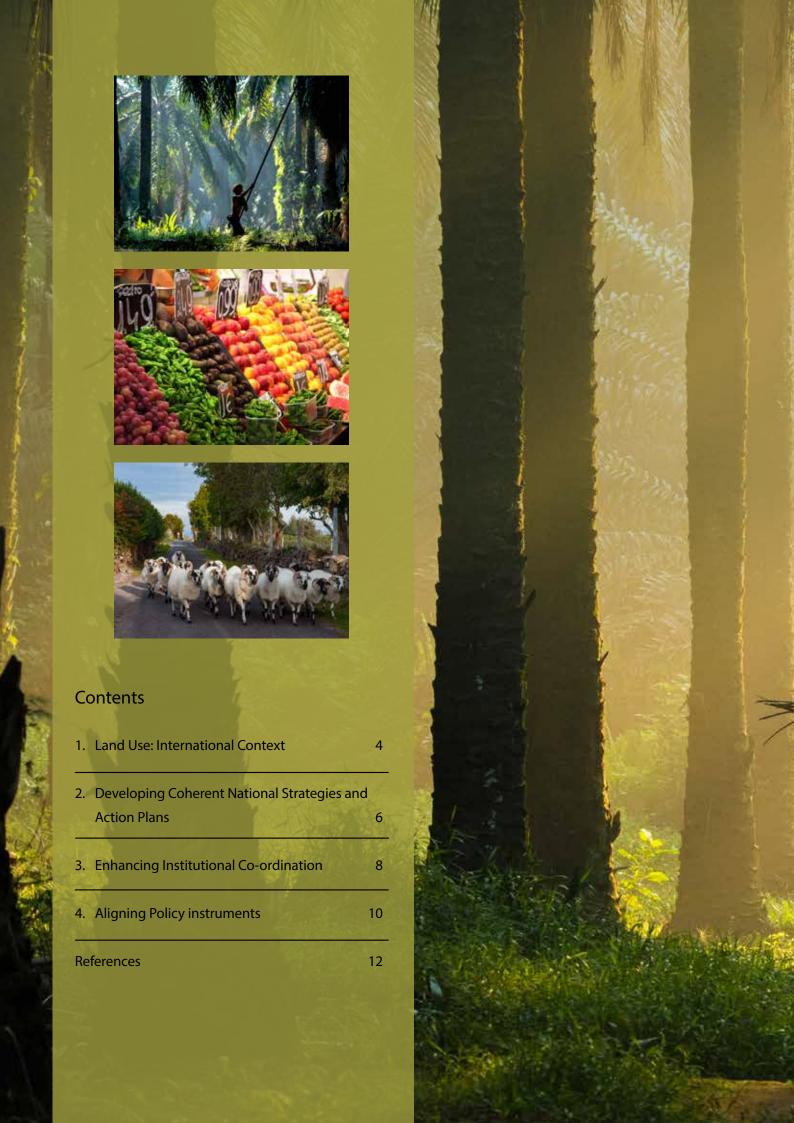
Towards Sustainable Land Use Aligning Biodiversity, Climate and Food Policies





Towards Sustainable Land Use

Aligning Biodiversity, Climate and Food Policies

Land use is central to many of the environmental and socio-economic issues facing society today. The production of agricultural and forestry goods, which are fundamental to human well-being, has profound consequences for biodiversity and climate change. For example, the Global Assessment by IPBES estimates that 25% of animal and plant species are facing extinction, in part due to the loss and degradation of ecosystems, and the IPCC estimates that 23% of global anthropogenic emissions came from agriculture and land use between 2007 and 2016. Further, a rising global population and changes in consumption patterns towards more carbon-intensive diets are expected to place a growing strain on global land-use systems.

The twin challenges of reversing biodiversity declines and mitigating climate change, while producing sufficient food to ensure zero hunger, must be tackled together. Making land-use systems sustainable is central to achieving these – and other – Sustainable Development Goals.

This report, *Towards Sustainable Land Use: Aligning Biodiversity, Climate and Food Policies*, provides good practice insights on how governments can transition to more sustainable land-use systems. It draws on experiences and insights across six case study countries, characterised by large agricultural and forestry sectors and associated greenhouse gas emissions, which in many cases also host globally important biodiversity. These countries are Brazil, France, Indonesia, Ireland, Mexico and New Zealand where emissions from agriculture ranged from 13-49% of their total greenhouse gas emissions (excluding land use, land-use change and forestry) in 2016. The report highlights how governments can facilitate the creation of coherent policies for sustainable land use at three important points in the governance process: relevant national strategies and action plans; institutional co-ordination; and the design and implementation of policy instruments (including comprehensive spatial planning).

