

# Asian Biotechnology and Development Review

Vol. 14 No. 3

November 2012

ISSN: 0972-7566

## **Special Issue on Biosafety and Socio-economic Considerations**

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# Socio-economic Considerations under the Cartagena Protocol on Biosafety: Insights for Effective Implementation

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**Abstract:** The inclusion of the socio-economic aspects in environmental decision-making has been practiced since the early seventies. The interactions between the environment and society, the growing demand for social responsibility and the pledge towards sustainable development are some of its drivers. However, in multilateral environmental agreements, particularly in the Cartagena Protocol on Biosafety (CPB), the integration of socio-economic matters in decision-making has been difficult and contentious. Article 26 of the CPB relates to socio-economic considerations arising from the impact of living modified organisms (LMOs) on the conservation and sustainable use of biological diversity. Contrary to the opinion of some scholars and the biotechnology industry, this article argues that Article 26 of the CPB: (a) recognises the sovereign rights of States in taking into account socio-economic considerations when making a decision of import of LMOs; (b) it has a wide scope since it deals with broad issues, namely conservation and sustainable use of biodiversity; and (c) is a cross-cutting article within the CPB since, when included in decision-making, it relates to several operational provisions. Accordingly, the implementation of the CPB would be incomplete and not consistent with its objectives if socio-economic considerations are not appropriately and timely addressed in biosafety decision-making processes.

**Key words:** Living modified organisms, socio-economic considerations, Cartagena Protocol on Biosafety, decision-making.

## Briefing on the Current Status of Socio-economic Considerations under the Cartagena Protocol on Biosafety

The interconnections among ecological, social and economic aspects of any intervention (e.g. projects and technologies) have already received broad

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The author is thankful to David Quist and Lim Li Ching for their useful comments on this article. Also useful feedback was received in specific parts of this article from Hartmut Meyer and Prof. Phil Bareano.

acknowledgement in the international environmental community, and thus have a substantial trajectory on environmental decision-making. Practical applications of the eco-social interrelation started in the early 1970s when legislations begun to incorporate social impact assessments in their environmental procedures (Freudenburg 1986). Since then, the inclusion of socio-economic considerations in environmental decision-making processes has increased as a result of: (i) the evident mutual influence between the environment and society; (ii) growing demand for social responsibility by markets and regulations; and (iii) the imperative in advancing agendas towards sustainable development (Barrow 2002).

Despite this progress – especially on the integration of the environmental and socio-economic fields at regulatory and research levels for assessing the drivers, impacts and outcomes of technology use – the incorporation of socio-economic considerations in multilateral environmental agreements (MEA) has been rather contentious. This is particularly true for the issue of the safety assessment of genetically modified organisms (GMOs) under the Cartagena Protocol on Biosafety (CPB), due to the politically charged and large economic incentives at stake.

The CPB is a MEA that aims at contributing to the safe transfer, handling and use of GMOs (referred in the Protocol as living modified organisms or LMOs) resulting from modern biotechnology. The focus of the Protocol is to prevent “*adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health*” (Article 1) (Secretariat of the CBD 2000:3).

The negotiations of the text of the CPB took from 1995 to 2000 (year of its adoption). During this time, the inclusion of socio-economic aspects related to LMOs was one of the most difficult and contentions discussions, due to two opposing positions. On one hand, developing countries had wanted to include socio-economic considerations in risk assessment, risk management and decision-making procedures on LMOs. Several arguments on anticipated changes and potential threats were presented in this respect, particularly with regard to centers of origin and genetic diversity (e.g. impacts on biological diversity that may jeopardise rural livelihoods, indigenous knowledge, market opportunities and even national economies, among others) (MacKenzie *et al.* 2003; Khwaja 2002). On the other hand, most developed countries argued that socio-economic considerations were subjects “of little relevance and believed that further studies on the matter were not necessary” (Secretariat of the CBD 2003:79). Accordingly, they

sustained that social and economic issues were of reduced relevance in the context of the CPB since, in their view, they mostly relate to national interests (MacKenzie *et al.* 2003). The result of this long-standing debate is a broad compromise text on socio-economic considerations in Article 26 of the CPB. After the Protocol's entry into force, the process of decision-making involving concrete measures for implementation of this article has also been characterised by intense discussions and contentious positions among Parties. The outcome to date has thus been a slow process to achieve further clarity and agreed guidance on how to address socio-economic considerations in the context of the CPB.

