

Sustainability Impact Assessment

The Way Ahead?

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1 Introduction

The discussion on sustainability and about the influence of the behaviour of nations, country groupings and multinational companies on sustainability in the last years has raised the awareness of the public on these issues. The Sustainability Impact Assessment (SIA), designed to be the possible answer to these concerns, was initiated and developed by the European Union. Robert Madelin, Directorate General for Trade of the European Union, summarizes those expectations in the title of his 2002 speech: “Sustainability Impact Assessment (SIA): The way ahead”. So what is the SIA all about?

The SIA is a systematic process for ex-ante-assessment of potential economic, social and environmental impacts of policy proposals and is based on consultation of relevant stakeholders and involvement of the public. The SIA is a comprehensive impact assessment methodology, covering impacts on sustainability of major policy measures.

Impact Assessments can be defined simply as a method for identifying the anticipated or actual effects of an intervention. The aim is to improve the evidence base on which decisions are made, and thereby improve the quality of decision making (KIRKPATRICK & MOSEDALE 2002: 1).

The following report will focus on the history, the methods, the implementation and the problems of the SIA.

2 History

In face of the Rio Agenda Commitment and in frame of liberalisation and global markets, the European Commission decided in 1999 to initiate a SIA of the proposed WTO New Round of multilateral trade agreements (SOCHER 2000: 71f). Thus the Institute for Development Policy and Management (IDPM) of the University of Manchester, in particular Colin Kirkpatrick, were contracted to develop a methodology. In Phase I, which finished in 1999, a methodology was developed. In Phase II, which finished in 2002, a preliminary SIA of the proposed WTO New Round Agreements was carried out. In 2001 the Gothenburg European Council called for mechanisms to ensure that all major policy proposals include a SIA. The European Union committed itself to carry out SIAs of all major EU policy initiatives, as until then their development had been mainly linked to trade agreements. Phase III consists of a Preliminary Global SIA and detailed Sectoral Studies, in which the Preliminary SIA defines the depth of investigation for the Sectoral Assessment Studies. The comprehensive global SIA at the end draws together the results of the sectoral studies. At present it is an ongoing SIA process dur-

ing the Post-Doha Negotiation Period. A comprehensive SIA of all agreements shall be carried out, before final decisions are made on the adoption of the measures. The negotiation period and thus the period for the comprehensive SIA finishes in January 2005. (WWF 2002: 1; PRICEWATERHOUSECOOPERS 2003: 2; KIRKPATRICK & LEE 2002a: 8; CAT&E 2003: 2; EUROPEAN COMMISSION 2003)

The SIA is a relatively recent tool, which is not fully developed yet. It can be seen as a comprehensive impact assessment covering ecological, economical and social aspects of major policy measures. The major objective of the SIA is to give negotiators concrete inputs in their search for a balanced set of policies. Sustainability shall be integrated into the EU-Trade Policy by analysing the issue of trade negotiations with respect to sustainable development, by informing the trade negotiators of possible impacts of trade agreements and by providing guidelines to help design flanking measures.

3 Assessment Tools

The following part will give an overview of the central Assessment Tools which are relevant for the SIA. The central Assessment Tools form the “Assessment Methodology Cycle” (s. Figure 1) and consists of four main components: “Checklist of Assessment Tool Requirements”, “Assessment Methods”, “Data Sources and other Information” and “Consultation Arrangements”. In this cycle, each of the components has to be consistent with each other (KIRKPATRICK & MOSEDALE 2002: 7f; KIRKPATRICK & LEE 2002a: 20ff).

