



**IEA Bioenergy**

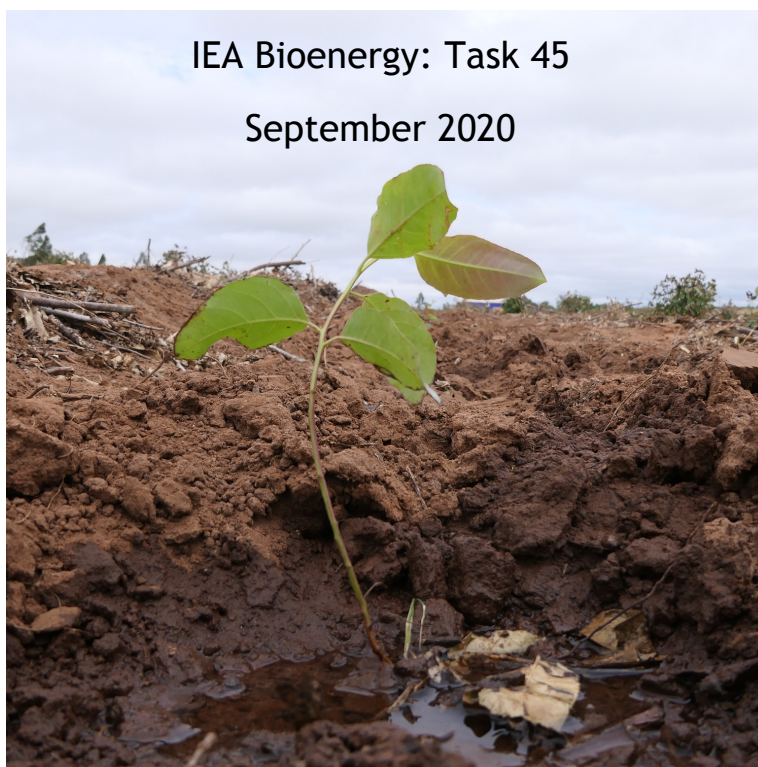
*Technology Collaboration Programme*

# Key findings and notes from the round table discussion on the IPCC report on climate change and land

September 2, 2019, at the Royal Swedish Academy of  
Agriculture and Forestry, Stockholm, Sweden

IEA Bioenergy: Task 45

September 2020





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## Introduction

IEA Bioenergy organised a seminar and a round table discussion about the IPCC report on climate change and land on September 2, 2019, at the Royal Swedish Academy of Agriculture and Forestry, Stockholm, Sweden. At the seminar, IPCC authors first informed about the panel's findings and after that they discussed the report together with a panel with invited experts.

The following organizations were involved in the seminar: IEA Bioenergy Task 45; The Royal Swedish Academy of Agriculture and Forestry, KSLA; The Swedish Meteorological and Hydrological Institute, SMHI, Sweden's IPCC Focal Point; The Swedish International Agriculture Network Initiative, SIANI; The Forest, Climate, and Livelihood research network, Focali; Chalmers University of Technology, Energy Area of Advance.

The IPCC SRCCL can be downloaded at: <https://www.ipcc.ch/srccl/>

### Questions addressed were:

- What are the implications of the IPCC report for sustainable land-use and management of terrestrial ecosystems globally, regionally, and in countries, e.g. Sweden?
- What choices do we have?
- How the expected increasing biomass demand for food, energy and materials be met while adapting to and mitigating climate change?
- What do we know about regional differences in how land-use and climate interact?
- Are there solutions that may meet the double challenges of climate change and degradation of terrestrial ecosystems?

The round table participants discussed issues brought up during the seminar, with the aim to identify major issues relevant for future (joint) work, and implications for funding agencies and development aid institutions. Key findings are summarised below. A round table participant list and notes taken during the discussions are included in Appendix 1.

### The most prominent findings are as follows:

- A vision on positive futures integrating land use and SDGs is needed, including the role of bioenergy and the bioeconomy. Recommendations for action could facilitate delivery of the vision.
- Governance of sustainability is the key issue - policies that govern bioenergy and bioeconomy in that regard are needed, considering regional differences in the conditions for biomass and land use.

- Sustainability governance being developed and implemented for bioenergy within the bioeconomy has to consider all land-based mitigation and land sector activities that support achieving the Paris Agreement, and SDG implementation.
- Industry can play a key role in providing the innovation and investment needed to drive improvements in sustainable land-use and in the production and use of biomass for the bioeconomy, including bioenergy.
- Securing investments in sustainable bioenergy and the bioeconomy will require more engagement by financial institutions, including development and public banks, and capacity building to develop respective regulatory frameworks, especially in developing and emerging economies.