We need to better understand and manage the synergies and trade-offs inherent in land-use systems, so they can deliver multiple benefits to society and nature. This report is for policy makers and practitioners operating in the land-use, biodiversity, climate and food nexus. I believe it provides valuable guidance on how to help address these challenging, yet crucially important, objectives.



Policy recommendations

This report draws on case studies from six countries with relatively large agricultural and forestry sectors and associated greenhouse gas emissions, many of which also host globally important biodiversity. These countries are Brazil, France, Indonesia, Ireland, Mexico and New Zealand. Based on these case studies the report makes the following recommendations for improving coherence between national strategies and plans; enhancing institutional co-ordination; and aligning policies for biodiversity, climate mitigation, food, and land-use objectives:

Coherence across relevant national strategies and plans

- Prepare national strategies and plans in a consultative and co-ordinated manner, with engagement from all relevant Ministries and other key stakeholders. This is essential to identify potential synergies and misalignments in the overarching objectives. A good practice example is the National Planning Framework for Ireland, the creation of which included a cross-departmental steering group and a national consultation process.
- Ensure national strategies and action plans have targets that are specific, measurable, actionable, realistic, and time-bound (SMART). In particular, the ability to assess the coherence between targets improves if they are specific and measurable. Further, developing indicators to monitor progress towards the targets would enhance transparency and accountability.
- Identify, assess and consider how to address any transboundary impacts associated with national strategies relevant to the land-use nexus (e.g. the French plan to eliminate deforestation from supply chains).

Institutional co-ordination and coherence

• Strengthen institutional co-ordination between different ministries responsible for land-use issues related to climate, biodiversity, food, both horizontally (at national level) and vertically (between different levels of government). Leadership from the top (i.e. the office of the President, Prime Minister or cabinet) is crucial



- in developing consistent and co-ordinated policies for sustainable land use. National governments should clearly define the roles and mandates of different institutions as they relate to land use.
- Improve policy co-ordination mechanisms. Setting up a cross-cutting body, for example in response to the Sustainable Development Goals, long-term low-emission development strategies, or institutionalising co-ordination processes such as via inter-ministerial committees can help improve coherence (e.g. as between the French ministries of agriculture and food, and ministry for an ecological and solidarity transition).

Policy instruments relevant to the land-use nexus

- Support and intensify land reform efforts (e.g. in Brazil and Indonesia) to ensure security of tenure, especially for indigenous and other vulnerable communities, and sustainable, inclusive land use.
- Better integrate spatial data into land-use decisions (e.g. Indonesia's One Map). This aids the design and implementation of the broad mix of policy instruments required to manage land-use systems (e.g. protected areas, environmental impact assessments and spatial planning).
- Apply economic instruments, such as taxes, fees and charges, more broadly to price environmentally damaging practices. Economic instruments can enhance the effectiveness of existing regulatory approaches, by providing incentives to stakeholders to invest in more sustainable practices (e.g. pesticide taxes in Mexico and France).
- Reassess the balance of support between the relevant ecosystem services from land (e.g. food, carbon, biodiversity, water). A good first step is the reform of potentially market-distorting and environmentally harmful agricultural support, which New Zealand has implemented.
- Monitor and enforce regulations in a consistent and regular manner. Land-use policies can otherwise cease to function effectively and previous environmental gains can be reversed.



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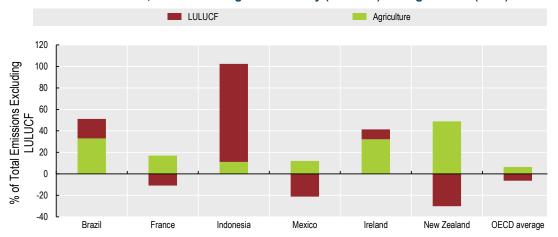
Land Use: International Context

Unsustainable land use has significant negative impacts on the environment and society, which are likely to worsen. Global land use is currently unsustainable. As global populations rise and economies develop, the

As global populations rise and economies develop, the demands placed on land-use systems will further increase. Consequently, providing sufficient food while mitigating greenhouse gas (GHG) emissions and addressing biodiversity loss is a major challenge. As the pressures on land-use systems increase, the need for transformative change to address unsustainable land-use practices is growing.

