by Dr. Dulloo, IPGRI

At the opening of the session, the chairman informed everyone that we should have a permanent ICGN secretariat as early as possible with required man power. The role and function of the secretariat should be well defined. Regarding the funds required, he stated that there is an immediate need to raise funds for the maintenance of the ICGN secretariat. Once the ICGN establishes itself as an internationally recognized research network, a clear policy on fundraising should be established. Once the project proposals are ready, they can be submitted to an appropriate funding agency in the name of ICGN. Another possibility was also highlighted that each participating group or institutions can raise their own funds required to meet the expenses of their part of work. All these key issues have to be discussed and finalized at the earliest. Co-chairman opined that different WG,s have to initially prioritize the goals and needs of the project and entire scope of objectives then should be integrated. He also explained about the funding status of the secretariat of ICGN (for the time being it has been done on a voluntary basis by IPGRI/INIBAP in Montpellier).

The session was then opened up for discussion and views

- Dr. Andrade stated that he thought that each Working Group should finalize the top priority areas in their group and prepare a comprehensive work plan involving different elements of interest. There is a need to fix a time frame for finalizing the project activities.
- As per the notion of World Bank funding, it is hinted that any project that it is going to be funded by WB should have an objective of poverty alleviation. There was a proposal to formulate a mega project with a single broad objective. This mega project will have different sub-objectives depending on the interest of the working institutions. There was also a suggestion that ICGN should involve private parties, consumers and growers' section in decision making process at the ICGN.
- Ehsan Dulloo clarified the funding status of the secretariat of the ICGN. It was agreed at the first ICGN meeting in Paris in 2005 that the secretariat would be hosted by IPGRI in Montpellier at its INIBAP office on a temporary basis until the next ASIC meeting. IPGRI provides resources in kind in terms of staff time and office for the interim coordinator to function and helped in the establishment of the web site. In Paris it was also agreed that ICGN would function as a network and that it was too early to envisage the creation of a consortium or organization.
- Dr Thierry Leroy informed the participants that in collaboration with several countries including France, Brazil and Costa Rica, a pre-proposal was written within the framework of the ICGN which relates to different working groups. The project which will involve about 10-15 labs is based on comparative mapping, QTL mapping and validation and association studies in coffee. The proposal has been circulated, but it is not clear how to get it funded.
- Dr Paola Agostini from the World Bank gave a few hints about their funding. She indicated that it is best that different working groups should collaborate to prepare a large proposal rather than many smaller projects. The Bank would like to get the full picture of what ICGN is aiming at.
- The point was made by Dr Sangare that what is required is a global project but with several specific objectives.



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- Charles Agwanda agreed that the first step was to look at priority activities of each working group and then to analyze across the different groups these priorities. The next step was then to identify donors most likely to fund the projects. These would either be through responding to upcoming calls for proposals from donor organizations or just a search for identifying donors. The point was made that regional and or country knowledge about donors should be sought as well.
- Thomas Borsch remarked that there are several types of activities that may require funding. For example there is need to survey tetraploid arabica in Ethiopia and to characterize and conserve them in situ and ex situ. Such type of activity may require specific donors that support actions that the objectives of Convention of Biological Diversity and Global Strategy on Plant Conservation. It is thus unavoidable to seek specific donor agencies such as GEF.
- Dr Ray Ming suggested getting low coverage of the genome sequence which would benefit all working groups. In addition this will generate a high number of SSR markers.
- Prof Bekele, Ethiopia explained that there may different types of donors which could provide funding at different levels- international, regional or on a bilateral basis.
- Dr Marcela Yepes CENICAFE, asked whether there was a working budget for the secretariat and said that there is a great need for have some seed money to get the network.
- Prof Andre Charrier informed the participants about the intention of the secretariat to apply for funding to the EU COST ACTION which provides funds for network meeting and coordination. But the COST Action does not fund research. The dead line for submission of a concept note is 31<sup>st</sup> May 2006 and if accepted a full proposal would need to be submitted by end of September 2006.
- Questions were also raised on the meetings of the steering committee. Prof Charrier explained that there was no funding for the Steering Committee to meet, but a telephone conference among some members was organized to address certain urgent questions for the establishment of the network. Representatives of the private sector, growers and consumers are still pending.
- Dr Lilian Volcan ICO, suggested to elevate priority activities to form a core programme and then to identify smaller activities within the programme for funding. She also highlighted the importance of considering the legal framework when approaching donors and the need to obtain the legal endorsement of countries.
- The need for flexibility in the development of projects based on need assessment and opportunities was emphasized.
- The Chair indicated that a top priority for producer countries is to protect interest of farmers and any project developed should have this as its principal aim.
- The co-chair commented that one of the key points in fund raising is to get a good understanding of the aim of the donors being targeted and develop projects that meet their objectives. ICGN provide a great opportunity in assembling the global experts on coffee genomics and this should be regarded as an asset of ICGN. Donors like to see proposals that have a team of partners who are well-qualified and suited to implement the objectives, as well as a good monitoring system, with milestones. The key word to move forward is collaboration and being flexible to tap on funding opportunity which comes up. Also every member should take a part of the responsibility to identify sources of funding in their own countries and region that will serve the purpose of the Network.