## Key Findings

### THE IPCC REPORT IN CONTEXT

- The round table participants welcomed the report, which addresses a key issue relating to climate change. The subject is complex and proper consideration needs to address a broad range of issues as represented by the full SDG set.
- The report focuses on analysis - participants acknowledged that this is due to the IPCC mission, and mandate. Supplementary literature is needed for guidance on concrete steps that could be taken to ensure that land use provides a positive contribution to mitigating climate change.
- The participants felt that, given the complexity of the subject and its strong links to multiple sustainability issues, a wide range of stakeholders including practitioners, industry and those with experience of working in developing and emerging economies, need to be engaged in “processing” the report and draw conclusions for their own context.

### CLIMATE CHANGE AND LAND

- The complexity of the land use sector together with the urgent need for action is a challenge. While interactions between land use and climate change are very important, land degradation itself is as challenging as climate change.
- It would be helpful to create a vision on attractive futures as far as land use and landscape is concerned, including the role of bioenergy and the bioeconomy. Associated recommendations for action could facilitate delivery of the vision.
- The vision must address good governance and reach beyond the need for “urgent action to combat climate change and its impacts” and cover all SDGs. Food, soils, water, and health are key issues along with e.g. carbon balance.

- The SDGs are declared to be “integrated and indivisible”, but they are often handled one by one, partly because of institutional fragmentation, and often there is no integrative institution for e.g. climate and land.
- Regional and national approaches are needed to operationalize the SDGs in an integrated manner, given the geographical variation concerning issues to be addressed and the need for local engagement.

## **SUSTAINABILITY GOVERNANCE OF BIOENERGY AND THE BROADER BIOECONOMY**

- Bioenergy is a controversial subject and opinions are highly polarized.
- Bioenergy, using organic waste as well as dedicated agriculture and forestry feedstocks, can contribute in mitigating climate change when carefully managed and at an appropriate scale. Integration of suitable biomass production systems (commonly perennials) into agriculture landscapes can help reduce impacts of current land use, such as soil erosion and water pollution
- Governance of sustainability is the key issue. There is already experience of policies that successfully govern bioenergy and sustainability - for example in countries with a large share of bioenergy in their energy use and this experience can underpin future policy development.
- Large regional differences in the conditions for bioenergy deployment need consideration - regional adapted solutions are more likely to succeed rather than generic one-size-fits-all approaches. Yet, a global framework for sustainability governance could be helpful.
- The sustainability governance being developed and implemented for bioenergy has a broader scope than climate. Its translation to apply to all land-based mitigation and land sector activities would support achievement of the Paris Agreement and SDG implementation in general.

## **INDUSTRY AND FINANCE**

- Industry can play a key role in providing the innovation and investment needed to drive improvements in sustainable land-use and in the production and use of biomass for the bioeconomy, including bioenergy. Industry will only make the necessary investments when there is a stable and long-term policy framework in place that provides security for the invested capital and a reasonable return on investment.
- Securing the necessary investments will require more engagement by financial institutions in the sector, including development and public banks, since their engagement is currently weak. Capacity building to develop the regulatory frameworks needed to facilitate such investment, especially in developing and emerging economies will be critical.

## Appendices

### Appendix 1 - Participants and detailed points made in discussion

#### Roundtable participants:

1. Göran Berndes (IEA Bioenergy Task 45 & Chalmers University)
2. Uwe Fritsche - moderator (IEA Bioenergy Task 45 & IINAS)
3. Barron Orr (UNCCD - by video)
4. Raphael Slade (Imperial College London & IPCC WGIII TSU)
5. Sebastien Treyer (IDDRI)
6. Lovisa Hagberg (WWF)
7. Markku Rummukainen (Swedish Meteorological and Hydrological Institute)
8. Lena Lindström (Swedish Meteorological and Hydrological Institute)
9. Madeleine Fogde (Stockholm Environment Institute)
10. Marie Stenseke (University of Gothenburg & IPBES)
11. Maria Van Berlekom (Swedish International Development Cooperation Agency)
12. Adam Brown (Energy Insights)
13. Floor van der Hilst (IEA Bioenergy Task 45 & Utrecht University)
14. Katarina Eckerberg (Umeå University)
15. Anders Wijkman
16. Peter Holmgren
17. Christel Cederberg (Chalmers University)
18. Annette Cowie (IEA Bioenergy Task 45 & NSW Department of Primary Industries, Australia)
19. Francis Johnson (Stockholm Environment Institute)
20. Göran Örlander (SÖDRA)
21. Gustaf Egnell (IEA Bioenergy Task 45 & Swedish University of Agricultural Sciences)

## 1.1 What are the implications of the IPCC report for sustainable land-use and management of terrestrial ecosystems globally, regionally, and in individual countries such as Sweden?