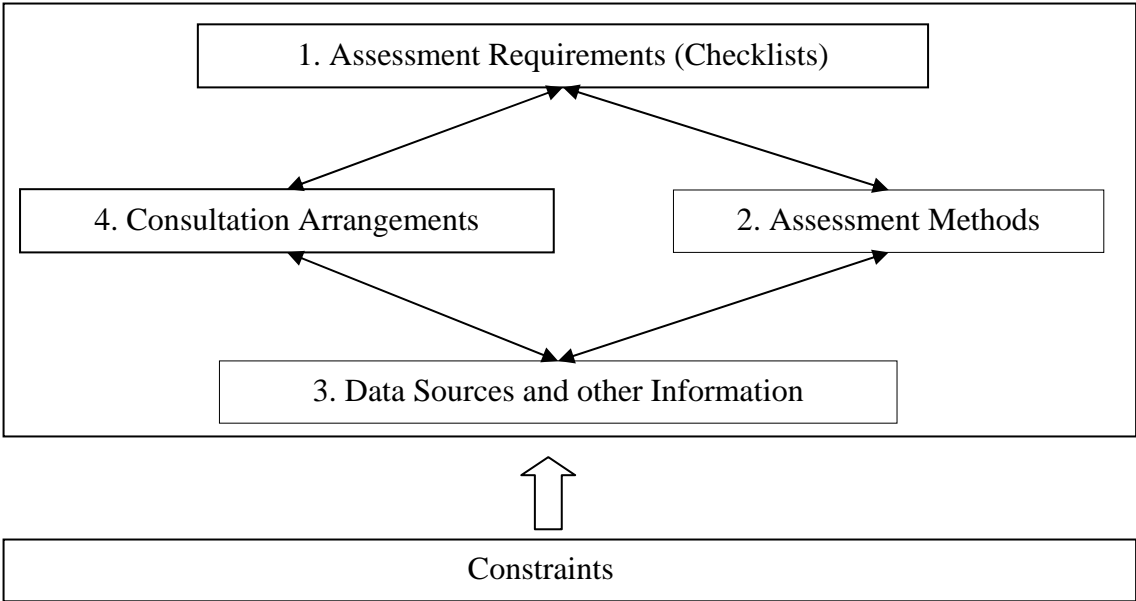


Figure 1: Assessment Methodology Cycle (own draft according to KIRKPATRICK & MOSEDALE 2002: 7)

3.1 Assessment Requirements

The Checklist of Assessment Requirements includes:

Trade Measures

The trade measures to be assessed result from the Work Programme which was agreed at the WTO Doha Ministerial Conference. This Work Programme incorporates a negotiation agenda and other cross-country issues and concerns relating to the multilateral trading system. Some specific negotiation areas are: implementation related issues, agriculture, relationships between trade and investment, trade facilitation, WTO rules and trade and environment.

This step can be seen as a starting point of the assessment, where the trade measures will be chosen. Though the scope and content of each will need to be defined with greater detail and precision, meaning that the trade measures will be further developed during the SIA process (KIRKPATRICK & LEE 2002a: 20f).

Scenario Analysis

Basically three scenarios are used and uniformly applied to all trade measures to assess the possible variation of impacts on sustainability. Figure 2 shows the three scenarios: the Base Scenario, including all existing agreements as currently implemented, or assuming as fully implemented (Modified Base Scenario). They do not consider any new trade agreements. The Intermediate Scenario, which is a gradual approach towards trade liberalisation and finally the Trade Liberalisation Scenario, which proceeds from the assumption that trade is fully liberalised. All scenarios are defined on a measure specific basis, with the Base Scenario at the one hand and the strongest probable form of new trade agreements at the other end.

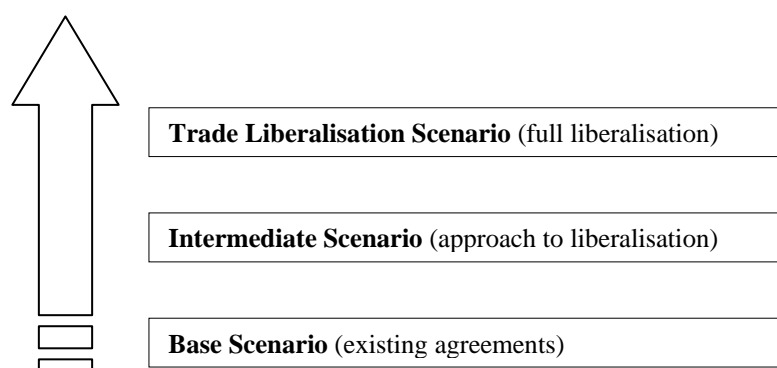


Figure 2: Scenarios (own draft)

Stakeholders may wish options which lie beyond those limits, or want to investigate on their own choosing. The SIA methodology leaves the option open to do so, but it is recommended to follow the SIA proposal, for there might be an unrealistic large number. For the sake of comparability, the scenarios need to be reduced to a manageable number. Furthermore it is

proposed, that the SIA-Contractor should consult the European Commission and other stakeholders on criteria to be used for the construction of trade measure scenarios. Overall, the Scenario Analysis is a dynamic negotiation process, where some scenarios may be eliminated, others may be amended and new scenarios may be introduced. Thus the scenario list needs to be constantly updated during the SIA process. (KIRKPATRICK & LEE 2002a: 21f)