One standing topic under discussion has been the actual scope and extent of application of socio-economic considerations under the Protocol. Some countries (e.g. Argentina and the United States, both non-Parties to the CPB), some scholars and also the biotechnology industry argue that social and economic aspects should be of narrow scope and voluntary, so that their inclusion in biosafety decision-making do not delay the process of adoption of new technologies or increase the cost of compliance with the Protocol (Falk-Zepeda and Zambrano 2011; Falk-Zepeda 2009, see also the Global Industry Coalition submission in Secretariat of the CBD 2011a). Conversely, other countries (e.g. several from the African Group, Bolivia and Norway), scholars and some international NGOs sustain that Article 26 spells out the right of countries to include socio-economic considerations in the biosafety decision-making process. This position is based on the argument that development and adoption of technologies have a wide array of ecological and socio-economic implications. Moreover, these biosafety actors sustain the importance of effectively addressing the social and economic dimensions of LMO introduction in light of sustainable development (Secretariat of the CBD 2011a; Pavone 2011; MacKenzie *et al.* 2003).

In spite of the unresolved issues and the lack of guidelines for effective implementation of Article 26, socio-economic considerations are integrated in biosafety decision-making and regulatory frameworks in a number of countries. For instance, by 2010, according to Spök (2010), the following sixteen Parties to the CPB incorporate provisions on socio-economic impacts in their national biosafety regulations: Armenia, Austria, Bangladesh, Bhutan, Cambodia, China, France, Honduras, India, Lebanon, Mauritius, Nigeria, Norway, the Philippines, South Korea and Syria.

Contrary to some opinions for restricted application and marginal relevance, the actual language of Article 26 is rather wide in scope and

cross-cutting in nature. This because it deals with the core issues between the CPB and its mother treaty (the Convention on Biological Diversity, CBD): Conservation and sustainable use of biological diversity. Hence, when implemented, Article 26 inherently relates to several other provisions of the Protocol.

The interconnection of Article 26 with several other articles of the CPB is pointed out in the Explanatory Guide to the Cartagena Protocol on Biosafety. This Guide is an internationally recognised document that provides orientation for the interpretation of the CPB, which was prepared by scholars in law and reviewed in a series of workshops by different biosafety stakeholders (including governmental delegates and members of the Intergovernmental Committee for the Cartagena Protocol) (MacKenzie *et al.* 2003). Nonetheless, the relationship of Article 26 with other stipulations of the CPB has not yet been further analysed. The purpose of this article is to provide insights on the wide scope of the Article 26 on socio-economic considerations (specifically on Article 26.1) and its connection to other operational articles of the Protocol.

### **Article 26 of the Cartagena Protocol on Socio-economic Considerations**

Article 26 of the CPB contains two provisions, from which Article 26.1 is operational in relation to biosafety decision-making. Article 26.1 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.”* (Secretariat of the CBD 2000:19).

The text of Article 26.1 contains a number of relevant elements for analysis. For this article, however, we will focus on only a few: (i) the meaning of the text *“may take into account”* as recognition of the sovereign right of Parties; (ii) the broad scope set by the wording *“conservation and sustainable use of biological diversity”*; and (iii) the cross-cutting nature of Article 26.1 set by the text: *“The Parties, in reaching a decision on import under this Protocol”*.

#### ***“...may take into account” as a Recognition of Sovereign Rights***

The wording *“may take into account”* in Article 26.1 has been interpreted by some as a text that points to a voluntary measure, over stressing that Article 26.1 is not an obligatory CPB provision (GIC 2012;

Falk-Zepeda and Zambrano 2011; Falk-Zepeda 2009). This interpretation has important shortcomings. First, it ignores the context from which the language of Article 26.1 results. In international negotiations, a common practice is the inclusion of compromise texts on contentious matters in order to reflect the various concerns of the different positions. Article 26.1 is a compromise text that, to some extent, addresses the positions of both developing and developed countries during the discussions on the inclusion of socio-economic aspects in the LMOs biosafety process (Khwaja 2002). Second, it erroneously suggests, in a subtle manner, that Article 26.1 would be a provision low in hierarchy of implementation.

