The importance of communication based on science

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The Plant Biotechnology and Biosafety Workshop
Brasilia, Brazil
April 9 2013
Telling a story ...

Feb 2002

• GMO ERA Project approved

GMO ERA Project

Brazil, Kenya and Vietnam – workshops / case studies
Multicountry participation
Swiss Agency for Development and Cooperation - SDC funds
Telling a story ...

Sections:
- Problem formulation and options assessment
- Transgene expression and locus structure
- Non-target and biodiversity impacts
- Gene flow and its consequences
- Resistance (assessment and management)

Feb 2002

Brazil, Kenya and Vietnan – workshops / case studies
Multicountry participation
Swiss Agency for Development and Cooperation - SDC funds
Telling a story ...

- BioSeg Project approved

Oct 2002

Embrapa´s project
Embrapa and FINEP funds
Telling a story ...

Case-studies:  
- Soybean  
- Potato  
- Bean  
- Papaya  
- Cotton  

Sections:  
- Food safety  
- Environment Risk Assessment  

And all the respective components

Embrapa´s project  
Embrapa and FINEP funds

Oct 2002
Telling a story ...

- Kenya workshop
- PFOA

Nov 2002

GMO ERA Project
Telling a story ...

2002
- GMO ERA Project - kick off
- BioSeg Project approved
- GMO ERA - Kenya workshop - PFOA

2003 - 2007
- GMO ERA - Brazil Workshop
- PFOA activities
- BioSeg activities
GMO ERA Project

Problem Formulation and Options Assessment method (PFOA)

Provides a framework for identifying the crucial societal needs that could be satisfied by introducing a GM crop into an agricultural system, and comparing the GM crop to other possible alternatives for meeting that critical societal need.

PFOA relies upon
being transparent,
inclusive of all appropriate stakeholders,
and rationally informed by the best available science.
PROBLEM FORMULATION AND OPTIONS ASSESSMENT HANDBOOK

A guide to the PRFA process and how to integrate it into environmental CAB assessments (ERAs) of genetically modified organisms (GMOs)

BY KRISTEN C. NELSON AND MICHAEL J. BANKER

A publication of the GMO ERA Project
The PFOA Handbook

Developed to make this process tool accessible to interested users.

The purpose of the handbook is to:

• Introduce / explain: the substance, theory, and practice PFOA

• Provide guidance: PFOA X country’s ERA

• Design / implement / conduct a country’s specific PFOA
How to obtain the PFOA Handbook

The PFOA Handbook is designed to be downloaded and printed double-sided, in color or black and white. To download the pdf of the PFOA Handbook from our website, visit:

http://www.gmoera.umn.edu/public/publications

We ask that you email the authors at kcn@umn.edu if you plan to print the handbook or make CDs for distribution so we are aware of who is considering the PFOA issues in the context of ERA.

The GMO ERA project ended by 2007.
Exercizing the PFOA method in Brazil

June 2007

GMO ERA Project
+ Center for Strategic Management and Studies (CGEE)

convened a PFOA workshop in Brasilia

Diverse group of
• researchers,
• regulators,
• government and
• NGO representatives

To:
• study the PFOA method,
• review the handbook and
• develop a project proposal
GMO ERA Project

Center for Strategic Management and Studies (CGEE)

convened a PFOA workshop in Brasilia

March 2008 the pilot took place
“Pilot Project about Environmental and Societal Risk Assessment for GMOs (PAR)”
(www.nisra.ufsc.br/projetopar)

18 stakeholders
(representatives from academics, NGOs, farmers, industry and consumers) plus a mediator.

The case study was the Embrapa’s bean.
Telling a story ...

2002
- GMO ERA Project - kick off
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2003 - 2007
- Brazil Workshop - GMO ERA
- PFOA activities
- BioSeg activities

2008
- by March - the pilot (PFOA) took place
Telling a story ...

2002
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2003 - 2007
- Brazil Workshop - GMO ERA
- PFOA activities
- BioSeg activities

2008
Telling a story ...

2002
- GMO ERA Project - kick off
- BioSeg Project approved

2003 - 2007
- Brazil Workshop - GMO ERA
- PFOA activities
- BioSeg activities

2008
- March - PAR Pilot Project
- December - LAC Biosafety Project approved (Brazil, Colombia, Costa Rica, Peru)
The context of LAC-Biosafety Project

“Multi-country Capacity Building for Compliance with the Cartagena Protocol on Biosafety” - (LAC-Biosafety) - Brazil, Colombia, Costa Rica and Peru

Studied GMO impacts on environment
- non target organisms
- gene flow
- socio-economic aspects
- public awareness

Support of specialists from universities and Embrapa, besides focal points in Ministries (mainly Agriculture, Environment, and Science and Technology).

