The importance of communication based on science

Deise M F Capalbo
Embrapa Environment

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 Vietnan – workshops / case studies
Multicountry participation
Swiss Agency for Development and Cooperation - SDC funds

Telling a story ...

Feb 2002

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)

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

Telling a story ...

Oct 2002

- BioSeg Project approved

BioSeg

Embrapa´s project
Embrapa and FINEP funds

Telling a story ...

Oct 2002

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

Sections:
- Food safety
- Environment Risk Assessemt

And all the respective components

Embrapa´s project
Embrapa and FINEP funds

Telling a story ...

Nov 2002

- Kenya workshop

X

- PFOA

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

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.

The PFOA Handbook

Problem Formulation and Options Assessment Handbook

by Kristen C. Nelson and Michael J. Rainey

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´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

Exercizing the PFOA method in Brazil

June 2007

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, farmes, industry and consumers) plus a mediator.

The case study was the Embrapa´s bean.

Telling a story ...

2002

- GMO ERA Project - kick off
- BioSeg Project approved

2003 - 2007

- Brazil Workshop – GMO ERA
- PFOA activities
- BioSeg activities

2008

- by March - **the pilot (PFOA)** took place

Telling a story ...

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- GMO ERA Project - kick off
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2003 - 2007

- Brazil Workshop – GMO ERA
- PFOA activities
- BioSeg activities

2008

- GUIVANT, J. et al. Acima dos confrontos sobre os transgênicos: uma experiência piloto de consulta pública. Cadernos de Ciência & Tecnologia, v. 26, p. 11-37, 2009.

Telling a story ...

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- GMO ERA Project - kick off
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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)**

LAC biosafety
América Latina: Construcción de capacidad multi país para el Cumplimiento del Protocolo de Cartagena sobre Bioseguridad

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

} technical-scientific component

- public awareness

} communication and public perception

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

Embrapa

GEF/World Bank, Embrapa and others

LAC-Biosafety

Latin America: Multi - Country capacity building for compliance with the Cartagena Protocol on Biosafety

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.

Communication and Public Awareness Component

Public perception + communication + technical component

Risk Perception

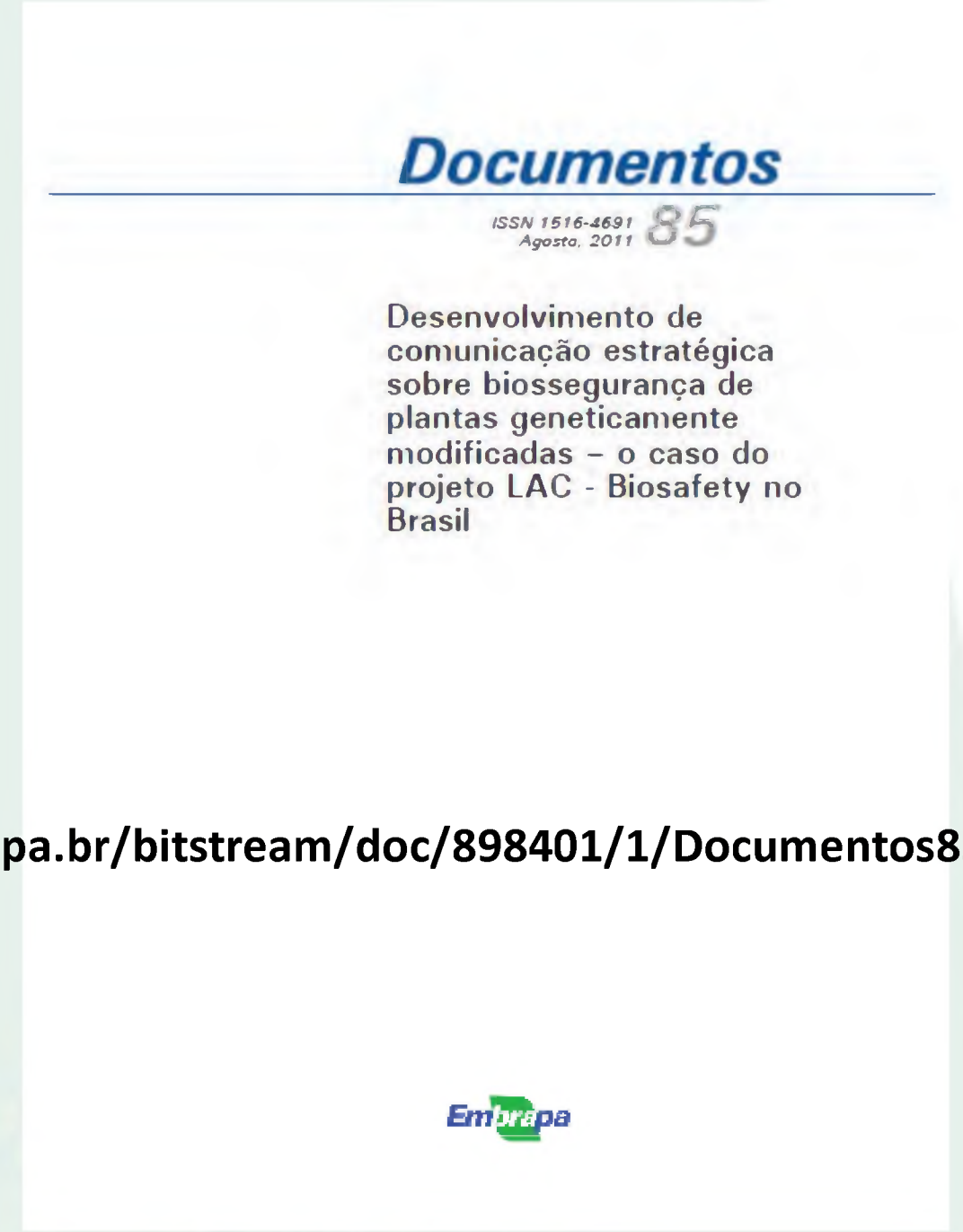
- RISK is **smaller** for GM in **health context** and bigger for the environmental context.