Overall the participants were satisfied with the report since it highlighted a number of ways in which improved management of the land use sector could help to mitigate climate change. However, **participants highlighted the essential need for good governance** to make this happen in a sustainable way. There is also a tension between the need to consider the full range of other SDGs, to develop good governance, and to deal with very diverse land ownership patterns, including many smallholders, and the fact that we need to change so fast.

Participants also pointed out the **regional differences** in terms of opportunities, and the importance to engage financial institutions.

### Points raised during the discussion:

- Concerning bioenergy, the report showed that **we have a choice** to make it part of the solution or part of the problem.
- We must engage with all the stakeholders and navigate a complex landscape, but we also need to change very quickly and it is difficult to reconcile these aspects.
- New ways to integrate the use of biomass into new production systems need to be found, and those already available need broader deployment.
- There is a need to develop a framework on where we want to go with the land management (framework for governing sustainable biomass/land use).
- Better trust is needed through good governance. Collaboration with **financial institutions** will be needed and they also need to be better incorporated in the related processes.
- We need to implement the solutions in the context of **sustainable landscapes**.
- It is positive that the IPCC SRCCL report talks about living systems, and not only technology. Much land is already in use, so good governance for handling the shift to sustainable land use is important
- The report gives some hope since it presents solutions. It is also good that it moves away from purely technocratic solutions, **emphasizing that there are people involved** here. However, current politics in the world are a bit depressing - not the least how local people are handled.
- Smaller scale users need to have a voice in the process of change.
- How should we use the forest in the best possible way? Best practice at an appropriate scale. These are six nice words - but what does it mean and what governance leads in that direction?
- Whereas global potentials may seem small, local potentials can be large.
- All the different options might be confusing, but hopefully everybody might find something that appeals and is possible for them.



- **Climate and food production are closely related** and will become more so.
- Not only new technologies are important - old techniques are also possible ways forward
- Innovation clusters at a regional scale are important.
- Sustainable development must be acknowledged from different regions. Palm oil produced in a sustainable way might be a good product from some regions.
- Certification is important.
- **Land can't do it all.** Biomass has large potential if done in the "right way", both for the bioeconomy in general, and for bioenergy as part of it.
- The land use sector does not attract the young in Scandinavia (and beyond).

## 1.2 What choices are we confronted with?

In the polarized world we currently are experiencing there is a need for a **balanced debate**. Bioenergy is a controversial topic, and we need good examples and to **move away from polarization**. Bioenergy has a large potential if produced in the "right way", and there is a need to show how bioenergy also can contribute in the landscape and in achieving other sustainable development goals. We need to create **an encouraging picture** of a preferred future to contrast with other pictures/story lines about bioenergy and provide a way forward.

### Points raised during the discussion:

- Biochar is an interesting option, don't love it or hate it - explore the option
- Sensitive messages are not clear because of financial players on a global scale, are we brave enough to spell them out?
- **Should the forest stand or fall?** Some agreement on national level must be made
- Leaving the forest for 20 years and then trying to manage it again is extremely difficult.
- Private forest owners take their responsibility to future generations very seriously, and this should be respected. They are not out to destroy the forests (at least not in Scandinavia).
- What would a prosperous world look like? It is important to **create an encouraging vision**. Showing the way forward is important in the world of globalization and urbanization.
- Stop the blame game.
- Connect the messages to **health issues**.
- The youth movement might question the traditional way of governing.
- Increased investment in bioenergy chains is needed.

- We need to achieve all the other silo-goals (ownership, productivity etc.) to solve the issue of climate change.
- How can we govern LUC? There are different scenarios - foreseeing large-scale deployment, monocultures, pesticides etc. is just one of them. Others focus more on the whole bioeconomy including new products and diversification of the land use, delivering on achieving several SDGs through positive contributions to e.g. rural development, health, reversing land degradation etc.

### 1.3 How can we meet the expected increasing biomass demand for food, energy and materials while adapting to and mitigating climate change?

There are already some **policies** from countries with a rapid deployment of bioenergy which provide experience and lessons which others could follow. The LDN (land degradation neutrality) process may become important for the development of land management policies. Large forest companies have the opportunities to make a difference - but they need stable policies for investment decisions. **Bilateral agreements** could be a way around slow policy processes and support for bioeconomy innovations could act as a trigger for change. We can already see a converging trend between food production and climate change mitigation - this is promising. It is important to build **research capacity** in the developing world and it is more efficient if indigenous researchers/experts inform decision makers on possible routes forward.