Conversely, a more comprehensive analysis is that Article 26.1 establishes the right of Parties to the CPB to take into account socio-economic issues in the decision-making process related to LMOs. As stated by Khwaja (2002:361) – a negotiator of the text of the CPB – “*Article 26 is to empower Parties of import to analyse carefully what possible adverse impacts the import of LMOs would have on their socio-economic conditions*”. Accordingly, its incorporation in biosafety decision-making does not breach the Protocol. This understanding seems consistent with Article 2.4 of the CPB on General Provisions. Article 2.4 acknowledges that the Protocol does not restrict to Parties in taking any measure that may contribute to better protection of the conservation and use of the biological diversity. The literal wording of Article 2.4 is: “*Nothing in this Protocol shall be interpreted as restricting the right of a Party to take action that is more protective of the conservation and sustainable use of biological diversity than that called for in this Protocol, provided that such action is consistent with the objective and the provisions of this Protocol and is in accordance with that Party’s other obligations under international law.*” (Secretariat of the CBD 2000:3).

Accordingly, Article 26.1 of the Protocol goes beyond merely stating a voluntary measure but establishes and confirms the right, in international law, of the Parties to take account of socio-economic considerations in biosafety decision-making processes. Whether or not Parties choose to exercise this right is up to them in accordance to their specific social and economic priorities and interests. However, the right is clearly defined, and its recognition as such is particularly relevant for: (a) countries that are centers of origin and genetic diversity, due to the close interconnection between biodiversity and local communities (Serratos 2009; IAASTD ed. 2009); (b) countries that have large indigenous or rural populations given their relationship with and dependence on biodiversity (Maffi and Woodley 2010; CEC 2004); and (c) countries that have an important portion of their



economy and development programmes reliant on the use of biodiversity (e.g. sustainable management of agrobiodiversity as part of local agricultural and development agendas) (IAASTD ed. 2009; Nuffield Council of Ethics 2004).

***Biodiversity Conservation and Sustainable Use: Broad in Themselves***

In the CPB discussions on socio-economic considerations, the position of some countries, observers and stakeholders is that the implementation scope of Article 26.1 is narrow and strictly limited to biodiversity issues (GIC 2012; Secretariat of the CBD 2011a; Falk-Zepeda and Zambrano 2011; Falk-Zepeda 2009). Based on the text of Article 26.1, socio-economic considerations as stated in the Protocol are certainly related to the effects on biological diversity specifically to its conservation and sustainable use, and particularly to the value of biodiversity to indigenous and local communities. Yet, these specifications are far from being narrow when analysed from a technical and, consequently, decision-making point of view.

The specifications in Article 26.1 in relation to biodiversity set its wide scope of application based on the following:

- Biodiversity is a broad concept in itself that embraces all forms of life and their environments (including their living and non-living components). This is described in the CBD's definition on biological diversity and ecosystems as follows: "*Biodiversity*" refers to "*the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems*"; while "*ecosystem*" is described as: "*dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit*" (Secretariat of the CBD 1992:3).
- Impacts on biodiversity relate to a large spectrum of possible effects. There is widespread and well-documented recognition that any impact on biodiversity or ecosystems does not take place in a linear or necessarily scale-dependent manner. On the contrary, changes in biodiversity are complex and unpredictable, which may result in cumulative and combinatorial effects that can accelerate changes or lead to unintended adverse effects (Cardinale *et al.* 2012). In simpler words, any change on biodiversity can result in a chain of other alterations and consequences either direct, indirect, intentional, accidental, predicted and/or unforeseen (Stabinsky 2001). The wording in Article 26.1



*“socio-economic considerations arising from the impacts of living modified organisms on the conservations and sustainable use of biological diversity”* refers to all these different kinds of possible effects.

- Conservation and particularly sustainable use of biodiversity have an intrinsic socio-economic component. On one hand, the “*use*” of biodiversity is defined by social, cultural and economic factors. Moreover, the biological and socio-cultural components of life that define the consuetudinary practice (such as use of local biodiversity for food or income generation) are inseparable, particularly among indigenous communities (Prilgrim and Pretty 2010; Maffi 2010; Cardinale *et al.* 2012). On the other hand, the use of biological diversity in a “*sustainable manner*”, as pledged by the CBD and CPB, entails the management of biodiversity by individuals and groups. Accordingly, the societies and socio-economic factors in which these individuals and groups are embedded play a crucial role in the long-term preservation of biodiversity while securing the fulfilment of the needs of the present and future generations (Borrini-Feyerabend *et al.* 2004).

In summary, the specification of socio-economic considerations “*arising from the impacts of LMOs in relation to the conservation and sustainable use of biodiversity*” is broad in its very essence. It includes the direct, indirect, intentional, accidental, predicted and unforeseen effects on the different forms of life and their environments, and on their potential use in light of the sustainability principles. Furthermore, the text “*especially with regard to the value of biological diversity to indigenous and local communities*” of Article 26.1 keeps its scope appropriately wide by pointing out that besides the broad array of implications on biodiversity and sustainable use in general, additional (and not restricted to) considerations are needed relative to the livelihood, consuetudinary use, culture, spirituality and others where biodiversity plays an important role for indigenous and local communities.

