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# Socio-Economic Considerations in GMO Decision-Making

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## Outline

1. What are socio-economics?
2. Challenges of including socio-economics in national biosafety regulations
3. Cases when socio-economics were used in GMO decision-making
4. Applying “Problem Formulation” to socio-economic considerations in GMO decision-making



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## What are socio-economics?

Although not a mandatory requirement in many GMO decision-making processes, many countries are interested to investigate how socio-economic aspects may be included, however:

- Currently there is no agreed definition; generally, it seems to cover everything outside of health and environment
- Narrow use (related to biodiversity and local knowledge provided by the CPB)
- Countries can decide to go beyond the biodiversity-related CPB definition to include ethical, philosophical and religious issues

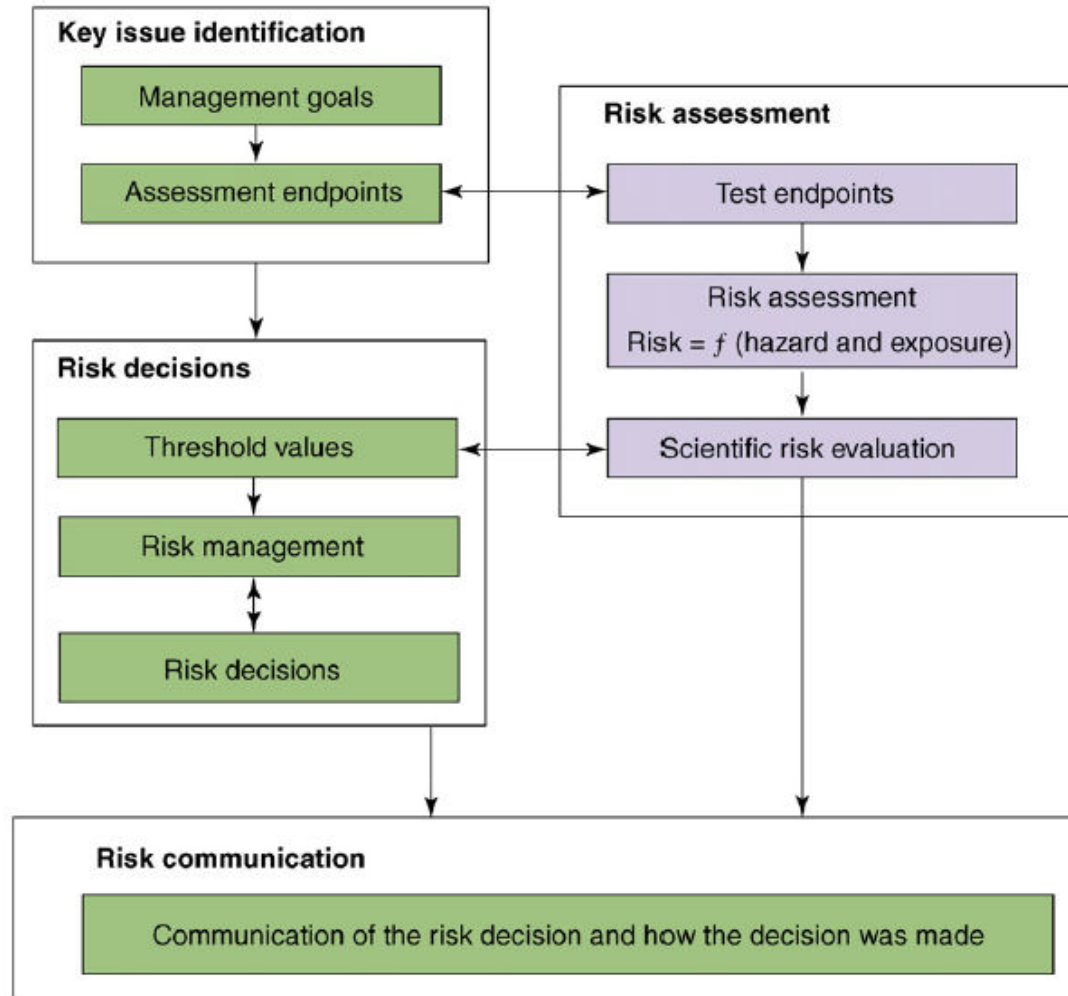


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# SECs and GMO decision-making

General considerations for GMO decision-making regarding:

- Environment
- Human and animal health
- **Socio-economic?**





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## The range of socio-economic considerations (UNEP, 2010)

| Socio-economic considerations                  |                                  |
|--|----------------------------------|
| Food security                                  | Cultural aspects                 |
| Impacts on market access                       | Labour and employment            |
| Health-related impacts                         | Land tenure                      |
| Coexistence of LMOs                            | Gender impact                    |
| Compliance with biosafety measures             | Rural-urban migration            |
| Impacts on biodiversity                        | Macro-economic impacts           |
| Farmers rights                                 | Indigenous and local communities |
| Economic impacts of changes in pest prevalence | Use of pesticides and herbicides |
| Intellectual Property Rights                   | Impacts on consumer choice       |



