Federal Ministry of Food and Agriculture

IASS POTSDAM Global Soil Forum
Institute for Advanced Sustainability Studies e.V.

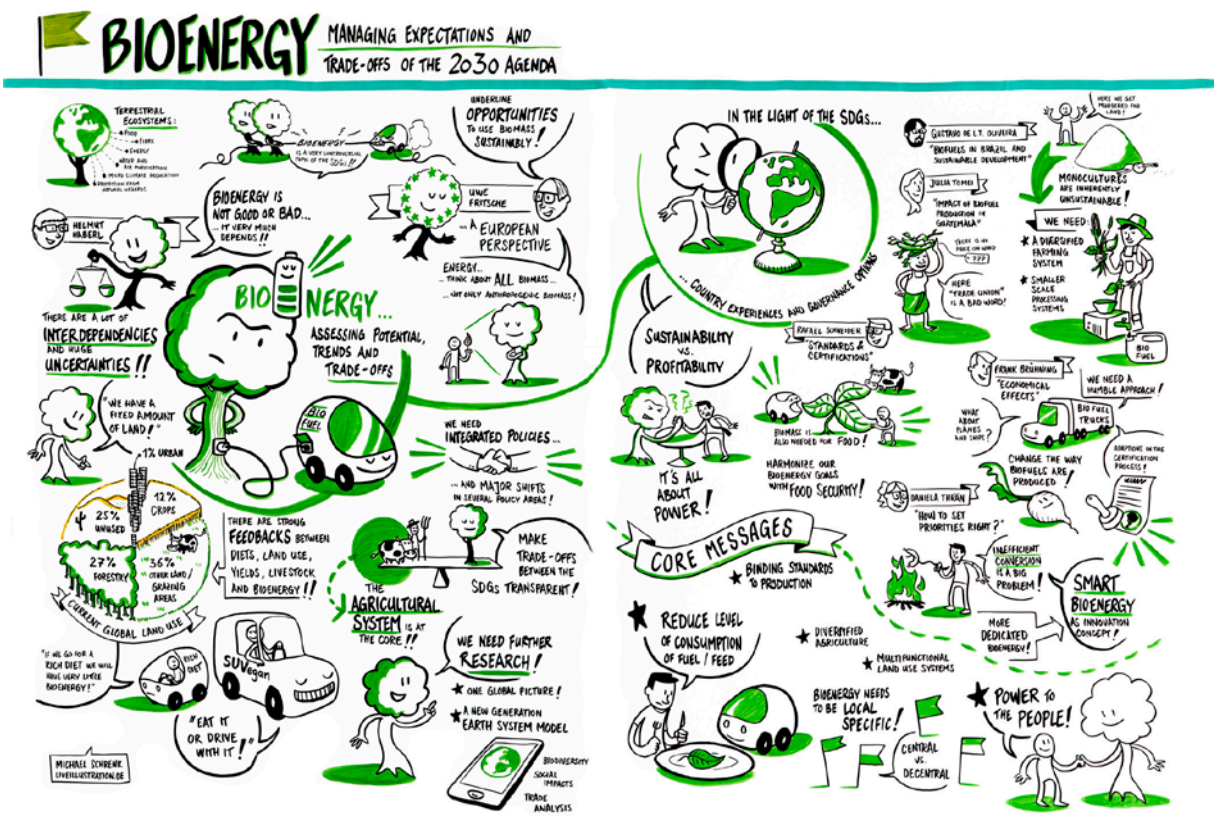

Figure 1 – Graphic Recording by Michael Schrenk (liveillustration.de)

DIALOGUE FORUM V | Summary

Bioenergy: Managing expectations and trade-offs of the 2030 Agenda

RAPPORTEURS

Ariane Goetz, IASS (Germany)

HOSTS

IASS Institute for Advanced Sustainability Studies (Germany)
WHH Welthungerhilfe (Germany)

DESCRIPTION

As one of several alternatives to fossil fuels and nuclear power, bioenergy is expected to play an important role in efforts to achieve sustainable development. Ideally, it could contribute to climate change mitigation and rural development. At the same time, bioenergy is currently the only energy source that easily complements fossil fuel use in the transport sector, and provides a stable and flexible power, which can balance fluctuating wind and solar power generation. The 2030 Agenda reflects these expectations. It demands, for instance, a doubling of the share of renewables worldwide – of which biomass-based bioenergy is expected to contribute a significant part – as a step towards achieving the goal of providing sufficient clean energy for all. However, a significant number of empirical case studies show that the production and consumption of bioenergy can create environmental and social detriments. A substantial number of companies are also struggling with the economic viability of bioenergy projects. It appears that bioenergy production and consumption might face sustainability trade-offs with other SDGs (e.g., biodiversity, food security, rural development, water footprint).