### ***The Cross-Cutting Nature of Article 26 on Socio-economic Considerations***

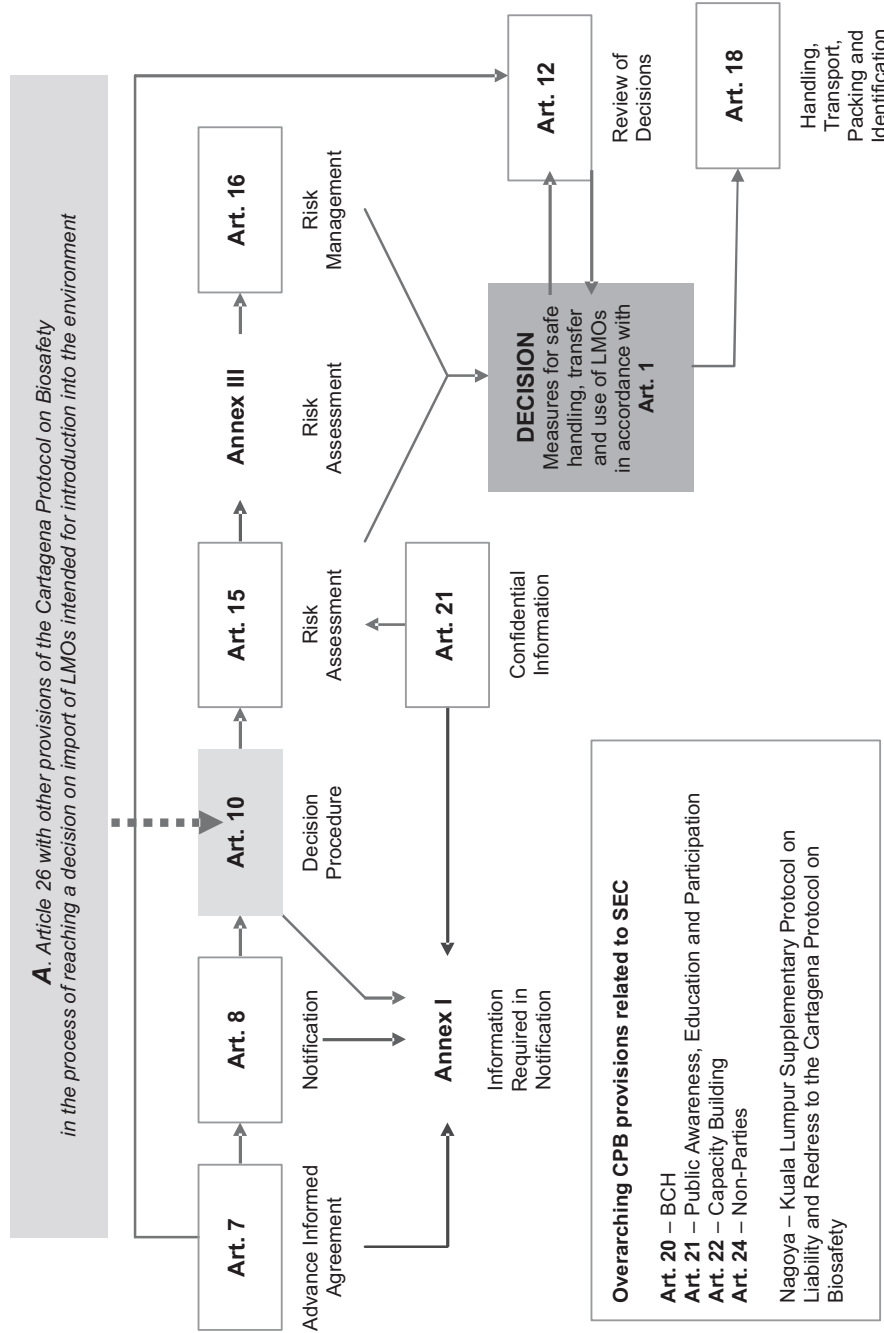
Other proposed interpretations of Article 26 in general, and Article 26.1 in particular, are: (a) It deals with a very specific issue within the Protocol; and (b) If it is to be included in biosafety decision-making, it should be treated in a separate manner in relation to the other provisions, particularly to the risk assessment (Falk-Zepeda and Zambrano 2011). These interpretations mistakenly place Article 26 as an isolated or virtual stand-alone clause. Nonetheless, the text “*The Parties, in reaching a decision on import under this Protocol*” opens up for the inclusion of Article 26 with

respect to other Protocol's provisions when, upon the discretion of Parties, a comprehensive analysis is applied (MacKenzie *et al.* 2003). In this regard, the next paragraphs describe the possible – and non-exhaustive – range of the implications and integration of Article 26 along the whole body of the Protocol.