Trust in Sources of Information

- The most trusted group is "Scientist/Specialist"

Perception about the debate

- Conflicting, not reliable, insufficient information



http://www.infoteca.cnptia.embrapa.br/bitstream/doc/898401/1/Documentos85.pdf

International Consortium on Applied Bioeconomy Research
ICABR

View of stakeholders on GMOs in Brazil: were we are now

Capalbo et al - 15th *The International Consortium on Applied Bioeconomy Research* - ICABR , Rome, 2011

http://www.economia.uniroma2.it/icabr-conference/paper_view.php?id=2448&p=12

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 ISBGMO
Buenos Aires | ARGENTINA 2010

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
Viamonte 525 - Galerías Pacífico - Buenos Aires Argentina

ISBR

http://www.isbgmo.com/

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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- GMO ERA Project - kick off
- BioSeg Project approved

2003 - 2007

- Brazil Workshop – GMO ERA
- PFOA activities
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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)

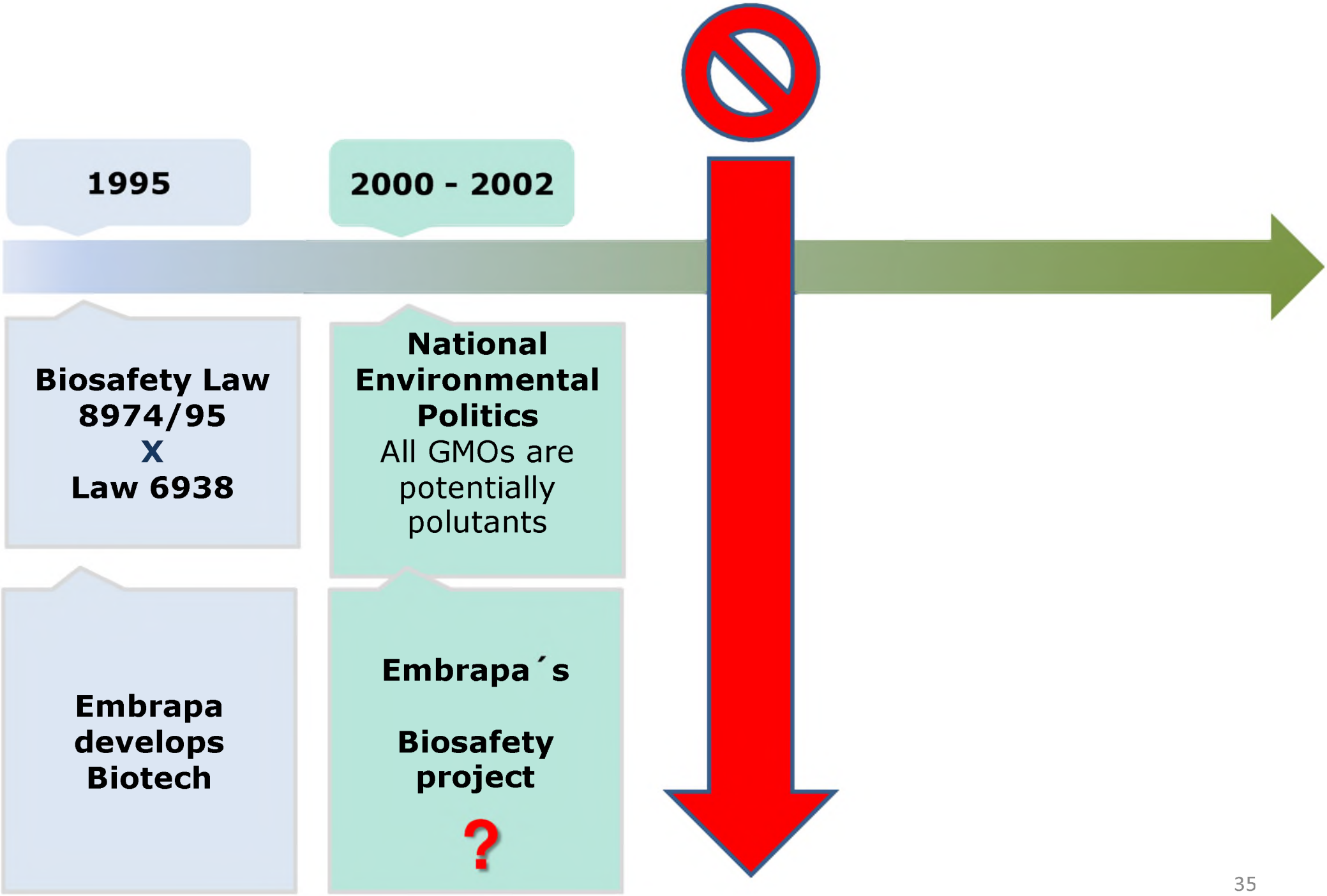
GMO ERA Project

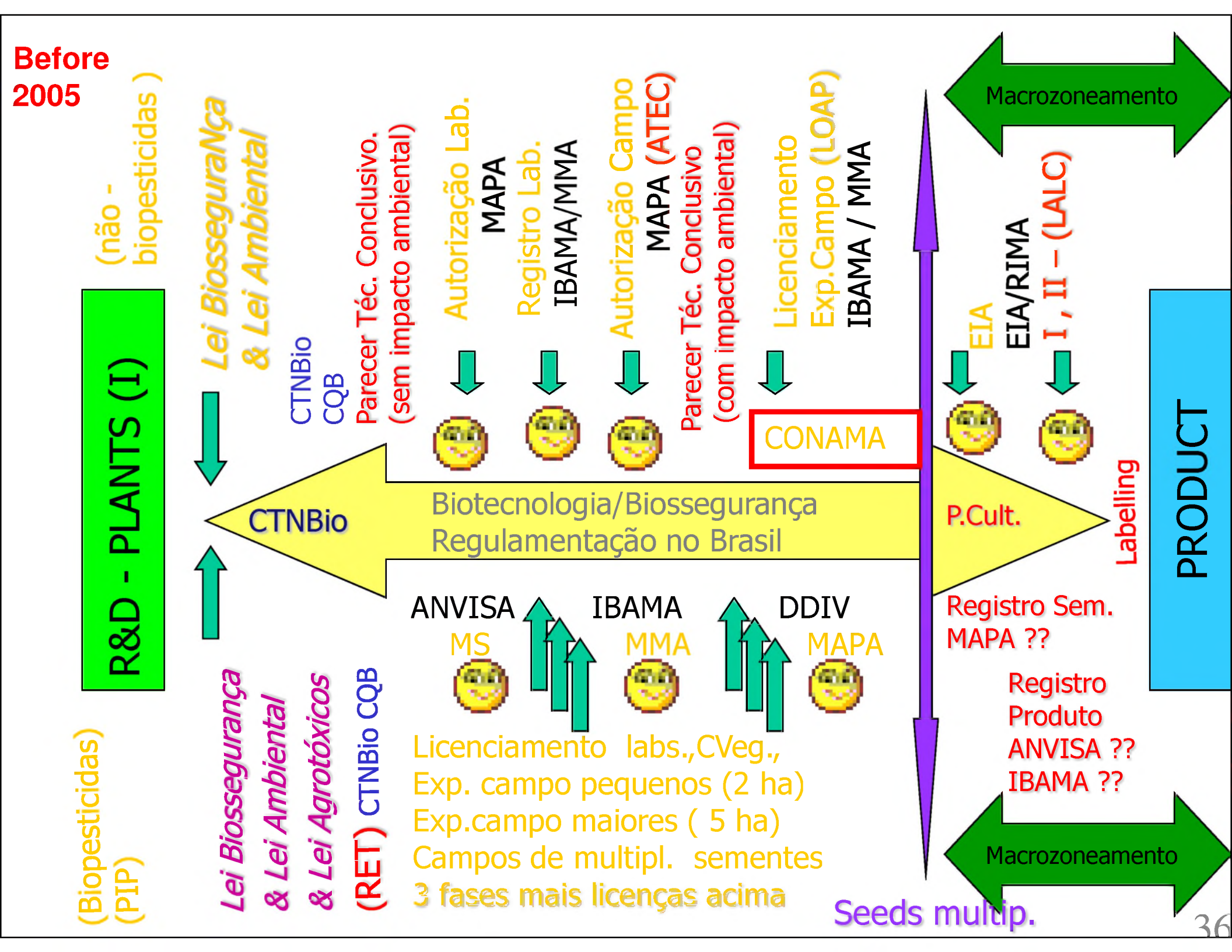
GMO ERA Project


AUG 25 2005


Conferencia Regional Centroamericana
sobre Bioseguridad
San José, Costa Rica
27-29 de abril, 2011