The session elaborates the role of bioenergy in sustainable development. It aims to foster a discussion about current expectations and actual trends in bioenergy production and consumption. The focus is on sustainability of scale, ecological and socio-economic effects, and governance options. The session is moderated by **Christiane Grefe** (Die Zeit).

INTRODUCTION

Christiane Grefe (Die Zeit) opened the session by pointing at the uniqueness of bioenergy in the light of the SDGs. How and at which scale bioenergy is produced and consumed impacts and/or depends on what is happening with regards to other goals, like sustainable agriculture, biodiversity protection, or health and wellbeing. Moreover, commodity trade links between countries across the globe necessitates a discussion about the external responsibility of bioenergy producers and consumers within the context of the implementation of the SDGs.

PRESENTATIONS AND DISCUSSIONS

The first part of the session addressed the question of current trends and potentials of bioenergy to contribute to different goals of sustainable development – as set out by the SDGs. **Helmut Haberl** (Institute of Social Ecology Vienna, Alpen-Adria-University Klagenfurt) presented outcomes of his research on global bioenergy potentials, trends, and trade-offs. He showed that there are huge uncertainties and accordingly a large bandwidth between different scenarios on future bioenergy. The diverging estimations of future bioenergy availability and its contribution to GHG emission reductions -which both already reflect inherent uncertainties and differing viewpoints on future developments of crucial and uncertain parameters- makes it impossible to identify *a single number* regarding bioenergy potentials at this stage. Core challenges that such scenarios have to tackle are the feedbacks between bioenergy, land carbon balance, food systems, and biodiversity, etc. These systemic feedbacks are strong, yet not sufficiently understood. The knowledge base for judging the full sustainability implications of bioenergy remains weak. Current assessments suggest that some forms of bioenergy are likely to be better than others, with additional area demand per unit of energy delivered being one important parameter. In all cases, however, sustainable bioenergy production depends on integrated approaches of optimization of land systems and the cascadic use of biomass – whereas food supply would need to be prioritized over other uses (namely, feed, fibre, fuel) to avoid detrimental impacts on food security. Given the fixed amount of land suitable for agricultural production, certain options preclude others: “if we go for a rich diet globally, we will have very little bioenergy, even under strong agricultural intensification.”

Uwe Fritsche (IINAS) presented a European perspective of bioenergy in the light of the SDGs, underlining the need to think about all biomass demands when talking about bioenergy. The

presentation highlighted that it would theoretically be possible to reach the biomass-related SDGs in the EU, including bioenergy, but this would require major shifts in several policy areas – and this is rather unrealistic. It is more likely that the EU will address only some issues with a level of ambition not high enough to achieve the SDGs and their targets – which could also negatively impact the sustainability of bioenergy. Therefore, future bioenergy policy should incorporate a realistic view regarding its role in the energy mix to meet the different sustainability requirements. This includes recognizing global impacts of national policies directed to increasing demand of national natural resources due to the current lack of safeguards of restricting biomass imports (e.g. wood pellets). Also, the tradeoffs between bioenergy and other SDGs have to be made transparent to achieve effective SDGs implementation. In the medium term, comprehensive and legally binding sustainability schemes for bioenergy are required at EU level which considers international impacts due to biomass trade. Moreover, further research is needed, especially on biodiversity and social impacts of biomass production and consumption of which bioenergy forms a part.

The second part of the workshop assessed bioenergy and the SDGs in view of third country experiences and governance options. **Gustavo de L.T. Oliveira** (University of California, Berkeley) presented empirical evidence of bioenergy in Brazil and sustainable development. His presentation showed that large-scale bioenergy production has led to drastic social and ecological crises, including the concentration of land ownership, water contamination, the emergence of monocultures that are inherently unsustainable, and significant numbers of cases with documented human rights violations accompanying this process of agrarian change. Even though Brazilian biodiesel policy was directed towards smallholder farming schemes, these were not profitable in the broader political economy already in place. In the end, this led small-scale ethanol production to be integrated in the existing structure of the meat and food industry and the unfortunate effects in view of biodiversity, equality, food security, or poverty reduction.

Julia Tomei (University College London) presented the impacts of EU certification schemes overseas – looking at the issue of external responsibility of bioenergy consuming countries at the example of Guatemala. In a country characterized by high inequality, corruption, and violence, these schemes were unlikely to have a significant impact. Rather powerful actors, including those in the sugar sector, were most likely to benefit. Moreover, such schemes do not address issues of energy justice and differentiated responsibilities, such as energy poor Guatemala producing bioenergy for export to countries where the per capita energy consumption is already extremely high. Thus, sustainability schemes do not support the SDG goal of *energy for all*, but leave the local population dependent on traditional biomass to satisfy their energy needs. Moreover, schemes do not address related sustainability issues like poverty, food security, sustainability of agriculture, biodiversity. In the discussion with participants of the workshop, these country observations led to the joint conclusion that it is important to ask whether bioenergy produced in such country contexts can be used to meet energy poor peoples' cooking needs – to assess its sustainability.