To begin with, Article 26.1 clearly states that “*in reaching a decision on import*” under the Protocol, Parties may take into account socio-economic considerations. This wording has two important implications. First, it indicates “*when*” socio-economic aspects can be considered: This is at the time of reaching a decision on import. Second, it leads to two key articles related to the general *modus operandi* for taking a decision on import of LMOs: (a) Article 10 on Decision Procedure; and (b) Article 11 on Procedure for Living Modified Organisms Intended for Direct Use as Food or Feed, or for Processing. These articles are central in guiding the steps for decision-making under the Protocol and are linked to other important operative provisions (Figure 1, Figure 2 and Figure 3). In light of this, the relationships of Article 26.1 with other Protocol articles would be as follows:

- In relation to Article 10 (see the process A, Figure 1), on one hand, it would arguably relate socio-economic considerations to Article 15 on Risk Assessment and Annex III of the CPB, for taking into account social and economic issues in parallel to the environmental risk assessment. Although Annex III mostly refers to highly technical environmental aspects, the implementation of Article 15 shall also take into account human health (in consistency with the Protocol's objective). This defines the possibility of including in the risk assessment relevant public health issues – a highly relevant socio-economic subject – in relation to adverse effects of LMOs on the conservation and sustainable use of biological diversity. Furthermore, Article 10.3(c) opens up the possibility for including socio-economic considerations in risk assessment processes under the CPB by stating that Parties, in the course of taking a decision, can request “*additional information in accordance with its domestic regulatory framework or Annex I*” (Secretariat of the CBD 2000:7). Accordingly, supplementary information could be, among other things, a socio-economic impact assessment. This approach will lead to a more systemic evaluation of risks and contribute to overcome, at least partly, the current limitations of assessments mostly focused on restricted environmental aspects (Meyer 2011). Additionally, Annex I under item (l) requests information on “*Suggested methods for safe handling, storage, transport and use, including packaging, labeling, [...]*”

**Figure 1: Relationship of Article 26 on socio-economic considerations with other provisions of the Cartagena Protocol on Biosafety in the process of reaching a decision on import of LMOs intended for introduction into the environment**



Source: Author's work.

(Secretariat of the CBD 2000:27). This provision relates to socio-economic matters as well, which are important to identify. For instance, conditions for segregation during storage and transport, or intended and other potential local uses of the LMO in question, are socio-economic considerations that will impact the safe handling, storage, transport and use of LMOs.