Historic land-use change globally, predominantly from the expansion and intensification of agriculture, has resulted in widespread declines in biodiversity, with around 25% of animal and plant species now threatened with extinction, the degradation of 74% of the world's terrestrial surface, and significant greenhouse gas (GHG) emissions (Figure 1). More generally, ecosystems provide an array of goods and services that contribute to human well-being such as food provisioning, nutrient cycling, water quality, habitat provisioning and carbon sequestration. Some of these services provide benefits that are difficult to quantify in monetary terms and are often under-valued. Land-use decisions alter ecosystems, ranging from minor and reversible changes to complete and non-reversible transformation of natural and human-dominated landscapes, disrupting the flows of these services.

Figure 1. Emissions from land use, land-use change and forestry (LULUCF) and agriculture (2014)



Note: To separate out the different trends for GHG emissions from the agriculture and forestry sectors, the y axis is expressed as a percentage of national emissions excluding LULUCF. Data on LULUCF emissions, in accordance with the 1996 IPCC Guidelines for National Greenhouse Gas Inventories and the IPCC's Good Practice Guidance on Land Use, Land-Use Change and Forestry, comes from OECD.stat and is used for comparability between data reported by Annex I- and non-Annex I-Parties to the UNFCCC. LULUCF emissions largely correspond to emissions from forestry and other land use (FOLU) reported by Annex I-Parties following the 2006 IPCC Guidelines.

Sources: Authors based on OECD.stat (2017) National Inventory Submissions 2017 to the United Nations Framework Convention on Climate Change (UNFCCC, CRF tables), and replies to the OECD State of the Environment Questionnaire, http://dotstat.oecd.org/?lang=en.

Land use plays a critical role in achieving international commitments for climate, biodiversity and sustainable development. For example, effective land management is important for meeting climate goals under the Paris Agreement and GHG emissions from the land-use sector are significant, accounting for 23% of anthropogenic GHG emission (2007-2016 average). Sustainable land use is essential for meeting several of the Aichi Biodiversity Targets under the UN Convention on Biological Diversity (CBD), with multiple targets explicitly referring to sustainable agriculture and forestry. It is also key to ending hunger (SDG 2), ensuring clean water (SDG 6) and transitioning to clean energy (SDG 7).

Governments must leverage synergies and manage trade-offs to create more sustainable land use systems.

There is a large body of evidence on current and expected impacts of land use. Nevertheless, the understanding of what constitutes a sustainable land-use system and what institutions, strategies and policies are required to create it at global, national and regional levels, is still evolving. Governments are faced with multiple and overlapping challenges, including improving livelihoods, tackling climate change, mitigating biodiversity loss and addressing food insecurity, shortages and waste. To address these interconnected challenges, governments would benefit from national strategies and plans, institutions and policies that provide coherence between these areas. The first step for creating coherence in this land-use nexus is to understand where the synergies and trade-offs occur (Table 1).

The table below provides examples of where synergies and trade-offs exist in the biodiversity, climate and food nexus. The strength of the connection between the areas are ranked on a scale of 1 to 3 (for synergies and -1 to -3 for trade-offs.

Table 1. Estimated synergies and trade-offs in the land use, biodiversity, climate and food nexus

Affecting Affected	GHG mitigation	Expand biofuel production	Prevent soil degradation	Maintain & expand forest cover	Prevent expansion of agricultural land	Improve agricultural resource efficiency	Intensify food production	Reduce food waste & food loss	Protect biodiversity & ecosystems*
GHG mitigation		2/-1	2	3	2	2/-1	-2/1	2	2/3
Expand biofuel production	2/-1			1/-1	-1				-1
Prevent soil degradation	2	0/-1		2	2	1	-1/0		2
Maintain & expand forest cover	2	0/-2	2/-1		3		2		2
Prevent expansion of agricultural land	2/0	0/-2	2/-1	2/-1		1	2	1/2	2
Improve agricultural resource efficiency	2		2	2/0			-1/2	0/2	-1/1
Intensify food production		0/-1	-1			2/0			-1/1
Reduce food waste & food loss					1/2				2/3
Protect biodiversity & ecosystems	3/-1	-1	2	3	3	1	-2	1	

Note: The International Council for Science (ICSU) scoring system is as follows:

- +3: Indivisible: one objective is inextricably linked to the achievement of another.
- +2: Reinforcing: one objective directly creates conditions that lead to the achievement of another objective.
- +1: Enabling: the pursuit of one objective enables the achievement of another objective.
- 0: Consistent: no significant interaction, or interactions that are neither positive nor negative.
- -1: Constraining: when the pursuit of one objective sets a condition or a constraint on the achievement of another.
- -2: Counteracting: the pursuit of one objective counteracts another objective.
- -3: Cancelling: progress in one goal makes it impossible to reach another goal.