Country Groupings and Individual Analysis

Country groupings are necessary to identify the different impacts likely to occur in different types of countries. There are four groupings: European Union, Developing Countries, Least Developed Countries and the World as a whole, including the Non-EU Developed Countries. In addition a limited number of individual country analyses should be carried out to investigate the variation in impact between and within these country groups. (KIRKPATRICK & LEE 2002a: 22)

Sustainability Indicators

The Sustainability Indicators are the framework of the SIA (s. Table 1). Nine core indicators have been identified, three for each pillar of sustainability, to better assist decision making related to the sustainable development objectives. Those Target Indicators are used to reflect impacts in terms of the goals of sustainable development. They refer to the end-points of cause-effect-chains that are likely to result from different measures and thus to the final impact on sustainable development. (KIRKPATRICK & LEE 2002a: 23; CAT&E 2003: 6f)

In addition the SIA guidelines provide further definition for the core indicators to clarify their scope and meaning and to check consistency with statistical measures to be used in the SIA studies. Each Core Indicator has assigned Second Tier Indicators. The Second Tier Indicators are only indicative and should be adopted to the circumstances of the particular case (KIRKPATRICK & LEE 2002a: 23).

Besides Target Indicators there are Process Indicators, which are relevant when assessing short- and long-term impacts, which may not be adequately captured by Target Indicators. Process Indicators can be divided into two groups. In those to assess if proposed measures are consistent with sustainable development principles and those to assess if proposed measures are likely to enhance institutional capacities and willingness to move to more sustainable forms of development in long terms. The Core Process Indicators again have assigned Second Tier Indicators. (KIRKPATRICK & LEE 2002a: 24)

Indicator	Core	Second Tier
<u>A. Target Indicators</u>		
Economic	Real Income Fixed capital formation Employment	Savings, consumption expenditure Economic, other components of fixed capital formation (social/environmental) Self-employment, informal sector employment
Social	Poverty Health and education Equity	Income and other social dimensions of poverty Life expectancy, mortality rates, nutritional levels, literacy and enrolment rates Income distribution, gender, disadvantaged age-related groups, indigenous people, ethnic minorities
Environmental	Biodiversity Environmental quality Natural resource stocks	Designated eco-systems, endangered species Air, water and land quality indicators Energy resources, other non-renewable and renewable resources
<u>B. Process Indicators</u>	Consistency with principles of sustainable development Institutional capacities to implement sustainable development strategies	Polluter pays, user pays, precautionary principles Sustainable development mainstreamed and integrated into policy-making, high-level ownership and commitment to SD objectives

Table 1: Sustainability Indicators (KIRKPATRICK & LEE 2002b: 24)

How have those indicators been selected? The following criteria have guided the selection: the indicators had to be limited in number but comprehensive in their coverage of sustainable development goals. Regarding sustainability, they had to be balanced in their coverage of economic, social and environmental development and they should reflect concerns relating intergenerational and intragenerational equity. Furthermore they should focus on key components of concern to decision-makers and stakeholders.

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The predicted impacts, that have been ascertained through those indicators will then be judged of their significance according to the influence they have on the negotiation decisions. Factors, such as the extent of existing economic, social and environmental stress in affected areas, the direction of changes to baseline conditions, order of magnitude, affection on nature, geographic extend and reversibility are taken into account to judge the significance of an impact- The significance will be determined on a scale from +2 to -2 (KIRKPATRICK & LEE 2002b: 28f).

3.2 Assessment Methods

There are many assessment methods that can be applied to carry out SIAs. This chapter shall give a brief overview of some assessment methods that can be applied.

Causal Chain Analysis

The Causal Chain Analysis (CCA) is the leading assessment method that is used in every SIA. This method is also called Network Analysis or Cause Effect Analysis. The CCA is usually undertaken in logical sequences from “Cause” to “Effect” and helps identifying multiple effects within large complex systems. This method distinguishes significant from less significant cause-effect-links in the chain. Overall, the CCA can be seen as an overarching principle rather than a specific method, as it leaves open which specific method will be used for it (KIRKPATRICK & LEE 2002a: 26f; KIRKPATRICK & MOSEDALE 2002: 9; GEORGE 2002: 7; CAT&E 2003: 8).

Analytic Methods

The Analytic Method is a theoretical tool based on broadly defined behavioural assumptions. This method derives findings by relying on deductive logics and is helpful in constructing successive links in causal chains. The Analytic Method is explicit and transparent, but insufficient regarding reference points. Thus the carried out analysis may be too general and unrealistic. But if this method is supported by good quality empirical analysis, the Analytic Method may overcome those deficiencies. An example for an Analytic Method is the Life Cycle Assessment (KIRKPATRICK & LEE 2002a: 32).