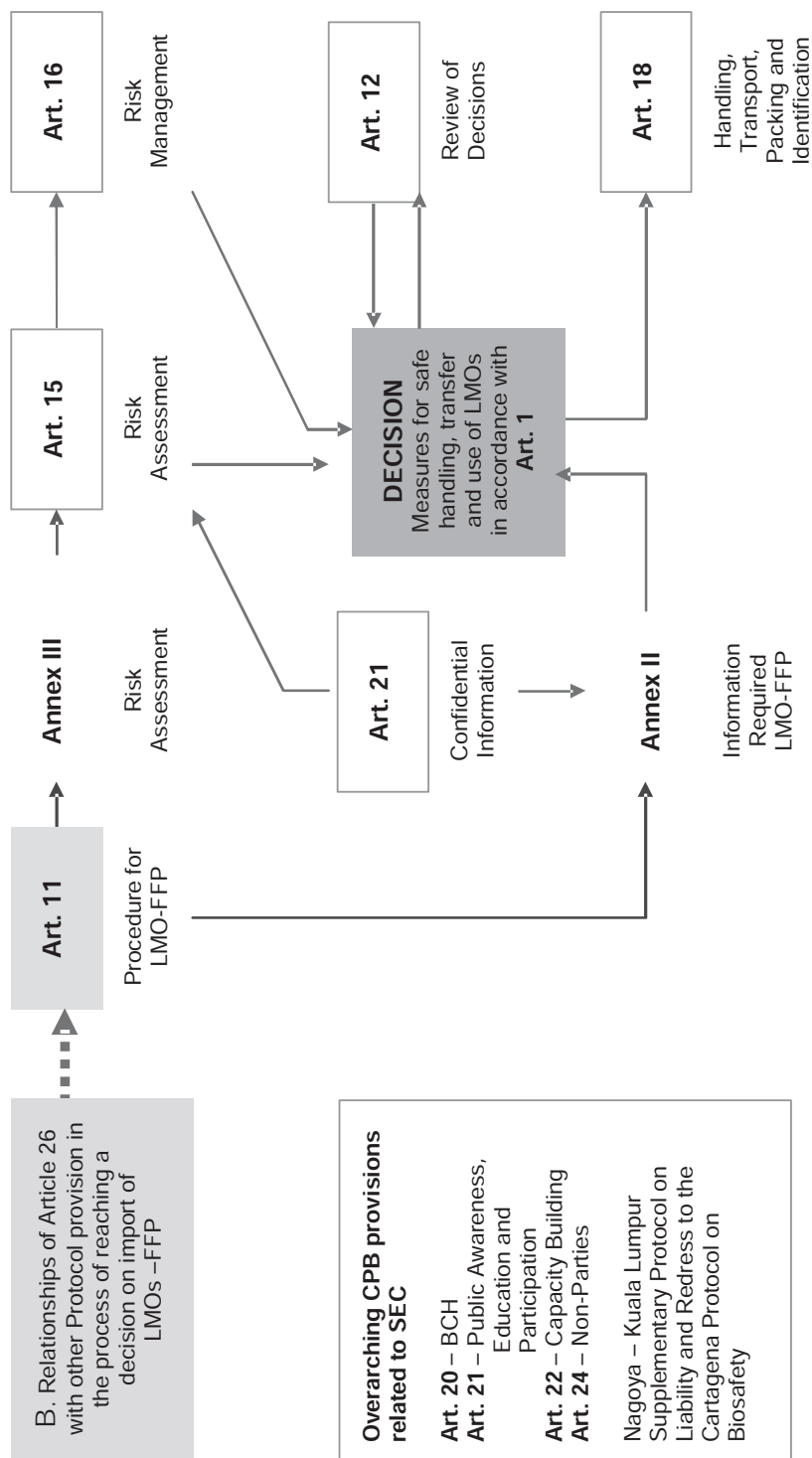
Upstream in the process of decision-making, Article 10, and subsequently Article 26.1, relates to:

- ▶ Article 7 on the Application of the Advance Informed Agreement Procedure (AIA): and
- ▶ Article 8 on Notification, which also refers to Annex I, where – as indicated previously – socio-economic information could be requested by the notified Party.

Downstream, Article 10, and then Article 26.1, is linked to:

- ▶ Article 16 on Risk Management under which measures to prevent or regulate, manage and control socio-economic risks could be identified.
- ▶ Article 21 on Confidential Business Information that mentions, among others, that information relevant to the risk assessment and the one generated according to Annex I of the CPB cannot qualify as confidential. In relation to risk assessment, “relevant information” could entail information with socio-economic connotations (e.g. in relation to the Protocol’s objectives, findings on impacts on human health from the public health point of view).
- ▶ Article 12 on Review of Decisions, which indicates that decisions on LMOs could be reviewed in light of new scientific information on potential adverse effects on the conservation and sustainable use of biological diversity, taking into account human health. New scientific information could refer to impacts of LMOs that may have socio-economic implications, including potential changes in human health from the public health perspective.
- In relation to Article 11 (see the process B, Figure 2), is the other provision that would relate to Article 26.1 in the process of taking a decision on import of a LMO, in this case when the LMO is intended for direct use as food or feed, or processing (LMO-FFP). Accordingly, it could be interpreted as allowing the inclusion of socio-economic considerations through:

**Figure 2: Relationship of Article 26 on socio-economic considerations with other provisions of the Cartagena Protocol on Biosafety in the process of reaching a decision on import of LMO-FFP**



Source: Author's work.

