Chapter 1

Introduction

Sustainability Assessment of Biomass Utilisation in East Asia Working Group

February 2013

This chapter should be cited as
Sustainability Assessment of Biomass Utilisation in East Asia Working Group (2013), 'Introduction' in *Extending the ERIA WG Methodology for Sustainability Assessment of Biomass Utilization in East Asian Countries*, ERIA Research Project Report 2011-19. Available at:
www.eria.org/publications/research_project_reports/FY2011/No.19/Chapter_1.pdf

CHAPTER 1
Introduction

1. Sustainability of Biomass Utilization

Biomass utilization for energy or fuels has been attracting the world's attention due to its potential to contribute to rural development and employment generation. It may also help diversify energy supply and decrease dependency on fossil fuel based energy, particularly in East Asian countries. However, there are some negative issues recognized through the increased demand of feedstock for bioenergy and implementation of policies for an enhanced use of bioenergy. These issues are mainly related to environmental or social concerns about increase in Greenhouse Gas (GHG) emissions, loss of biodiversity, unwanted impacts on livelihoods of local communities, food insecurity, etc.

With increasing concerns on the above issues, several initiatives on the assessment of sustainability bioenergy have emerged in recent years. These initiatives are working on developing the sustainability criteria, indicators, certification systems and legislations for the processing of bioenergy feedstock and production and consumption of bioenergy.

2. Initiatives on Assessment of Sustainability

Some of the well-recognized initiatives on the sustainability of bioenergy could be classified into three categories. The first category is those initiatives established to provide the guidelines for sustainability, covering all significant elements of sustainability from environmental, economic and social points of view, and prepare comprehensive indicators and checklists to propose a best practice or a goal. The second category is designed for a certification system, which certifies that an

organization within the supply chains of bioenergy, e.g., a grower or a processer of biomass feedstock, satisfies a specific standard of sustainability. To become certified, the organization must meet the requirements prepared by these initiatives and prove its continuous efforts on sustainability by undergoing annual audit. Such initiatives usually provide standards, checklists, methodologies and tools for their sustainability certification process. The third category comprises the sustainability standards used in legislation or policies associated with bioenergy. For example, bioenergy legislation in some developed countries specifies volumetric requirements of biofuel use, aiming at GHG emissions reduction to mitigate climate change. This category of initiatives stipulates rigid sustainability standards, including a specific percentage of lifecycle GHG emissions reductions of bioenergy compared with that of fossil energy, and provides calculation methodologies, tools and databases for the calculations.

3. Activities of ERIA's Working Group

ERIA's expert working group (WG) on "Sustainability Assessment of Biomass Utilization in East Asia" comprises researchers specialized in any one or more aspects of sustainability and working in the East Asian Countries. The WG started its activities on "Sustainable Biomass Utilization" in 2007 with the support of the Economic Research Institute of ASEAN and East Asia (ERIA). Since then the WG has been involved in conducting studies on the sustainability assessment of biomass utilization for energy. As there were no well-established sustainability initiatives on bioenergy at that time, the WG started with discussions on a "Sustainable Biomass Utilization Vision in East Asia" in 2007-2008 (Sagisaka, 2008), suggested policy recommendations and framed the "Asian Biomass Energy Principles", which were endorsed by the Energy Ministers Meeting of the East Asian Summit in Bangkok in August 2008. In response to the request from the energy ministers of the region to develop a methodology to assess the environmental, economic and social impacts of biomass utilization for energy by taking into account specific regional circumstances, the WG started investigations toward "Guidelines for Sustainability Assessment of

Biomass Utilization in East Asia" in 2008-2009 (Sagisaka, 2009), in which the WG identified indicators for each aspect of sustainability. Subsequently, in 2009-10, the WG tested its guidelines through field studies by conducting four pilot studies, one each in India, Indonesia, Thailand and the Philippines, and investigated the sustainability of a variety of feedstocks being utilized for bioenergy in these countries (ERIA, 2010).

Application of the ERIA WG methodology to the above pilot studies indicated that extensive data collection was required for use of all the indicators suggested by the methodology, and interpretation of results. In 2010-2011, based on the lessons learned from the pilot studies, the WG discussed the applicability of the indicators and proposed some specific and practical indicators to assess environmental, economic, and social aspects of sustainability of biomass energy utilization for both small and large scale initiatives (ERIA, 2011).

In this phase of the ERIA project (2011-2012), with increased worldwide activities in development of a variety of sustainability assessment initiatives, the WG has reviewed the methodologies of some major initiatives and extended its methodology from an ex-post assessment tool to an ex-ante assessment tool, so that it could support appropriate decision making and ensure the sustainability of biomass projects at the planning stage.

This report summarizes the outcome of the WG's activities in 2011-2012 and starts with the review of sustainability indicators developed by other sustainability initiatives in Chapter 2. Chapter 3 outlines the direction and sustainability indicators of the ERIA WG methodology, which were based on discussions in a series of WG meetings in 2011-2012. The means of quantification for additional social indicators that were proposed in the previous report were set out here. Towards a more practically-relevant ERIA WG methodology, Chapter 4 proposes the framework of a "decision support tool" that was prepared in response to the needs for ex-ante assessment of the sustainability of biomass utilization. As a preliminary exercise, a case study in Malaysia was conducted to test the framework of the "decision support tool".