Modelling Methods

Models are highly simplified representations of systems. Each has its own analytical structure and to this extend its own strengths and weaknesses. There are many trade-related empirical models. Modelling Methods use qualitative and quantitative data and predict likely future impact outcomes based on previously observed impact outcomes. The quality of the results depends much on the data availability and reliability (KIRKPATRICK & LEE 2002a: 32; KIRKPATRICK & MOSEDALE 2002: 10; GEORGE 2002: 7).

Data Based Methods

Also called Statistical Estimation. Time series and/or cross-sectional data is used in this method to test for possible causal links within a trade-sustainability-framework. The possibility to test empirically specific hypothesis about the nature of cause-effect links within a trade-sustainability-framework is the strength of Data Based Methods. But this methods lacks the ability, to consider qualitative changes within a SIA-framework and the time series used may be historically correct, but not necessarily appropriate for future conditions. Much depends upon the quality of the used and collected data (KIRKPATRICK & LEE 2002a: 32; KIRKPATRICK & MOSEDALE 2002: 11; GEORGE 2002: 7).

Descriptive Methods

Descriptive Methods, such as the Case Study, are less well defined and very heterogeneous methods. They are mainly empirical in nature and contain in most cases ex-post-evaluation. This method tends to focus on one particular sector of the economic, social and restricted geographical areas and considers different types of questions, but does not sufficiently examine causal chains. E.g. specific trade impacts cannot be clearly separated from other factors of change. Descriptive Methods are too specific and have limited possibilities to generalise from country studies (KIRKPATRICK & LEE 2002a: 33; GEORGE 2002: 7; CAT & E 2003: 8).

Expert Opinions

Expert Opinion, as part of the Consultative and Participative Methods, is probably the most frequently used and possibly the least publicised method. The Expert Opinion plays a significant role in the development of case-specific methodologies. There is no comprehensive SIA yet, but the Expert Opinion can fill to a limited degree the existing gaps in knowledge and data. When using this method, it is important that the evidence and analysis upon which it is based are made explicit (KIRKPATRICK & LEE 2002a: 34; KIRKPATRICK & MOSEDALE 2002: 12f; GEORGE 2002: 7).

At present, there is no single modelling system available that would assess equally well economic, environmental and social effect and thus no single SIA-Analysis Method.

3.3 Data Sources

The previous chapter has shown that there are many data constraints, regarding quality, availability and comparability. Data constraints will partly determine the practical assessment methodology chosen and the level of detail applied. In general, data sources suffer from limitations in availability, quality and compatibility. Thus the available data will only be an approximation of the ideal data requirements for SIAs. Either the SIA relies on existing data or they have to carry out primary research, which requires time, man power and money. To achieve good quality data, identification of data and information needs, different sources of quantitative and qualitative information on international and national level, access to data as well as use and interpretation are important. In a long term view, it has been recommended, that international organisations should undertake those researches and should provide the necessary data (KIRKPATRICK & LEE 2002a: 35f; GEORGE 2002: 7; LANZ 2003: 2).

3.4 Consultation Arrangements

The Doha Ministerial Declaration provided a mandate for consultation, transparency and the effective participation of the public in the negotiation process. This is implemented in the SIA methodology by incorporating consultation as an integral element of the process. E.g. through the participation of stakeholders, the consultation of experts, for this purpose established networks, websites. Consultation Arrangements are viewed in a variety of ways, as an assessment method, as a source of information and as part of the SIA process. It is an integral part component in different stages of the SIA process (KIRKPATRICK & LEE 2002a: 38; GEORGE 2002: 7; LANZ 2003: 2).

4 Stages in the SIA Process

Kirkpatrick et al. differentiate between two types of SIA, each of which they break down into four distinctive stages, as shown in Table 2. The preliminary SIA, which is conducted in advance of a full SIA, is designed to provide an overview of the potential impact on sustainability of all of the proposed sectoral measures. This is done to determine the more detailed assessments to be undertaken in the full SIA. The four stages of the full SIA, “Screening and Scoping”, “Detailed Assessment”, “Mitigation and Enhancement Analysis” and “Monitoring and Post-Evaluation” will be explained in further detail in the following paragraphs.