Timeline – regulatory milestones



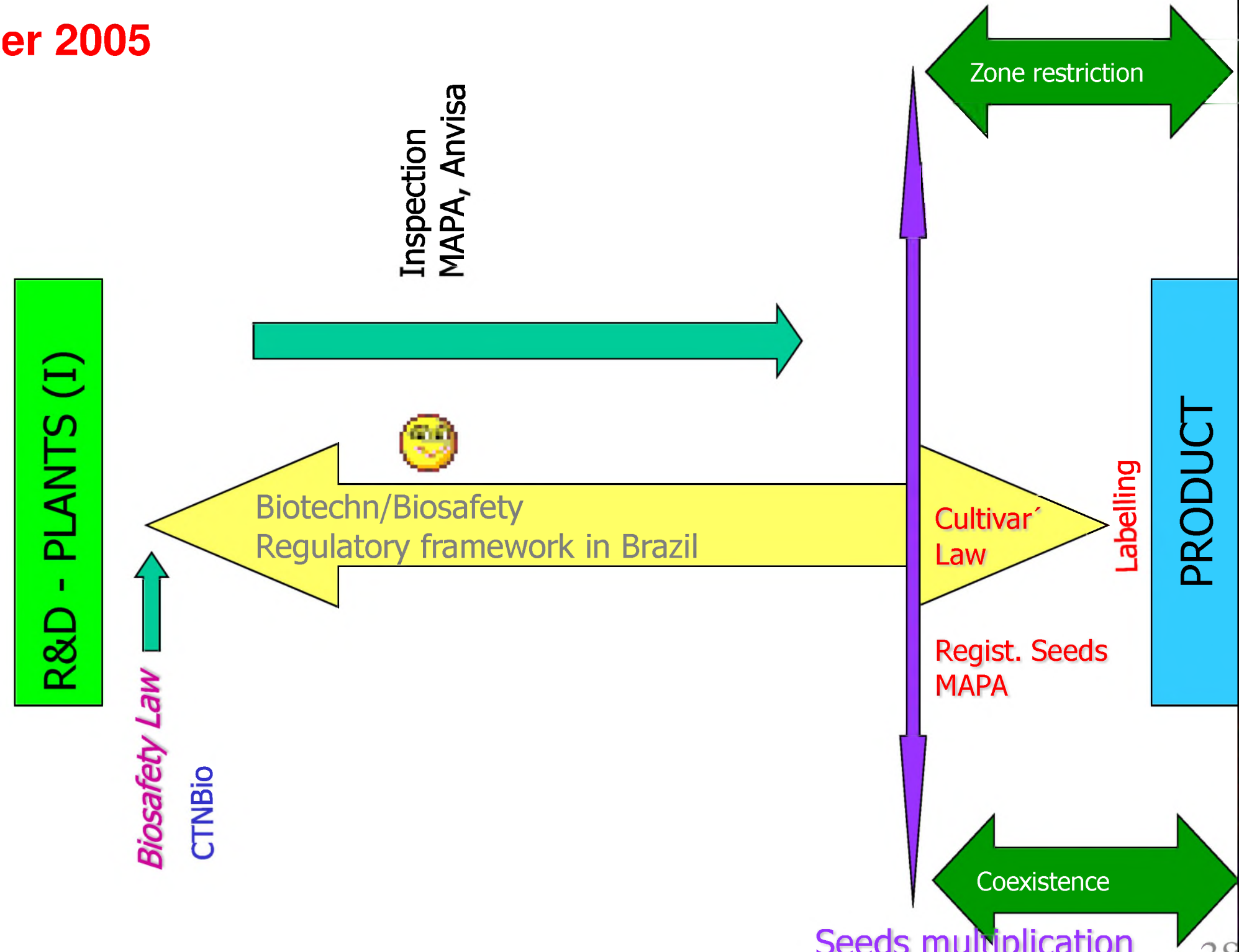

Before 2005
R&D - PLANTS (I)
(não - biopesticidas)
Lei Biossegurança & Lei Ambiental
CTNBio
CQB
Parecer Téc. Conclusivo. (sem impacto ambiental)
Autorização Lab. MAPA
Registro Lab. IBAMA/MMA
Autorização Campo MAPA (ATEC)
Parecer Téc. Conclusivo (com impacto ambiental)
Licenciamento Exp.Campo (LOAP) IBAMA / MMA
CONAMA
Macrozoneamento
EIA
EIA/RIMA
I , II – (LALC)
CTNBio
Biotecnologia/Biossegurança
Regulamentação no Brasil
P.Cult.
Labelling
PRODUCT
ANVISA
MS
IBAMA
MMA
DDIV
MAPA
Registro Sem. MAPA ??
Registro Produto ANVISA ?? IBAMA ??
(Biopesticidas) (PIP)
Lei Biossegurança & Lei Ambiental & Lei Agrotóxicos
(RET) CTNBio CQB
Licenciamento labs.,CVeg.,
Exp. campo pequenos (2 ha)
Exp.campo maiores (5 ha)
Campos de multipl. sementes
3 fases mais licenças acima
Macrozoneamento
Seeds multip.