#### Points raised during the discussion:

- Large wood enterprises for instance have a significant influence. Reasonable and stable rules are needed in order for them to be able to make investments.
- We are starting to have examples of **policies that we could act on, for example** in the UK system, Scandinavian countries, Canada?
- 80% of bioenergy production is done in a small number of countries, good practice and **good governance examples** should be used as encouraging examples for other countries to follow.
- **LDN can help creating the policies needed** and helping to get a more holistic view on how land can be managed.
- How can we govern these land use changes? Two scenarios:
  - Specialization of agricultural landscape
  - Bioeconomy as a trigger for circular economy - what would be the governance that helps this development
- Bioeconomy innovation needs to be stimulated.
- **Bilateral agreements** could be a way around governance from the political side
- Land use change linked to food supply and climate change are now converging, a positive development

- We cannot talk about LUC without including **water**.
- **Information sharing** concerning technologies with practitioners and landowners.
- Bilateral relationships are a possibility to build longer relationships for capacity building.
- The use of investment guarantees is a very interesting initiative that could be scaled-up significantly reducing risks for investors.
- It is important to build **research capacity** in the developing world and more efficient if indigenous researchers/experts inform decision makers on possible routes forward.

#### 1.4 What do we know about regional differences in how land-use and climate interact

There is a general awareness that **regional differences are large** both in terms of biomass production potential and needs for energy, food, feed and materials. Thus, **national/regional scale solutions are more likely to succeed** rather than harmonized global approaches. For the global markets both certification and other forms of national governance/legislation is needed.

##### Points raised during the discussion:

- Difficult to act in a harmonized way globally and there is no simple solution.
- Creating dialogue and the meaning of different options is creating room for action.
- Regional policies matter, but are widely different between regions.
- National scale discussions on the use of biomass are essential.

#### 1.5 Are there solutions that may meet the double challenges of climate change and other sustainability issues e.g. degradation of terrestrial ecosystems?

##### Points raised during the discussion:

- One of the solutions to many of the challenges might be a well-developed communications chain to share knowledge/technology from the highest level all the way down to the field/stand level. This is important since **bioenergy is an integrated part of land management systems and deployment should seek synergies** with other initiatives to develop more sustainable landscape management
- It is important to inform consumers about the climate change impacts of this **Informed consumers** can potentially be important to change land use. The discussion on this subject would benefit if conducted in a balanced way including the areas of mitigation, adaptation and production
- LDN is widely accepted, it would be interesting if the developed world could join in.

- The fragmentation of institutions in the land use sectors is a problem and there is **no institution for climate** - where should climate be handled? A global institution for this might be good.
- The discussion seems to have turned from production - adaptation - mitigation to the other way around, this is not a good thing.
- Important to consider the interconnection between the “natural” system and the societal system.
- We need to talk about **desired futures and how to get there**, and to present a long-term vision on our future landscape(s).
- **Food and health are good connectors/entry points** to discussions on climate change rather than e.g. C-balances.
- The SDGs are handled one by one partly because of **institutional fragmentation**.
- Agriculture and forestry tend to be conservative in their management and changes comes slowly.
- **Land degradation is as challenging as climate change** itself. It is equally important to inform consumers about this impact.
- There is a need for capacity building and to share knowledge/technology all the way down to the field/stand level.

### 1.5.1 On investment and innovation

#### Points raised during the discussion:

- Businesses are not homogeneous, they provide good and bad examples
- Changing the business model fundamentally is a challenge. If we get competition, we will get innovations and solutions. There is a **huge demand in the finance sector for sustainable development**, the land sector has a few very interesting opportunities, but the initiatives are not connected to the financial sector
- Money talks and so do hard regulations
- How do we convince large companies to contribute with positive examples?
- Industry can definitely change but they are often **blocked by regulatory systems** suggesting that a lot could be gained by reviewing regulations
- Big companies can and must be drivers of change.
- It is more likely that small innovation companies will contribute. Larger companies prospering in the status quo have to be pushed.
- Innovation are to be expected from start-ups (might also be from bigger companies)