GEF/World Bank, Embrapa and others
Communication and Public Awareness Component

Public perception + communication + technical component

Organization:
(1) Situational knowledge – public knowledge, trusts, attitudes and perception;
(2) Empower the public awareness – design a communication strategy towards the needs detected

In Brazil:
- online questionnaire
- and individual interviews (for the organized society)

to build and deliver communication products demanded
Communication and Public Awareness Component

Public perception + communication + technical component

Products:
- TV
- Radio
- Newspapers
- Seminars
- Internet
- Pamphlets, among others

It was possible to develop capacity building activities for communication professionals
Communication and Public Awareness Component

Public perception + communication + technical component

Risk Perception

• RISK is smaller for GM in health context and bigger for the environmental context.

Trust in Sources of Information

• The most trusted group is “Scientist/Specialist”

Scientists must have a greater role/responsability in the public dialogue about biosafety.
Risk Perception

• RISK is smaller for GM in health context and bigger for the environmental context.

Trust in Sources of Information

• The most trusted group is “Scientist/Specialist”

Perception about the debate

• Conflicting, not reliable, insufficient information
Desenvolvimento de comunicação estratégica sobre biossegurança de plantas geneticamente modificadas – o caso do projeto LAC - Biosafety no Brasil

Perceived benefits are the main explanatory variable of awareness/rejection

Confidence in institutions that analyze and manage the risks

The degree of familiarity with the technology, and

The nature of the risk.

Brazil - the conflicts and controversies between 1998 and 2002.

In order to promote public awareness regarding GMOs (controversy) it is necessary to -

• facilitate access to scientific information,
• know/understand the needs (information)
• understand the issues
11th International Symposium on the Biosafety of Genetically Modified Organisms

The role of Biosafety Research in the decision-making process
Organized by the International Society for Biosafety Research (ISBR)

Monday 15 November – Saturday 20 November
Centro Cultural Borges
Varela 525 - Ciudad de Buenos Aires - Buenos Aires, Argentina
LAC Biosafety project end by 2012
Strengthened technical capabilities will better promote public awareness and communication regarding GMOs AND will better support informed decisions.
Telling a story ...

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2003 - 2007
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- PFOA activities
- BioSeg activities

2008 - 2012
- Pilot Project - PAR
- LAC Biosafety Project approved (Brazil, Colombia, Costa Rica, Peru)

2013 ...
- Lessons learned
- Consequences / Perspectives
Lessons learned

#1 - COMMUNICATION –

involving people from the “communication group” is imperative!

They need to be and feel part of the team, since the very beginning – and this is very new for a governmental group developing GMs, like Embrapa’s team.

#2 – DECISION MAKING

Decisions are made top-down and bottom-up, and anyone who takes part in this process needs to communicate and needs knowledge (information).

The “knowledge” part of this equation must be science based in order to be tested and proved.
Lessons learned

#3 - COMMUNICATION PLAN –
Structured communication plan (like PFOA and PAR) - foundation for future monitoring

#4 – EDUCATION AND DECISION MAKING
Public education and training on GMO risk assessment is necessary to enhance awareness and options for subsidizing decision making.
Consequences

“Confidence-Building in Modern Biotechnology: Optimizing Best Communication and Regulatory Practices to Enhance Commercialization of Biotech/GM crops in Africa and Brazil”

Pre-proposal approved
Final proposal to be submitted (late Apr 2013)
Conferencia Regional Centroamericana sobre Bioseguridad
San José, Costa Rica
27-29 de abril, 2011
Timeline – regulatory milestones

1995

Biosafety Law 8974/95
Law 6938

X

2000 - 2002

National Environmental Politics
All GMOs are potentially pollutants

Embrapa develops Biotech

Embrapa´s Biosafety project

?
Before 2005

R&D - PLANTS (I)

(Não - biolesticidas)

Lei Biossegurança & Lei Ambiental

CTNBio

CQB

Parecer Téc. Conclusivo. (sem impacto ambiental)

Autorização Lab.

MAPA

Registro Lab.