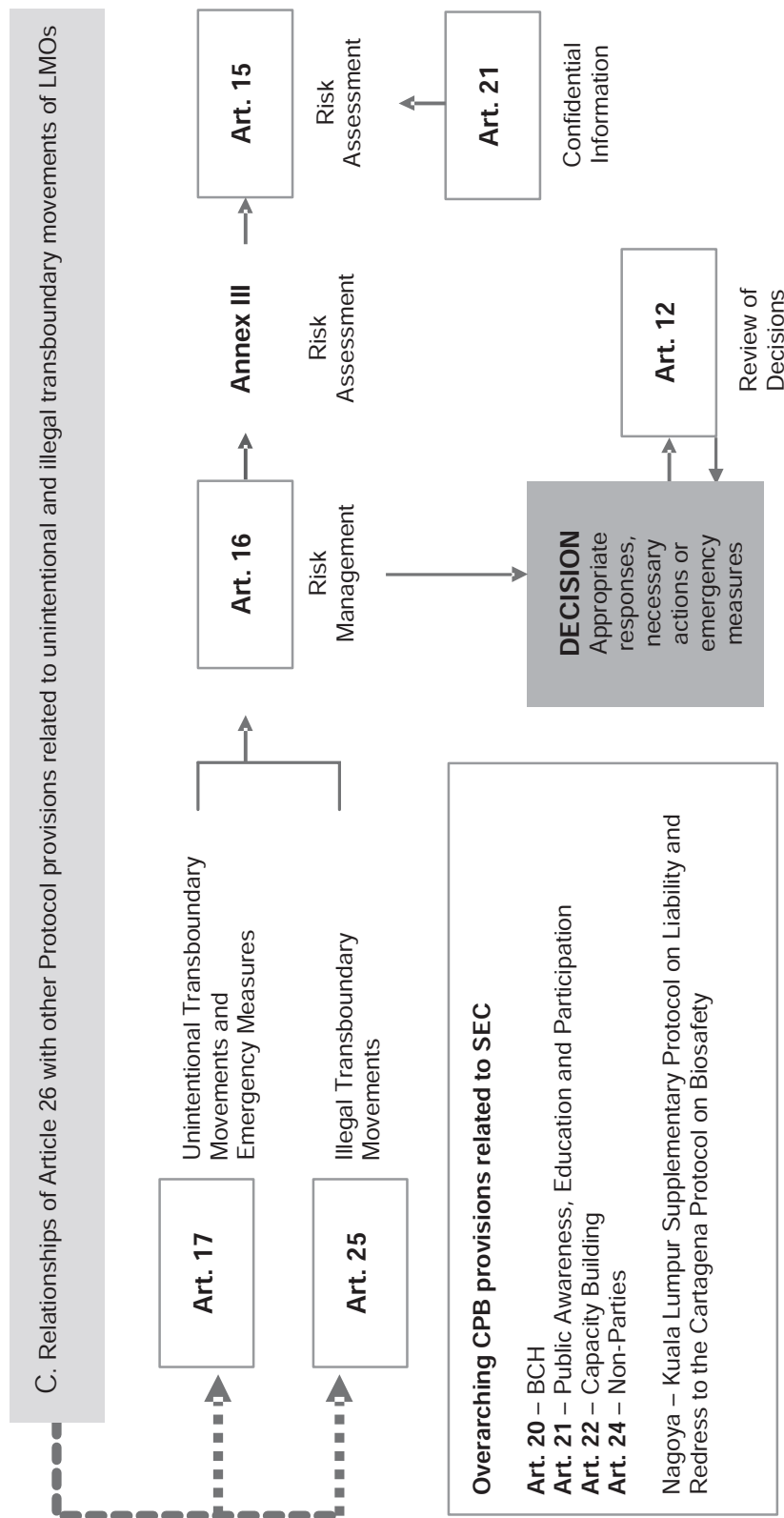
- ▶ Annex II specifically under item (k) that requests suggested methods for safe handling, storage, transport and use of LMO-FFPs, since these processes involve socio-economic aspects as described before;
- ▶ Article 15 and Annex III according to Article 11.6(a) on the risk assessment as a source of information for the process of decision-making; and
- ▶ Article 16 on Risk Management and Article 12 on Review of Decisions, in line with what was mentioned previously.

Furthermore, an overarching feature of Article 11 is that it is subject of socio-economic considerations. This is because its implementation is triggered when a Party has adopted a decision “*regarding domestic use, including placing on the market*” of a LMO-FFP (Article 11.1). “*Domestic use*” and “*placing on the market*” are inherently socio-economic processes. Hence, reaching a decision on these matters necessarily social and economic factors need to be taken into account.