Preliminary SIA	Full SIA
Screening	-
Scoping	Screening and Scoping (Update)
Preliminary Assessment	Detailed Assessment
(Mitigation and Enhancement Analysis) ¹	Mitigation and Enhancement Analysis (Monitoring and Post-Evaluation) ²

¹ Limited Analysis only

² Formulation of MPE proposals only

Table 2: Stages of the Preliminary and Full SIAs (KIRKPATRICK & LEE 2002b: 10)

4.1 Screening and Scoping

In this stage, the terms of reference for every measure have to be determined. The goal of this stage is to identify the key sustainability issues. During the screening process, which is done using simple checklists and basic causal chain analyses, measures that do not have a significant impact on sustainability have to be identified and can be eliminated from the following stages of the SIA process. The scoping process is designed to identify the specific scenarios to be investigated, the components of each measure that should be examined in greater detail in terms of economic, environmental and social relevance, the potential negotiation outcomes in terms of feasibility of a measure and potential mitigation and enhancement measures. Furthermore, it is required to define the geographic and temporal ranges of the assessment, the criteria for the assessment of the significance of sustainability impacts and the methods, sustainability indicators and data sources that are going to be used. Additionally, initial information on the causal links between potential trade-induced changes and economic, environment, social and regulatory impacts that can affect sustainability can be gathered. Therefore a

Causal-Chain Analysis can be used to identify important sections in the causal chains that link the measures with their impacts. The utilization of the Causal-Chain Analysis has the advantage that the use of the same method for the screening and scoping processes helps maintaining continuity and internal compatibility within the assessment process as a whole (KIRKPATRICK ET AL. 1999: 54; KIRKPATRICK & LEE. 2002b: 12; PRICEWATERHOUSECOOPERS 2003: 18).

To estimate the significance of impacts on sustainability caused by trade agreements, a scoping matrix, as shown in Table 3, can be created. In the scoping matrix each component of a measure is evaluated in regard to its influx on the core SIA indicators. The resulting types of impact can be:

- An unlikely significant impact: the component of the measure can be ignored in further analyses regarding this core indicator.
- The significance of the impact is very uncertain: the component has to be analyzed in more detail regarding this core indicator.
- A likely significant impact: the component of the measure has to be analyzed in more detail regarding this core indicator and mitigation and enhancement measures have to be designed (KIRKPATRICK & LEE 2002b: 12).

Components of the Measure	Core SIA Indicators								
	Economic			Social			Environmental		
	1	2	3	1	2	3	1	2	3
1	✓	x	✓	x	✓	x	x	✓	x
2	✓	✓	x	✓	?	x	✓	✓	✓
3	x	✓	✓	x	✓	✓	x	?	x
4	✓	✓	?	x	x	x	?	✓	✓
	✓ = likely significant impact			x = unlikely significant impact			? = significance of impact very uncertain		

Table 3: Exemplary scoping matrix for a measure included within a SIA (KIRKPATRICK & LEE 2002b: 12)

4.2 Detailed Assessment

During this second stage of the SIA, the sustainability impacts of the trade measures determined in the previous stage are investigated in greater detail. There are a number of different tools used in this stage. First, there is the Scenario analysis: it is used to model changes in

trade flows and trade rules and to trace these changes through to sustainability impacts on the environment and social issues. Second, Sustainability Indicators, consisting of core and second-tier sustainability indicators and process indicators as already mentioned in Chapter ?? are used. The significance of the potential impacts on these indicators is then assessed using subjective analytical techniques.

But the main tool in the Detailed Assessment Stage of the SIA is the Causal Chain Analysis (CCA). The European Union has prioritised the CCA for the usage in the SIA for several reasons:

- It is possible to trace (analytically and empirically) the causal links of each measure with its main components and their sustainability impacts. An example of the resulting network of causal links and dependencies is shown in the exemplary Causal Chain Analysis in Appendix 1. This Causal Chain Analysis describes the influx of WTO Trade agreements on existing water and wastewater services in developing countries.
- The CCA supports a variety of different data sources:
 - Quantitative data generated by econometric forecasting
 - Case studies
 - Modelling techniques
 - Surveys of expert opinion
- As described in the previous chapter, the use of the same method for the screening and scoping processes helps in maintaining continuity and internal compatibility within the assessment process as a whole (KIRKPATRICK 2002: 5; KIRKPATRICK 2002b: 13; PRICEWATERHOUSECOOPERS 2003:18).