- Complex innovations might need bigger companies with more possibilities to finance test environments.
- When opportunities appear, industry traditionally moves faster than the regulations.
- The conversion of the energy system in Sweden has been driven by the CO<sub>2</sub> tax, making it profitable.
- The oil and gas industry are currently targeting the chemical industry based on the forecast that the fuel market will shrink. Hopefully the forest industry can provide some competition.
- Don't stand in the way of private enterprises but **provide clear criteria and regulations**.
- **Collaboration between academia and private sector** is key to improved sustainability.
- Traditionally, big changes have appeared as a result of
  - innovations
  - great wars
- **Money talks** and by continuing as we are some people are profiting from it, leading to slow changes. The hope is for a "Greta effect" where the new generation put pressure on politicians.
- **Subsidies and free markets both tend to fail on externalities.**
- Need to have **stable and long-term policies** to make progress e.g. in a decision to invest in a biofuel production line.
- Private forest owners are not mainly motivated by money.
- Financing institutions are looking for sustainable solutions and are willing to invest - but have not yet addressed the land-based sector much (other than large-scale agricultural land acquisitions).

### 1.5.2 On information, communication and value-chains

#### Points raised during the discussion:

- To create action, it is important to **create an encouraging picture** that shows the way forward. This is important in the world of globalization and urbanization
- Land degradation is a key issue. The creation of "**Soil footprints**" could be a possible way to visualize the value chain to the consumers. Clear information on a national scale on what society can do to protect our soils for generations to come is important. National authorities could provide the public with up-front messages in their field.
- The public are important decision makers and they want climate information from authorities and media.

- Find new ways for experts to communicate so as to help people to understand and make informed decisions.
- The messages need to be **clear**.
- Connect the messages to health issues.

### 1.5.3 Remarks on the IPCC process and report

- Given the mandate of the IPCC the report is good. Future work of the IPCC could benefit from more experts on the national level participating in the review processes, e.g. experts representing authorities, relevant industry etc. The opportunity is to create a **common agenda towards a fossil free future**.
- The challenge is big but can start on a national level. Reaching out with existing findings from research on governance and with policies bridging gaps between sectors, and to make the key messages more up front, are suggestions for the remaining IPCC main reports planned to be published in 2020-2021. Other suggestions include better use of SDGs e.g. with climate scenarios complemented with other scenarios and more focus on what to do. Expectations on IPCC reports are high while they are intended as assessment reports.

#### Points raised during the discussion:

- In the work with the land report, bioenergy was among the most controversial issues
- **More practitioners** need to be involved in the IPCC process.
- The structure of the IPCC is part of the problem.
- The report is good, given the mandate.
- Most of the scientific competence in this report represent male scientists from industrialized countries within the climate field (including the underlying science).
- It would have been better to have a set of authors with a **broader field of competence**.
- The opportunity would have been to talk about **how we create a fossil-free future**.
- Cross-chapter box is the best place in the report to find a way forward.
- We could have made **better use of the SDGs** - important that the IPCC and IPBES work closer together in the future.
- Try to **reach out** with the research already done on governance, policies bridging gaps between sectors.
- There is a need for developing **not only climate scenarios** but also scenarios on biodiversity.

- Excellent starting point, but **climate change mitigation is rather a co-benefit than a focal point in land use.**
- The IPCC report doesn't help very much in telling what to do.
- The report could have been released in a more communicative way.
- **IPCC reports are assessments** that now can be used/tested by researchers and practitioners to test different methods.
- Bioenergy was at the end reasonably handled - but 60% of the biomass used is in a traditional (inefficient) way.
- Agreement on risks associated with large scale deployment - but **disagreement on definition of "large scale"**. Nature-based solution promoted by some of the contributors - also agreeing that the potential for this in the land-based sector is low.
- Chapter 7 is really encouraging because it captures how we work today. It was also encouraging that developing countries were so engaged in the writing because people are listening more to their own countrymen.
- The report is not extremely helpful since **it does not suggest what to do**. E.g. for bioenergy it just says it is context dependent.
- The report could have been clearer that forestry biomass production for bioenergy alone is not economically feasible, suggesting that bioenergy has to be integrated into wood, feed and food production systems.
- The report **focuses too much on the problems and less on the solutions**
- Given the mandate, politics, and the people involved in the report writing, it is OK - but it is a missed opportunity.
- Many of the mitigation options suggested in the report cannot be applied together since many of them overlap. Furthermore, the scale of deployments evaluated is pretty high and a more "appropriate deployment" will result in another outcome.
- **BECCS is perfect for modelers since it can be used to balance their modeling** since what is not solved by other actions can be solved by BECCS, but the potential for BECCS may be constrained by the availability of feedstock produced in ways which meet other sustainability requirements and by costs.
- Differences in the view of evidence between natural and social scientists.



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