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## e.g. Food security

- FAO:

*“Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life”*

- Food security and GMOs:

1. affect food production (yields);
2. affect food safety and food quality (unwanted grain colour);
3. affect economic and social situation of farmers (affect income, gender relations)







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## e.g. Impact on market access

- **Growers:**  
loss of domestic market due to consumer rejection of new GM crop; loss of external markets due to fears of inappropriate segregation measures; contractual provisions affecting the cultivation and trade of products; corporate control of farming;
- **Developers:**  
increased market access costs due to differences in regulation.

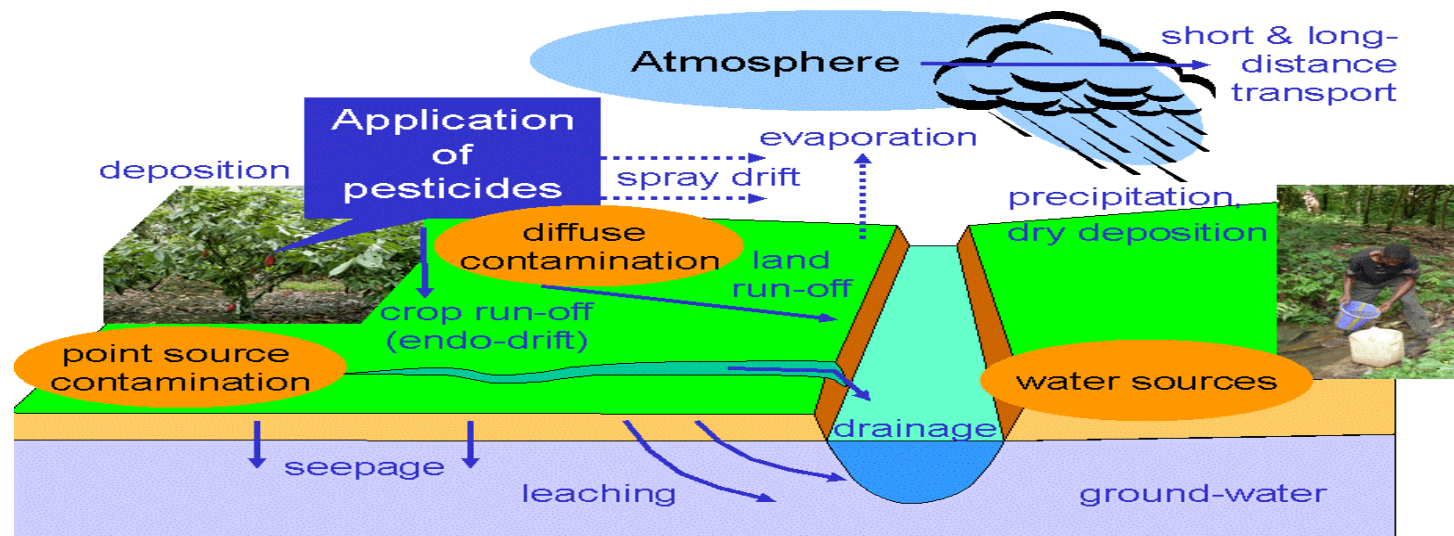




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## e.g. Health-related SE impacts

- Health-related SE impacts could stem from the impact of GM crops through pesticides applications: with direct (e.g. farmers; users) and indirect effects (national expenditures on health; contamination of air, groundwater)







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## e.g. Coexistence of GMOs

- Between GM, organic and conventional crops
- Requires specific segregation measures such as labeling and purity standards
- Often portrayed as “freedom of choice”
- Additional costs to farmers, distributors and authorities





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## Challenges of including socio-economics in national GMO regulations



- Need to set concepts, criteria, impacts, dimensions, endpoints, methods
- Need to clarify the status of socio-economic considerations in biosafety regulations
- Need to establish if the specifications will be voluntary or mandatory
- Need to balance risks and benefits
- Need to select methodologies appropriate to context and scope (*ex ante/ex post* evaluations, social impacts, econometrics, etc.)
- Consider potential implications in decision-making process (add extra burden or improve it) and in international obligations (Art 26 of CPB vs. WTO)



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# Socio-economic considerations in decision-making

## Inclusion of socio-economic considerations

**Yes**

- Vital to protecting indigenous communities against any negative impacts of GM
- Improving the quality of decision-making

