

Revenues from Innovative Ecosystem Services

Although society is increasingly concerned about the environment and assigns increasing value not only to the environment but also to the culture and heritage of rural territories, the provision of these goods is often insufficient and they have been included in the new Sustainable Development Goals adopted in September 2015²⁸.

Agri-food and forestry have an important impact on the provision of public goods and those involved in the sector have opportunities to increase the provision of environmental goods and services by reducing the impact of their own activities on the environment as well as by off-setting the impact of other economic actors.

This is not an exact process, but it does incur additional cost on different actors throughout agri-food and bioeconomy supply chains. Many of these are not in a position to absorb the costs as part of doing business and will require assistance if they are to continue to operate. So far this situation is managed by paying subsidies to those who otherwise would not be able to survive. However, they must do so while protecting the environment and ensuring the provision of goods such as clean air and water, protecting soils and biodiversity and historic monuments. This situation will be exacerbated as Irish agri-food production intensifies and the demands on those involved in farming, forestry and other related activities increase in response to concerns about natural capital.

The development of new tools for monitoring the environment based on satellites, sensor networks, smart connected farm machinery and drones, suggest that it will become increasingly possible to monitor the environment and quantify the provision of public goods to the extent that it will be possible for farmers to charge fees for the public goods provided. If real markets for agriculture-sourced carbon and other environmental goods are developed between now and 2035, such measurement systems will become indispensable. It is possible to foresee a future where farmers, foresters and other actors will generate significant revenues from the provision of increasingly



sophisticated environmental goods and services on the basis of objectively quantified, auditable data.

Right now research is needed to better understand these issues. Eventually, new policy instruments and delivery mechanisms will be required, as well as new tools for monitoring and decision support. A credible system for the valuation and pricing of public goods, as well as the creation of appropriate policy and market-based mechanisms, may require the provision of public infrastructure, and it will rely heavily on next-generation systems for sensing, communicating and analysing data about the environment. The new digital technologies discussed in the following chapter will greatly assist in all of these endeavours.

Technology Adoption by Farmers

The adoption of new technology and management systems by Irish farmers has traditionally been low. New technologies and farming systems will only contribute adequately to a globally sustainable Irish agri-food and bioeconomy sector if adoption rates are improved. This calls for increased emphasis on education and extension services to help increase the skills and knowledge base of farmers and food producers. The level of expertise and specialist

28 On September 25th 2015, countries adopted a set of goals to end poverty, protect the planet, and ensure prosperity for all as part of a new sustainable development agenda. Each goal has specific targets to be achieved over the next 15 years.