Building on the issue of the lacking socio-economic rights and external responsibility dimension of certification, **Rafaël Schneider** (Welthungerhilfe) presented the outcomes of a joint study with ZEF on integrating the right to food into sustainability certification schemes. While standards for right to food certification are possible, further research would be needed on experiences with the implementation of the ZEF framework. At the same time, certification is not sufficient to ensure sustainable rights-oriented bioenergy production and consumption. It is equally important to consider the wider context within which biomass (incl. bioenergy) production, consumption and trade takes place. It is necessary to bring human rights into WTO and other international economic governance frameworks. Otherwise, we do not need to talk about the SDGs if broader governance schemes remain untouched by the sustainability goals and related human rights requirements.

Frank Brühning (German Biofuels Industry Association) spoke about the economic issues of bioenergy production from the perspective of the German biofuels industry. Biofuels are currently the only

existing alternative to fossil fuels in the transport sector available at a larger scale. Therefore the "Energiewende" can only be put into effect by investing in biodiesel and bioethanol. Yet the confined availability of arable land is limiting the future growth of the sector. Hence vehicles driven by electricity will play the major role in individual transport; biofuels should be used to move heavy duty vehicles such as trucks, buses or agricultural machinery. Depending on the feedstock, biodiesel and bioethanol reduce carbon emissions by 65 to 90 percent compared to fossil fuels. In addition large quantities of protein rich animal feed is produced as a by-product, replacing soy feed that would have been imported otherwise. According to Brühning, biofuels done right can contribute enormously to reaching the SDGs. In order to secure their sustainability, a legally binding certification was introduced in 2011. In the future this certification could be further developed, e.g. by regulation, including social criteria.

Daniela Thrän (Helmholtz-Zentrum für Umweltforschung GmbH, Deutsches Biomasseforschungszentrum - DBFZ) presented on bioenergy related governance expectations. Her presentation showed that instead of replacing fossil fuels, biofuels should be discussed in view of possibilities of their integrated use with other alternative energies, and in the context of sustainable resource base and bio-economic development approaches. Instead of asking how much bioenergy is available, the focus should be on how to get priorities right. Bioenergy should be produced in small scale systems with sustainability boundaries, and as part of bottom up approaches in the respective producer countries. In this context, iLUC (indirect land use changes) documentations based on satellite images are not sufficient indicators for judging the sustainability of bioenergy – as socio-economic effects, such as rising land prices, can yield huge displacement in the areas (and beyond) of production. More broadly, policy options of new biomass concepts should address sustainable feedstock, use GHG emissions always as a benchmark, develop integrative approaches with other renewables, and apply realistic time expectation for technical development potential.

MESSAGES FROM THE SESSION

In the concluding part of the workshop, two Working Groups developed messages about structural **prerequisites** that have to be realized and/or on the basis of which future bioenergy policy should be made to ensure the sustainability of bioenergy production and consumption in Germany and Europe, including the dimension of external responsibility of major consumer countries in the form of trade and investment.

Working Group 1 – Prerequisites of Sustainable Bioenergy in Germany and Europe

1. Monitoring and supervised schemes at European Commission
2. Binding standards to production and not only for end products, encompassing not only energy but also food/feed/fiber
3. Introduction of the right to food and social considerations to certification schemes and binding standards - aligning WTO and EPAs to human rights and SDGs
4. More coherent policies and linkages in production policies and research between agriculture, energy, and other SDGs
5. Locally diversified agriculture, integrated with multi-functional land use systems
6. Transformation of political and economic systems, development models, and biophysical and infrastructural conditions according to SDGs
7. Reduction of level of consumption of fuel/feed etc. as a differentiated responsibility

Working Group 2 – Prerequisites of Sustainable Bioenergy in Germany and Europe

1. Need of a different development perspective
    a. For bioenergy (traditional use)
    b. Economics (large vs. small, decentral vs. central, equity)
2. Bioenergy in the context of bioeconomy: New buzzword? Or part of (which) transformation?
3. Sustainable bioenergy needs to be "local-specific;" we need better (global) models to reflect that (including scales)
4. Power to the people (and FPIC principles and information and education about options)
5. Certification: has to be improved (socially legally binding) but will only be part of a broader solution and will not be possible everywhere
6. How land is used is fundamental for sustainability – not just in the case of biofuels.

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