

## **Joint Committee on Climate Action consideration of ‘IPCC, Special Report on Climate Change and land use’.**

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### **Opening Statement:**

The IPCC's Special Report on Climate Change and Land was approved by governments in, Geneva, Switzerland, August 2019. This is the second of three special reports of the current IPCC assessment cycle, building on the Special Report on Global Warming of 1.5°C approved in 2018. The report was prepared under the scientific leadership of all three IPCC Working Groups in cooperation with the Task Force on National Greenhouse Gas Inventories. It was produced following requests from seven member governments, including Ireland, for a report focusing specifically on land and its interactions with climate change. The report was prepared by 107 experts from 52 countries and was the first IPCC report with a majority of authors (53%) from developing countries.

At the highest level the findings of this report can be summarised as follows:

- Land is a critical resource upon which we all rely, but it is under increasing pressure from humans and climate change.
- Through sustainable management, land can be an important part of the solution to climate change, but land cannot do it all.
- Reducing greenhouse gas emissions from all sectors is essential if global warming is to be kept to well below 2°C.

I will now outline some of the key messages from the summary for policy makers (SPM). At this point I would also like to note that the SPM condenses the assessment of seven chapters of the main report, and much more detailed information is available in each of these chapters. I would be happy to direct members to specific sections in the report.

### **1. What is the current situation?**

- This report assessed the key trends in terms of climate change and land use – many of which are summarised in Figure SPM.1.
- Humans affect more than 70% of ice-free land area and a quarter of this land is already in a degraded state. In 2015, about 500 million people lived in areas undergoing desertification – an increase of c. 300% since 1961.
- Population growth and changes in consumption of food, feed, fibre, timber and energy have caused unprecedented rates of land and freshwater use in past 50 years. Since 1961 cereal crop yields have increased by 240% but so too has the intensity of land use. For example, over the same period there has been around an 800% increase in the rate of nitrogen fertilizer used. There has also been a marked increase in ruminant livestock numbers globally.
- Consequently, there has been an increase in both methane and nitrous oxide emissions from agriculture – both of which are potent GHG's. Agriculture, forestry and other types of land use account for 23% of human greenhouse gas emissions.
- At the same time natural land processes absorb an equivalent of almost a third of carbon dioxide emissions from fossil fuels and industry. However, natural carbon sinks and their capacity to continue to store carbon are under threat from climate change and unsustainable land management.
- The way we produce food, what we eat as well as food loss and waste all contribute to climate change and are related to the loss of natural ecosystems and declining biodiversity.

## **2. Risks to human and natural systems**

- This report assessed risks to human and natural systems as a function of increasing global mean surface temperature, which is depicted visually in Figure SPM.2.
- Current levels of global warming are associated with moderate risks for soil erosion, vegetation loss, coastal degradation and tropical crop yield decline.
- At around 2.0°C of global warming risks from permafrost degradation, and food supply instabilities are projected to be very high.
- As well as the level of warming, the levels of risk posed by climate change also depends on how trends in population, consumption, technological development and land use evolve over time. Pathways with higher demand and lower levels of technological development are associated with higher risks from land degradation and food insecurity. Pathways showing land use change are depicted in Figure SPM.4.

## **3. What can be done?**

- This special report examined a wide range of integrated response options to address: climate change mitigation, adaptation, tackling desertification and land degradation and improving food security. Options and their potential contributions shown in Figure SPM.3.
- There is a positive message here – many of these response options can be of benefit across multiple challenges, are at an advanced technology level and many are relatively low cost.
- Production of food matters and many response options could be applied or upscaled in Ireland including improved livestock and pasture management, agricultural diversification, agroforestry, increased productivity through sustainable intensification and increasing soil carbon.
- Protection of current carbon stocks and restoration of high carbon ecosystems is also a critical concern, for Ireland peatlands present an example in this regard.
- On the demand side, dietary choices present an important route to reduce GHG emissions and pressures on land. Some dietary choices require more land and water and cause more GHG emissions than others. Balanced diets, featuring plant-based foods, such as those based on coarse grains, legumes, fruits and vegetables, nuts and seeds, and animal-sourced food produced in resilient, sustainable and low-GHG emission systems, present major opportunities for adaptation, limiting the effects of climate change and have health benefits.
- Currently 25 – 30% of total food produced is lost or wasted. Reducing food loss and waste could significantly reduce the associated GHG emissions and improve food security.
- However, report found that the scale of deployment of some response options is a cause of concern. Specifically, the deployment of bioenergy and forestry needs to be done carefully to avoid negative effects on food security and biodiversity. These measures work best when they are integrated into diverse production systems and are located on suitable land.

## **4. Key conclusions**

- Climate change is making a challenging situation worse and undermining food security and exacerbating desertification and land degradation.
- Coordinated and early action is required to tackle climate change, this can simultaneously improve land, food security and nutrition.
- Acting early to tackle climate change is more cost-effective as it avoids losses and more land-based response options are available to tackle climate change at lower levels of warming.
- There are many available response options that can be deployed now at relatively low cost.
- Many response options can deliver carbon sequestration in soils and biomass. However, carbon sinks are vulnerable to climate change and depend on sustainable management.
- Better land management can play its part in tackling climate change but cannot do it all.
- Reducing greenhouse gas emissions from all sectors is essential if we want to keep below 2°C.