BIOVISION
THE WORLD
LIFE SCIENCES FORUM

BIOVISION PRE-CONFERENCE REPORT FORMAT

INTRODUCTION

BioVision introduces a NEW ARCHITECTURE by adding 9 Pre-conferences in 2006 and a web Forum hosted by BioVision NXT. and will take place between March and October 2006.

The Pre-conferences will ensure continuity, between the two successive forums by enlarging the circle of participants in order to better meet the needs of the key BioVision participants: Science, Society and Industry.

OBJECTIVE

The OBJECTIVE of Pre-conferences is to explore and develop the topics for debate and discussion at BioVision Forum.

The WORK PRODUCT of a pre-conference will consist of an EXECUTIVE SUMMARY of the discussion, RECOMMENDATIONS FOR ACTION and CONCLUSIONS recorded in table format specifically spotting the key issues in the field and the viewpoints of the communities: Science, Society and Industry.

METHODOLOGY

Pre-conferences will consist of small meeting of up to 10 participants to develop the key issues for the BioVision Parallel Conferences in three sectors: Health, Agriculture and Environment.

Each Pre-conference will have Host Partners. The Host Partners with BioVision support will organize the meeting, choose the participants.

The topic recommendations of the Pre-Conferences will be honed and refined for the BioVision Forum. Due to time limitations of the Forum, not all identified topics and issues may be covered in the Forum.

PRE-CONFERENCE TITLE:	
Topic Description: **DEVELOPMENT OF AGRICULTURE IN SALINE AND UNEXPLOITED AREAS**	
LOCATION: ALEXANDRIA	DATE: APRIL 26
HOST PARTNERS: BIOVISION ALEXANDRIA	BIOVISION PARTICIPANTS: Alain Godard Food and Agriculture Advisor Diana Derhak Chief Operations Officer
MODERATOR: Alain Godard	PARTICIPANTS: •Marc Van Montagu, Ghent University •Magdy Magdour, ICARDA, Syria •Luis Herrera Estrella, National Polytechnic Institute, Mexico •Kazuo Shinozaki, Riken Yokohama Institute, Japan •Vincent Valez, ICRISAT, India •Brian Johnson, Agroecology Consultant, UK •Effat Badr, Faculty of Agriculture of Aalexandria, Egypt •Eric Huttner, Diversity Arrays Technology PTY Limited, Australia •Rene Billaz, Agronomes et Vétérinaires sans Frontières, France

AGENDA:

1. WELCOME BY HOST PARTNER and INTRODUCTION OF PARTICIPANTS
2. OVERVIEW OF BIOVISION NEW ARCHITECTURE
3. DISCUSSION AND BRAINSTORMING on HOT TOPICS, ISSUES, TRENDS
    - General assessment of the problem
    - Analysis of possible uses of already available plants
4. CONCLUSIONS AND RECOMMENDATIONS FOR ACTION

EXECUTIVE SUMMARY:

• Definition of the topic:
Drought and resistant plants are currently under development. What is their possible contribution to the problem of food availability and to the development of a sustainable agriculture in the future ? What are their possible implications for meeting the MDG's ? What should be done to stimulate their development ?

• Unrealistic expectations:
A natural suggestion is that salt and drought resistant available plants could be cultivated on seashores with the help of partially desalinated sea water. However, the experts criticized this suggestion as unrealistic for the reason that irrigation is a major source of soil salinity. Indeed, the salts contained in any form of water frequently make their ways up to the surface and contribute heavily to increasing the salinity of soils. Consequently, using a more salty kind of water would in fact contribute to damage an already impoverished fertility.

• Realistic expectations:
However, more realistic and important goals can be assigned to the development of drought and salt resistant plants that deserve further discussion in the context of Biovision 2007:

1. Solving the long standing problem of soil salinization: This problem is not only persistent but also continuously expanding, and it calls for urgent answers. Drought and salt resistant plants could be one through the reduction of the amount of water that is necessary to grow them.
2. Re-establishing agriculture in salted areas: Once a soil has been excessively irrigated, and has become sterile, nothing can grow anymore on it. However, drought and salt resistant plants could overcome this limitation, thereby offering a way of extending the amount of cultivated surfaces without having to conquer new ones and to risk damaging the ecosystem.
3. Guaranteeing the reliability of yields in marginal areas of cultivation: Salt and water resistant plants give less 'generous' yield. However, this yield is also more constant, guaranteeing consequently higher food security (e.g. upland rice).
4. Diminishing the quantity of water used in irrigation of rice: Given the scarcity of water problem, priority must be given to reducing water consumption in agriculture. One kilogram of rice requires 5000 liter of water. A drought resistant species would substantially reduce that amount.
5. Developing new perienal plants and trees to re-occupy pasture territories : Through excessive pasturing previously fertile soils have become sterile. Water and drought resistant perenial plants and trees would permit to nourish those impoverished soils and fixate them.
6. Solving the problem of soil preparation and safeguard of water from within the soil, by making it possible to study the role of microorganisms in dry conditions and to initiate selection work on covering plants (mainly leguminosis, that brings nitrogen).

• Main scientific difficulties :

Various upstream technologies are currently available. However, there is very little field work beyond an Egyptian wheat project, and possible experiments conducted by Monsanto on 500 different plots. The main technical difficulty faced by the development of drought and salt resistant plants is the necessity to overcome the negative correlation between resistance and productivity: drought and salt resistant plants are less productive than others. However, there are good reasons to think that it can.

Some wild plants have been identified as being naturally resistant to salt and drought, and consequently as examples of natural resistance to be analysed. A representative case is the resurrection plant to be found in Mexico: the resistance inducing protein has already been identified. Important hopes are also put on the use of specific genes DREB 1A and OS DREB 1 Ba developed by Prof. Shinozaki in Japan and made available to ICRISAT India for field trials. An interesting project that is unfortunately going down for lack of funding.

IDENTIFIED DEBATE QUESTIONS:

- delineating the scope of reasonable expectations about drought /salt resistant plants
- drought /salt resistant plants and soil salinization
- drought /salt resistant plants and rehabilitation of overused pasture territories
- drought /salt resistant plants and economy of water in rice agriculture
- drought /salt resistant plants and stabilization of yields reliability
- the case of Mexican resurrection plants
- contribution of drought and salt resistant plants to the study of microorganisms in dry conditions
- analysis of ICRISAT India for field trials
- analysis of the Egyptian wheat project
- clarification of the Monsanto field experiments
- How to increase the productivity of drought/salt resistant plants without diminishing their resistance?
- How to make industrial property more easily accessible to public research institutions of the South?
- How to improve efficiently and quickly the funding of public research institutions in this area?

RECOMMENDATIONS FOR ACTIONS:

1. Given their potential, salt and drought should be made a priority for public research.

2. There are scientific difficulties involved, but research remains underdeveloped because of a lack of money in public research institutions. Accordingly, a serious increase of public research investments is badly needed.

3. The other important problem about the development of this technology is of a legal and financial nature: new rules have to be devised in order to overcome the difficulty of industrial property access of southern countries (particularly for local regional crops).

4. The lack and/or reduction of funding for the international agronomical research centres network is an irresponsible position taken by the international community, as the majority of potentially interesting innovations from the North are not transferred to the South, where they are urgently needed.