Timeline – regulatory milestones

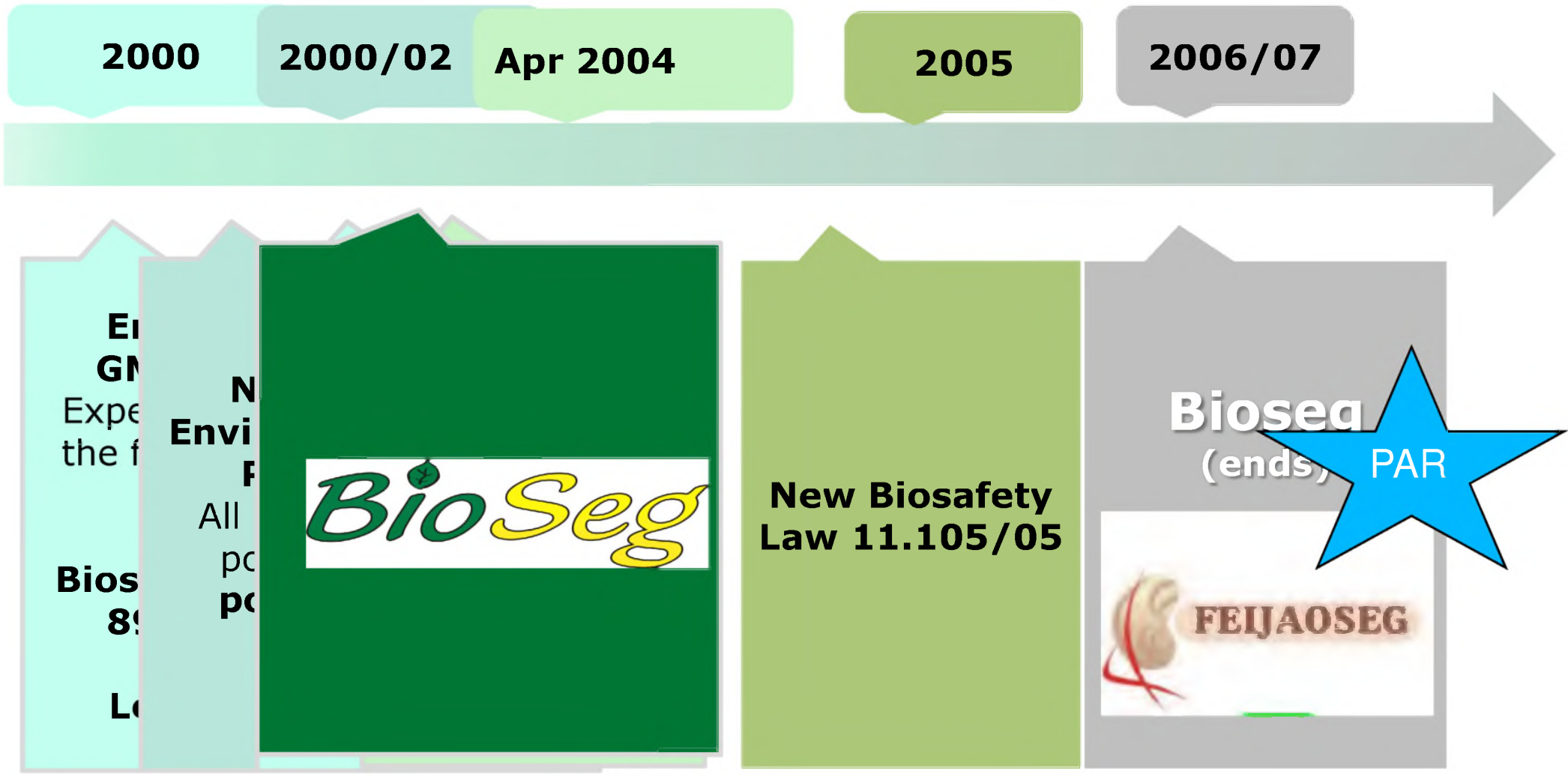
Communication, politics, perception...

1995	2000 - 2002	Dec. 2003 – Apr 2004	2005
Biosafety Law 8974/95 X Law 6938	**National Environmental Politics** All GMOs are potentially polutants	**Approval of experiments in the field to test GMOs**	**New Biosafety Law 11.105/05**
Embrapa develops Biotech	**Embrapa´s Biosafety project**	**Embrapa´s experiments**	

After 2005


Zone restriction
Inspection
MAPA, Anvisa
R&D - PLANTS (I)
Biotechn/Biosafety
Regulatory framework in Brazil
Cultivar´
Law
Labelling
PRODUCT
Regist. Seeds
MAPA
Biosafety Law
CTNBio
Coexistence
Seeds multiplication

Time line


2000
2000/02
Apr 2004
2005
2006/07
BioSeg
New Biosafety Law 11.105/05
Bioseg
(ends)
PAR
FEIJAOSEG

Keep in mind

GMO is a controverse 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 controverse 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 na 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


Worth1000.com


Worth1000.com


Worth1000.com

Keep in mind

GMO is a controverse 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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Embrapa 40

Ministry of Agriculture, Livestock and Food Supply

BRAZILIAN GOVERNMENT BRASIL