The table was compiled using this seven-point ICSU scoring framework that identifies causal and functional relations between specific issues. Blank cells indicate no or limited interaction.

* This category considers actions to protect biodiversity and ecosystems that do not include the expansion and maintenance of forest cover.

Sources: Authors based on Munaretto and Witmer (2017), Water-land-energy-food-climate nexus: policies and policy coherence at European and international scales, www.pbl.nl/en/publications/exploring-future-changes-in-land-use and ICSU (2017); A Framework for Understanding Sustainable Development Goal Interactions, https://sustainabledevelopment.un.org/?menu=1300.



Developing Coherent National Strategies and Action Plans

National strategies establish a country's medium- to long-term priorities in various areas. They are intended to guide and steer national actions in particular sectors or policy areas. In some cases (notably for biodiversity), strategies also include associated action plans.

Key findings and messages

The prominence of land-use issues covered in different national strategies, and the degree of coherence between the strategies, varies substantially across the case study countries. Key strategies and plans that are relevant to the land-use nexus include Nationally Determined Contributions (NDCs), long-term Low Emissions Development Strategies (LEDS), National Biodiversity Strategies and Action Plans (NBSAPs), Agricultural Development Plans, National Development Plans (or similar), and National Trade or Export Plans. Overall, few of the national strategies and plans examined (for the case study countries) are specific enough to facilitate the multiple Ministries (and other stakeholders) involved to take policy action in a coherent manner. Moreover, only a minority of the national strategies and plans (such as the Irish NBSAP) examined identify who is responsible for what action or target to be achieved.

Ideally, national strategies and plans should be prepared in a consultative manner, with engagement from all of the Ministries whose actions are likely to impact on the national strategy in question, as well as by other key stakeholders. While stakeholder engagement is improving (i.e. compared to past policy processes), further efforts are needed to ensure that this is done consistently across the various different national strategies.

Governments can encourage greater policy coherence by ensuring that medium-term (i.e. 5-10 year) national strategies and plans have clear objectives, actions and targets. This would allow for any misalignments to be more easily identified. Developing indicators with which progress towards the targets can be assessed also provides greater transparency and accountability. Where possible, the targets should be specific, measurable, actionable, realistic, and time-bound (SMART).

The national strategies considered rarely explicitly acknowledge misalignments between different national policies in an individual country. This is despite specific requests to do so at the international level, e.g. the UNFCCC requests Parties to report on policies that increase

GHG emissions, and the Aichi Biodiversity Targets under the CBD include specific targets to identify and address incentives harmful to biodiversity. For example, national plans and strategies relevant to trade could explicitly recognise and, where possible, quantify the linkages between trade policy and the land-use nexus. Good practice examples include France, which is developing a national strategy to address deforestation in the French supply chain (i.e. from abroad), and Ireland, which includes a specific target in their NBSAP to identify and address the adverse impacts on biodiversity from trade.

This table summarises the reference to forestry, agriculture and climate change, found across the national biodiversity strategies and action plans of the six case study countries.