Besides Article 10 and Article 11 on the decision procedures on import of LMOs, the implementation of Article 26.1 could also relate to Article 17 and Article 25 as follows (see the process C, Figure 3):

- In relation to Article 17 on Unintentional Transboundary Movements and Emergency Measures, socio-economic issues can be considered for determining the impacts that may arise from such movements and the corresponding response measures. On one side, Articles 17.3(c) and 17.3(d) request available information on possible adverse effects and other relevant information, respectively, in notifications to States affected or potentially affected by unintentional transboundary movements of LMOs. Such information could include socio-economic considerations. On the other side, under Article 17.4 social and economic issues could be taken into account to determine the appropriate responses, necessary actions or emergency measures. Moreover, those response and emergency measures could address the socio-economic impacts arising from adverse effects on the conservation and sustainable use of biodiversity, taking into account human health, and related to unintentional transboundary movement of an LMO. Finally, Article 17 also relates to Article 16 on risk management giving place, as indicated earlier, to the identification of actions to prevent, regulate, manage and control potential risks, which could arguably include socio-economic impacts. Specifically, Parties may incorporate socio-economic considerations in their responses to prevent

**Figure 3: Relationship of Article 26 on socio-economic considerations with other provisions of the Cartagena Protocol on Biosafety in relation to unintentional and illegal transboundary movements of LMOs.**



Source: Author's work.



unintentional transboundary movements under Article 16.3, and could take appropriate risk management measures to prevent any adverse effect, including socio-economic effects, according to Article 16.2.

- As for Article 25 on Illegal Transboundary Movements, socio-economic considerations may contribute to the identification of any potential adverse effects and the related response measures.

Finally, Article 26 is linked the following overarching CPB articles:

- Article 20 on Information Sharing and the Biosafety Clearing House that mandates making available relevant information on biosafety, for instance regulations, decisions and assessments on or related to socio-economic considerations of LMOs. This activity on information sharing on is also directly connected to Article 26.2 on “*cooperation on research and information on any socio-economic impacts of living modified organisms, especially on indigenous and local communities*” (Secretariat of the CBD 2000:19).
- Article 22 on Capacity Building for cooperating in the development and strengthening human resources and institutional capacities for including, among others, socio-economic considerations in the decision-making process and effective implementation of the Protocol. The capacity building scope of Article 21 is directly related to Article 26.2 as well.
- Article 23 on Public Awareness, Education and Participation to which Article 26 is linked for: (a) The promotion and facilitation of public awareness and education on socio-economic considerations; (b) Participation of the public in the identification of socio-economic impacts; and (c) Valuation of socio-economic impacts in the decision-making processes.
- Nagoya – Kuala Lumpur Supplementary Protocol on Liability and Redress to the Cartagena Protocol on Biosafety, particularly in relation to Article 12 on Civil Liability. Article 12.2 of the Supplementary Protocol mentions the alternatives that Parties could adopt in order to provide “*adequate rules and procedures in their domestic law on civil liability for material or personal damage*” (Secretariat of the CBD 2011b:7) on the conservation and sustainable use of biological diversity taking into account human health. Potential material damage may refer to any economic adverse effects that could result from changes in the biological diversity. Whereas personal damage could mean negative impacts on human health in the context of the CPB.

Based on this analysis, Article 26 has multiple interconnections with a wide range of provisions of the Protocol. Accordingly, it cannot be assumed as an isolated article.

### **Conclusion**

Article 26 of the Protocol is the recognition of the sovereign right of Parties to include, as necessary, socio-economic considerations for conserving and using sustainably biological diversity. Because biodiversity conservation and sustainable use (the core aims of the Protocol as well as of Article 26) are broad concepts involving all forms of life, their environments and their management, Article 26 is also inherently broad in scope. Additionally, the inclusion of socio-economic considerations arising from LMOs when reaching a decision of import of such organisms is not a marginal matter within the Protocol. This is because, Article 26 contributes to the objective of the Protocol: “[E]nsuring an adequate level of protection in the field of safe transfer, handling and use of [LMOs] [...] that may have adverse effects on the conservation and sustainable use of biological diversity taking into account human health” (Secretariat of the CBD 2000:3). In line of this, it is important to highlight that: (i) Consideration of human health in the context of biological conservation and sustainable use, as well as safe transfer, handling and use of LMOs are intrinsically social and economic processes; and (ii) Most national country decisions (e.g. such as import of LMOs) are taken upon socio-economic arguments (Khwaja 2002).

Certainly, along the implementation of the Protocol, socio-economic considerations cannot have a higher relevance than ecological issues, particularly more than conservation of biological diversity. However, their relevance cannot be neglected either since they are crucial for achieving sustainable management (or sustainable use, in the terms of the CPB). For this, the implementation of the Protocol would be incomplete, and not consistent with its objectives, if not adequately addressing socio-economic considerations when reaching a decision on import of a LMO.

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