4.3 Mitigation and Enhancement Measures

The third stage of the SIA process is the design of mitigation and enhancement measures. These measures are supposed to ensure that the outcome of the negotiations and the impacts of the agreements have no negative influence on sustainability, but contribute to sustainability. The findings of the Causal-Chain Analysis undertaken during the Detailed Assessment Stage can be used for each sectoral assessment to identify where the introduction of mitigation and enhancement measures could have a significant benefit. (KIRKPATRICK & MOSEDALE 2002: 4f)

Mitigation and Enhancement Measures can be divided into two distinctive groups: trade-related measures and non-trade-related measures. The trade-related measures could be, for example, measures that are built into a WTO agreement or side agreements between WTO

member countries. The group of non-trade-related measures encompasses a wide range of possibilities:

- Collaborative agreements and other joint initiatives between international organizations
- International and regional initiatives to promote technical cooperation in developing countries
- Measures by national governments to remove market imperfections, regulatory failures and social inequalities. This aspect is especially important because these impediments can be severe obstacles on the way to a sustainable development.

The Mitigation and Enhancement measures developed in this stage have of course to be checked for their potential impacts. Criteria for this assessment are not only the impacts of the new measures on sustainable development, but also the cost-effectiveness and the feasibility of the proposed measures. This is quite understandable, as not every measure that enhances positive or mitigates negative sustainability impacts is affordable or even feasible. By eliminating impracticable and uneconomical measures, the best measures are identified. These results can be introduced into the negotiation process as an alternative scenario (KIRKPATRICK ET AL. 1999: 11; KIRKPATRICK & MOSEDALE 2002: 4f; PRICEWATERHOUSECOOPERS 2003: 20).

4.4 Monitoring and Post-Evaluation

In the fourth stage of the SIA process an ex-post-analysis is conducted to evaluate the results of the ex-ante-assessments after their implementation. During this stage, the implementation of the measures of the trade agreement should be monitored. Additionally, the predictions made during the earlier stages of the SIA should be compared with the actual outcome. Discrepancies between the prognoses and the actual impacts of the measures on sustainability have to be studied in greater detail. The result of this analysis can be used to give recommendations for future SIAs.

The implementation of a Monitoring and Post-Evaluation Stage during the SIA process should increase interest and commitment of the key stakeholders. Accordingly, the Monitoring and Post-Evaluation is a prerequisite for the acceptance of the SIA as an independent, transparent, objective and credible tool for the assessment of the sustainability impacts of trade and other international agreements (KIRKPATRICK & LEE 2002b: 17; KIRKPATRICK & MOSEDALE 2002: 5f; PRICEWATERHOUSECOOPERS 2003: 19).

5 Key Issues of the Sustainability Impact Assessment

As the SIA is a tool that is still in development and lacks the maturity of other assessment methods, there are a number of criticisms and issues that have to be confronted before the SIA will be accepted as an equal or even superior sustainability impact assessment tool.

For one, the nature of the SIA makes this tool a rather complex tool that requires a large amount of resources (staff, training, consultations etc.) – but for the widespread use, the SIA has to be easy to use, simple and practical.

The intent of the European Union to extend the use of the SIA not only on their trade policies, but on all aspects of EU policy making combined with the aforementioned amount of resources needed to conduct a SIA illustrates the need for new, efficient structures within the European Union (e.g. a “Central Commission Assessment Office”) (WILKINSON 2002: 1f).

Representatives of the Foreign Trade Association point out other issues especially important from their point of view: will the SIA be a source of new trade barriers? Will the SIA put an equal emphasis on all pillars of sustainability or will the economic impacts have less weight than social and environmental impacts? Will the SIA be a competitive disadvantage for the EU because of the duration of the SIA and because of the restrictions made in light of the results of the SIA (FOREIGN TRADE ASSOCIATION 2003: 1f)?

Yet another issue of the SIA is the lack of effective sanctions: as the SIA relies on the complete implementation of all mitigation and enhancement measures to compensate the negative impacts of other measures, a partial implementation of the agreements is not acceptable. But at present, there is no effective tool to sanction the non-implementation of parts of the agreements.

For the SIA is a rather new assessment methodology and not many experiences have been collected yet, there is still a wide range of possible changes. For example, the number and choice of sustainability indicators can be seen as a critical issue that deserves further attention.

All of these questions and issues will have to be countered and the issues will have to be resolved before the SIA will be widely accepted.

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Appendix 1: An exemplary Causal Chain Analysis describing the influx of WTO Trade agreements on existing water and wastewater services in developing countries (own draft)