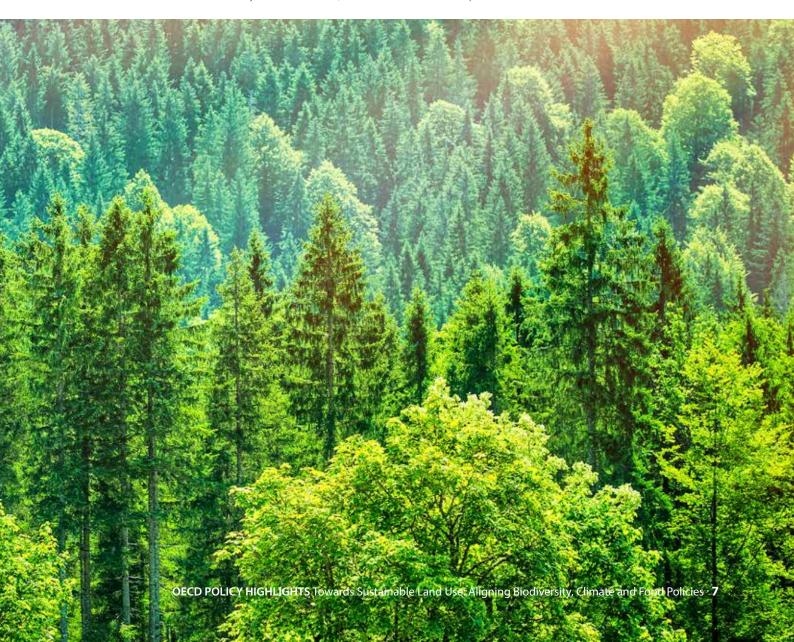


Table 2. Forestry, agriculture and climate change in the NBSAPs

	Forestry	Agriculture	Climate change
Brazil (NBSAP 2016-2020)	Yes, target 7 incorporates sustainable management practices in forest and fauna management	Yes, target 7; target 8 on excess nutrients. Includes associated indicators	Yes, target 15 to enhance carbon stocks and restore at least 15% degraded land
France (NBS 2011 and NBP 2018)	No, in the National Strategy (refers to logging but vaguely so) (NBS, 2011); Yes, in the National Plan, target 1.3 zero net artificialisation; target 3.2 integrate biodiversity in forest management plans (NBP, 2018)	No, in the National Strategy (NBS, 2011); Yes, in the National Plan: target 1.3 zero net artificialisation; target 2.2 transition to agroecology (NBP, 2018)	No, (NBS, 2011); Yes, interspersed, no specific targets (NBP, 2018)
Indonesia (IBSAP 2015-2020)	A few e.g. development of forestry plan and improvement of forestry areas; sustainable management of protected forests	Yes, several e.g. expansion and sustainable management of lands for agriculture, plantations and animal husbandry (p. 236)	Yes, improvement of activities dealing with climate change adaptation and mitigation at national and local levels
Ireland (BAP, 2017-2021)	Yes, target 4.1, optimised opportunities under forestry to benefit biodiversity, with various specific actions and associated indicators	Yes, target 4.1, optimised opportunities under agriculture to benefit biodiversity, with various specific actions and associated indicators	Yes, 1.1.14. Implement actions from Ireland's Biodiversity Climate Change Sectoral Adaptation Plan; 2.1.10. continue forest research programmes, including on carbon stocks
Mexico (NBSAP, 2016-2030)	Yes, Multiple targets relevant to forestry. None are quantified	Yes, multiple targets relevant to agriculture. None are quantified	Yes, multiple references to climate change; no specific targets
New Zealand (2016-2020)	Yes, Target 7, implement National Environmental Standard for Plantation Forestry by 2018	Yes, target 7, improve efficiency of agriculture production systems (e.g. by increasing flexibility in land management and farming practices)	Yes, Target 16.1 monitoring of carbon stocks in forests and habitats

Note: Brazil's national target 7, for example, states: By 2020 the incorporation of sustainable management practices is disseminated and promoted in agriculture, livestock production, aquaculture, silviculture, extractive activities, and forest and fauna management, ensuring conservation of biodiversity (Government of Brazil, 2018).

Source: Authors based on relevant country NBSAP submissions, available at: www.cbd.int/nbsap.



3 Enhancing Institutional Co-ordination

As the importance of simultaneously addressing multiple policy goals has grown, many countries are in the process of identifying effective institutional frameworks. The institutional structures in place can be particularly complex in large, decentralised countries, such as in Brazil, Indonesia and Mexico. It is unsurprising that a complex institutional structure is used to address multiple interlinked issues that affect a myriad of stakeholders. Indeed, a structure involving multiple ministries is positive, inasmuch as it is explicitly recognising that cross-sectoral expertise are needed to address issues related to the nexus.

Key findings and messages

The roles and mandates of institutions should be clearly defined, to strengthen horizontal alignment of land-use policy. Both lack of institutional co-ordination and overly complex institutional arrangements still occur, and can contribute to policy misalignments. For example, in Indonesia at least eight national ministries are involved in land-use decisions, the mandate of different institutions overlap, and the institution responsible for regulating peatland use has no direct authority over peatland areas. However, while clear institutional mandates are crucial in promoting policy alignment in this nexus, it is not sufficient by itself to ensure that policies are aligned in practice.