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- **Conclusion** It was agreed that the immediate need for fund raising would be to support the secretariat. (EU COST ACTION application envisaged)
- It was agreed for WG sessions will clearly prioritize activities that would form the core programme of work for ICGN and only after this has been done that suitable donors can be identified to fund the project further discuss the funding strategy.

## [5] Scientific issues and strategies connected with each Working Group

- The scientific issues connected with each working group were discussed. It was also realized that clear demarcation of work groups is impractical. Therefore each working group also would like to share their participation with other groups. The following table was finalised, which depicts the participation of each work group with other

Programmes	WG1	WG2	WG3	WG4	WG5	WG6
Molecular Markers						
Physical mapping						
Genetic Mapping						
Functional Genomics						
Bio-informatics						

## [6] Promotion of the ICGN web site for communication and discussion

- Dr. Nicolas Roux [IPGRI-INIBAP] presented the ICGN website, <http://www.coffeegenome.org> and the ways and means to use this site for effective communication.
- He encouraged people to register their membership on-line. This is very easy and does not take much time. To date only 20 persons and 3 institutes have been registered.
- Members are encouraged to send the references of their publications related to Coffee Genomics to be posted on the web site.
- In addition, he suggested to use the forum effectively for communication
- He concluded by stressing the importance of regular visits to the web site as news should appear at least each month. People are encouraged to contribute to this section.



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## [7] Program developments among participants

The participants discussed the finalization of the following new set of programs, which can be treated as sub-components of the core project.

#	Projects	Group	Coordinator
1	Enhancing the use of coffee genetic resources	I	Dulloo
2	Comparative mapping of coffee genomes	I	Leroy
3	Whole genome shotgun sequencing of Arabica genome	II	Ming, Andrade, Lashermes
4	Multi institutional Indian Coffee genome Research program – funded by DBT and Coffee Board	IV	Jayarama, Sreenath, Veluthambi
5	Integration of genetic and physical maps	II	Lashermes, Herrera
6	Development of an online catalog of coffee varieties	I	Sangare
7	Development and standardization of appropriate marker systems for enhancement of coffee genetic resources	I	Bekele, Bosch, Graziosi
8	Support to ICGN secretariat	III	Charrier
9	Improve drought tolerance using genomic tools	I	Andrade

Some of these projects could be fused to form 4 groups (Groups I-IV). To finalize these proposals it has been suggested that the coordinators prepare a tentative project using the FORUM on the website.

## [8] Conclusions and scheduling the next meeting

Prof. Charrier made the following conclusions:

- **Diffusion of minutes:** to diffuse information rapidly on what came out of this meeting
- **Use of website:** To insist on the important role of the website as a tool to improve communication
- **Finalize proposals:** Identification of proposals to be submitted to funding agencies is the principal objective of this meeting and should stay the essential objective of ICGN (for example: COST project by secretariat /coordinator, CFC (germplasm) by E. Dulloo)

Upcoming Meetings:

- The next meetings concerning our network and coffee genomics are
  - **SOL Meeting:** A satellite session in Solanaceae conference, 26 July 2006 in Madison, Wisconsin, USA
  - **ASIC Conference** Sept 10-15 (Montpellier, France)
- **Next ICGN meeting:** 3rd Meeting scheduled to follow ASIC Conference, September 15th and 16th Montpellier, France



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## Annex

### List of Participants - ICGN meeting, Trieste 28-29 April 2006

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