

Socio-Economic Impact Assessments, Environment Risk Assessments and Gene Drives

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Cartagena Protocol and Socio-Economic Considerations

- According to Article 26.1 of CPB states

“The Parties, in reaching a decision on import under this Protocol or under its domestic measures implementing the Protocol, may take into account, consistent with their international obligations, socio-economic considerations arising from the impact of living modified organisms on the conservation and sustainable use of biological diversity, especially with regard to the value of biological diversity to indigenous and local communities.”

This is not mandatory and left to discretion of countries

Socio-Economic Impacts

- Traditional Cost-Benefit Analysis takes into account costs and benefits in terms of finance or economic costs & benefits ignoring social gains and costs
- SE Consideration/ SE Impact Assessment (SEIA) supplements that although there is no consensus on what all should be considered under this. SEIA can aid in decision making particularly in addressing societal concerns including health, gender, employment impacts.
- Countries have interpreted and incorporated SEIA in different ways with different approaches. SEIA can be done prior to authorization to cultivate GMOs, post approval and marketing and to study long term impacts

Dimensions in SEC and SEIA

Table 2.2 SECs taken into account in Biosafety decision-making

<p><i>Social dimension</i></p> <ul style="list-style-type: none"> • Social acceptability • Social utility • Changes in land use • Changes in communities' rights • Distribution of benefits with future generations • Equity issues • Food sovereignty • Food security • Gender impacts • IPRs and patents • Livelihood of communities • Sustainable development 	<p><i>Economic dimension</i></p> <ul style="list-style-type: none"> • Access and cost for GM technology • Changes in agricultural production systems • Changes in agricultural productivity • Changes in small and marginal farmers income • Change in export trends • Change in economic value of traditional varieties • Change in industrialization trends • Change in traditional markets • Crop loss • Employment loss/gain • Impact on small business development • Impact on organic agriculture
<p><i>Cultural/ethical/religious dimension</i></p> <ul style="list-style-type: none"> • Cultural aspects and practices • Erosion of indigenous technology and knowledge • Ethical and moral concerns • Impact on traditional crops and products • Religious concerns • Traceability and labeling issue 	<p><i>Ecological-related dimension</i></p> <ul style="list-style-type: none"> • Loss of genetic diversity • Agro-diversity loss • Farmers' varieties loss • Development of weed resistance • Changes in energy use patterns • Changes in herbicide use • Changes in insecticide use • Greenhouse gas emission • Soil contamination/erosion • Impact on environment
<p><i>Health dimension</i></p> <ul style="list-style-type: none"> • Food safety • Nutritional needs • Public health impact 	

Source Chaturvedi et al. (2012), Binimelis and Myhr (2016)

Countries that have adopted SEIA

Africa	Americas and Caribbean	Asia-Pacific and Oceania	Europe
Burkina Faso	Argentina	Australia	Austria
Cameroon	Belize	Indonesia	France
Ethiopia	Brazil	Malaysia	Italy
Ghana	Canada	New Zealand	Latvia
Kenya	Colombia	Philippines	Norway
Madagascar	Costa Rica	Republic of Korea	
Mali	Cuba		
Mauritius	Honduras		

(continued)

Countries that have adopted SEIA

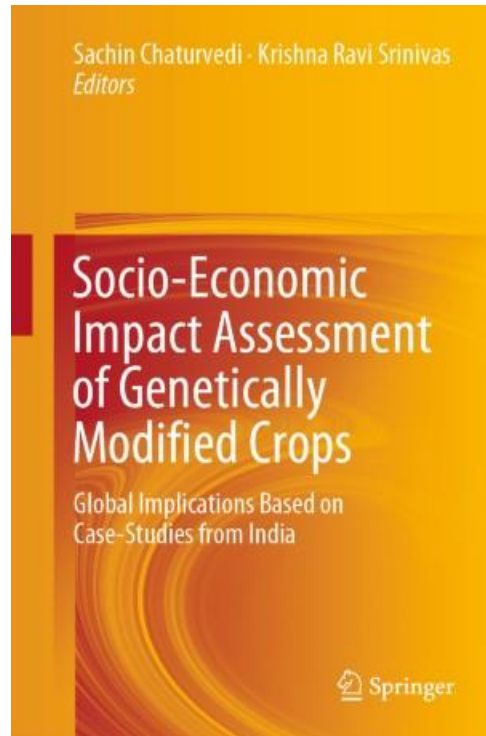
Africa	Americas and Caribbean	Asia-Pacific and Oceania	Europe
Namibia	Mexico		
Nigeria	Panama		
Senegal	Peru		
South Africa	Saint Kitts and Nevis		
Tanzania	Uruguay		
Togo	Venezuela		
Zambia			
Zimbabwe			

Source Compilation by author based on various sources viz. UNEP CBD BCH documents, Chaturvedi et al. (2012), Falck-Zepeda and Zambrano (2011), Benimelis and Myhr (2016)

Issues in SEIA

- Although there is no universal methodology countries have used different parameters for assessment. CBD's AHTEG identified key elements countries have adopted but stopped short of suggesting which ones are to be used / prioritized
- SEIA can be part of comprehensive assessment which includes ERA and CBA. It can complement and supplement them.
- Capacity to perform SEIA is necessary and also long term impacts have to be studied
- RIS in association with six research institutes did case studies and developed methodology and guidelines as part of UNEP-GEF funded project.

SEIA of GM Crops



SEIA and ERA

- SEIA can incorporate findings from ERA but has a larger focus. ERA like CBA and traditional economic analysis can give specific impact assessment particularly on biodiversity
- SEIA is broader than ERA and can incorporate values/norms in assessment. For example a GMO may be culturally insensitive if it is outcome of genetic modification of a plant considered sacred or used in religious rituals
- As SEIA has a health impact dimension findings from ERA can be used to validate or disprove health impact aspects
- SEIA and ERA should ideally be done on a long term basis than as one time exercised

SEIA and Gene Drives

- Gene Drives have similarities with GMOs or GM crops but not identical.
- Gene Drives will have long term impacts and hence SEIA and ERA are necessary
- The methodology we developed can be suitably modified and in this depending upon the context health aspect may be more important
- Gene Drives are covered by CPB and hence SEIA can be done under Article 26.1. But we have not come across any such assessment
- SEIA for Gene Drives should pay attention more for long term ecological consequences and their impacts than for GM crops. So this aspect will have to be understood

SEIA – Merits & Limitations

- It is legally acceptable in International Law as it is done under Article 26.1. It is comprehensive and complements ERA and CBA
- It has been implemented in many countries with different approaches and hence there are guidelines and precedents
- It enhances credibility and provides for public participation decision making as surveys will reflect public views & preferences
- Well suited to consider norms, values which cannot be assessed through CBA and ERA

SEIA – Merits & Limitations

- No agreed methodology or guidelines
- Needs capacity and having to measure many aspects is problematic or not easy
- When different stakeholders have different priorities doing SEIA will get more information need not result in clarity
- Doing it in the long term needs investment and infrastructure
- Whether this should be supplementary or main tool for assessment is a matter of dispute.
- Still SEIA is an important tool in assessment

Thanks

- Please visit publications in RIS website for details of RIS publications on SEIA
- www.ris.org.in
- Thanks for your attention