IBAMA/MMA

Autorização Campo

MAPA (ATEC)

Parecer Téc. Conclusivo (com impacto ambiental)

Licenciamento

Exp. Campo (LOAP)

IBAMA / MMA

CONAMA

Macrozoneamento

EIA/RIIMA

I, II – (LALC)

Labelling

PRODUCT

ANVISA

MS

IBAMA

MMA

DDIV

MAPA

CTNBio

Biotecnologia/Biossegurança

Regulamentação no Brasil

Licenciamento labs., CVeg.,

Exp. campo pequenos (2 ha)

Exp. campo maiores (5 ha)

Campos de multipl. sementes

3 fases mais licenças acima

Registro Sem.

MAPA ??

Registro Produto

ANVISA ??

IBAMA ??

Macrozoneamento

Seeds multip.
Timeline – regulatory milestones

1995
Biosafety Law 8974/95
X
Law 6938
Embrapa develops Biotech

2000 - 2002
National Environmental Politics
All GMOs are potentially pollutants

Dec. 2003 – Apr 2004
Approval of experiments in the field to test GMOs

2005
New Biosafety Law 11.105/05

Communication, politics, perception...
After 2005

Biotechn/Biosafety
Regulatory framework in Brazil

R&D - PLANTS (I)

Biosafety Law
CTNBio

Inspection
MAPA, Anvisa

Zone restriction

PRODUCT

Labelling

Cultivar Law
Regist. Seeds
MAPA

Coexistence

Seeds multiplication

Seeds multiplication

PRODUCT
Time line

2000 2000/02 Apr 2004 2005 2006/07

El  GM N Envi F A v ll e f x p h e E t h Bios 89

New Biosafety Law 11.105/05

Bio sea (ends) PAR

FEIJAOSEG
Keep in mind

GMO is a controversy issue Needs confidence-building

Identifying the parties and the conflict
Identifying the parties and the conflict

Distinct types

- Private industry
- Activist organizations
- Regulatory agencies
- The public at large
  - People who do not belong to the 3 previous groups
  - People who demonstrate opinions / preferences through consumer-market trends
Identifying the parties and the conflict

The public **DOES NOT TRUST** industry
Activist organizations **DO NOT TRUST** regulatory agencies
Private industry **DOES NOT TRUST** activist organizations

Concern about information-processing abilities and decision making!

None of the parties are homogeneous in their opinions or mistrust.
Identifying the parties and the conflict

The diversity of mistrust within the regulatory agencies deserves particular attention.

The example of the 1st Biosafety Law and the New one, in Brazil
Keep in mind

GMO is a controversy issue

Needs confidence-building

Identifying the parties and the conflict

The cause and effect of public mistrust
The cause and effect of public mistrust

How to diagnose the source of public mistrust?

Central reasons for mistrust on GMOs:

- Destabilizing pressures that occur in and as a result of the model presented
- Enhanced concern about GM products due to stories that appeared in the news (myths!)
The cause and effect of public mistrust

Critical issue: where the polarized propaganda storm leaves the public?
Public at a large is incapable of independently judge what they do not know well about - in this case, science!
If they can not judge it, they cannot determine which position is most reasonable or accurate.
Just to understand the point – a simplistic example

Assume that a giver transgenic crop presents a low risk that someone will have an allergic reaction to it, and that this risk level makes the product safer than its conventional counterpart.

Under these circumstances all 3 statements are true:

1. The product is the safest product available
2. The product is not safe
3. There is uncertainty as to whether or not the product is safe

If so, public will decide based on other factor...
public will decide based on other factors... such as stories about GM products from the media!

The manner which people construct reality is based strongly on narrative.

Public reliance on anecdotal narrative
Keep in mind

GMO is a controversial issue. Needs confidence-building.

Identifying the parties and the conflict.

The cause and effect of public mistrust.

Confidence-building through teamwork.
Confidence-building through teamwork

A - the confidence-building measure

B - effects of confidence-building measure

Teamwork was a success in all cases I showed you

Effects were observed in research and education requirements and actions.

The groups impacted by the actions:

- Decision makers
- Developers
- Communication group
- Practitioners
Final comments

Whether confidence can be built among the stakeholders and the public will determine whether society is able to manage the technology for maximum social welfare, or whether society will be caught in a polarized and endless, nonsocial welfare maximizing conflict.
Final comments

Communication educates

Trust is a must

Use cases or testimonies - they seduce
Thank you

Obrigada

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