Inclusion in biosafety decision-making, because SE considerations can indicate risks difficult to dissociate from the wide release of GM crops

**No**

- No place in biosafety regulations
- End-users must decide
- Additional burden on regulatory systems
- Inclusion: Used to reject GM crops

Alternate process: not force decision-making bodies deal with issues for which they are not prepared and reduce political interference

Adapted from Falck-Zepeda, 2009 and Falck-Zepeda and Zambrano, 2011



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## Where socio-economics are used in decision-making

- GMO regulatory acts including socio-economic considerations (Next slide; **green** emphasis: specific tackling of socio-economic consideration; **orange** emphasis: general reference)
- Examples of decisions based on socio-economic considerations: Zambia, Argentina, Hawaii



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## GMO regulatory acts including socio-economic considerations

| Country     | Law/Regulation  | Socio-economic considerations   |
|-------------|---|---|
| Argentina   | Resolution 656/92, 39/03 and 57/03 SAGPyA                     | Decision on the convenience of the <b>commercialisation of the GM material over its impact on markets</b> , in charge of the National Market Directorate, to avoid potential negative <b>impacts on Argentinean exports</b>           |
| Brazil      | Decree 5,591 of November 23, 2005                             | Art 48, National Biosafety Council shall analyse <b>upon request and in the context of convenience, socio-economic opportunity and national interest</b> , requests to grant license on the commercial use of GMO and GMO derivatives |
| Honduras    | Honduras draft policy   | Socio-economic considerations will be conducted through partial studies that should include <b>different social and economic impacts</b>  |
| India       | Not included in the Environmental Act or Biosafety Guidelines | The biosafety system provides for evaluation of economic benefits of GMOs through <b>systematic evaluation of agronomic performance</b>   |
| Indonesia   | Regulation 21 of 2005   | “The utilization of GEAP originating from both domestic and foreign products must pay attention to and take into <b>consideration the religious, ethical, socio-cultural and esthetical norms</b> ”                                   |
| Kenya       | Kenya Biosafety Act 2009                                      | “Authority shall take into account... (e) <b>socio-economic considerations arising from the impact of the GMO on the environment</b> ”  |
| Nigeria     | Nigeria National Biosafety Framework, 2005                    | Decision-making procedures take into account risk assessment, which involves <b>scientific, socio-economic, cultural and ethical considerations</b>   |
| Philippines | Executive order 514   | “Socio-economic, cultural, and ethical considerations. <b>Impacts on small farmers, indigenous people, women, small and medium enterprises, and the domestic scientific community to be taken into account</b> ”                      |
| R.S. Africa | GMO Act 1997  | “consider the socio-economic impact that the introduction of a genetically modified organism may have on a <b>community living in the vicinity</b> of such introduction”  |
| Uganda      | Uganda draft regulations of 2005                              | “no approval shall be given unless the GMO will not have adverse <b>socio-economic impacts</b> ”  |



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## Examples of decisions based on socio-economic considerations: **Zambia**



- 2002: in the middle of a famine, Zambia refused GM maize as food aid
- Reason: risks not well understood
- Reason: a “GM contamination” if seeds were planted by farmers could compromise exports toward Europe (Paarlberg, 2006)
- other African states accepted food aid only after it had been milled







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## Examples of decisions based on socio-economic considerations: **Argentina**



- All decisions for GMO approvals take into consideration the impact on Argentine exports
- The mandatory assessments for approving a GMO for cultivation:
  1. Environmental
  2. Feed and food
  3. Potential impact on Argentine international trade



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## Examples of decisions based on socio-economic considerations: **Hawaii**



- 2009, GM taro, State Senate passed a Bill to prohibit the genetic alteration of Hawaiian taro for 5 years; other species of taro can be genetically altered in laboratories
- Reason: cultural - taro is considered an ancestor of the people



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## Problem Formulation for socio-economic considerations in decision-making

| Issue   | PF contribution   |
|---|---|
| Difficult among stakeholders to agree on socio-economics risks and to rank in order of importance | Providing a first step: clarifying local protection goals for socio-economic concerns   |
| Scarce resources in the regulatory framework  | Better focus scarce resources on appropriate data gathering and analysis methodologies  |
| Contested evidence  | PF emphasis on scientifically-based assessments (possible even in some social issues) selects for more objective and transparent evidence |



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An example of Problem Formulation for socio-economic considerations in decision-making  
*The release of biofortified sorghum in Ethiopia*

**Hypothesis:** Increase of the bankruptcy rate of small farmers

High cost of seed acquisition due to Seed Company Royalty



Bank loan for seed acquisition and crop cultivation



Small farmers incur in debt



Loss of production (income)



Small farmer unable to pay back loan



Bankruptcy



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Thank you  
for your  
attention



Any  
questions?







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