Vertical alignment of policy creation can also be challenging as decision-making power in the land-use nexus is often split between national governments, sub-national governments, and private actors. This decentralisation can undermine the implementation of relevant policies if the vertical co-ordination of goals is poor. Differing institutional priorities and capacities, and opportunity for local corruption due to lack of oversight can also be a problem. However, decentralisation provides an opportunity to develop innovative and context-specific solutions (especially in large heterogeneous countries), such as state-specific international conservation funds in Brazil.

Stronger institutional co-ordination both horizontally (between different ministries) and vertically (e.g. between national and sub-national governments) is needed to ensure the necessary degree of linkage across silos, and to facilitate the coherent design and implementation of policies. The establishment of inter-ministerial committees as well as leadership from the top (i.e. the office of the President, Prime Minister or

cabinet) are needed to encourage different stakeholders to develop consistent and co-ordinated policies in the nexus. Countries are intensifying co-ordination of relevant policies, in part by intensifying relevant policy co-ordination mechanisms. This includes setting up an over-arching body - often in the context of national work towards the Sustainable Development Goals (Table 3). Institutionalising such processes can help improve coherence and co-ordination (e.g. as between the French ministries of agriculture and food, and ministry for an ecological and solidarity transition).

This table summarises the institutional arrangements for responding to SDGs across the six case study countries.



Table 3. National institutional arrangements for co-ordination of a country's SDG response

	Brazil	France	Indonesia	Ireland	Mexico	New Zealand
Lead co-ordination	National Commission for SDGs (CNODS)	High-level, multi-stakeholder steering committee (including representatives of all government departments)	"National Co-ordination team", led by Ministry of National Development (BAPPENAS)	Senior Officials Group (representatives of all government departments)	National Council for the 2030 Agenda	NA (no co-ordination body for SDGs)
Oversight	Office of the President	Inter-ministerial delegate for sustainable development (as mandated by the Prime Minister)	Office of the President	Cabinet	Office of the President	NA
Is each SDG assigned to a specific ministry		Yes	Yes	Yes	Yes	NA
Sub-national entity representation?	Yes	Yes	Included in the underlying working groups	No	Yes	NA
CSO/private sector representation?	Yes	Yes		No — but plans to include interaction with stakeholders (including agriculture) subsequently	Yes	NA

Source: UNDESA (2017), Compendium of National Institutional Arrangements for implementing the 2030 Agenda for Sustainable Development, https://sustainabledevelopment.un.org/content/documents/22008UNPAN99132.pdf; Government of Ireland (2018), The Sustainable Development Goals National Implementation Plan 2018-2020, www.dccae.gov.ie/documents/DCCAE-National-Implement-Plan.pdf; UNDP (2017), Institutional and Coordination Mechanisms - Guidance Note on Facilitating Integration and Coherence for SDG implementation, www.undp.org/content/undp/en/home/librarypage/sustainable-development-goals/institutional-and-coordination-mechanisms---quidance-note.html.



Aligning Policy Instruments

Achieving international and national commitments across the land-use nexus will require policies that are ambitious, coherent, cost-effective and equitable. Many of the policies in place have had a positive impact on land-use systems but current trends indicate the scope and strength of policy instruments or their implementation needs to be increased.

Key findings and messages

Clearly defined and enforced land tenure is a prerequisite for effective implementation of policies relevant to the land-use nexus. Without clarity on who owns or has the rights to manage which areas of land, incentives for sustainable use are undermined and policy enforcement becomes challenging. Lack of clarity on land rights can also lead to illegal logging, illegal mining and illegal agricultural activities, issues that are still prevalent in Brazil, Mexico and Indonesia. Supporting and intensifying ongoing land reform efforts, such as social forestry and the One Map initiative in Indonesia, is essential for effective land-use policies.

The negative environmental externalities associated with land use remain largely un- or under-priced across the case study countries. For example, environmentally related taxes are under-utilised in the

land-use nexus when compared with other economic instruments (such as subsidies). Greater application of taxes to price environmentally damaging practices, such as pollution from agrochemical inputs (e.g. fertilisers and pesticides), could enhance the effectiveness of exiting regulatory approaches, by providing a price signal to reduce environmentally damaging activity.

Payments for ecosystem service programmes and agri-environment schemes are used to incentivise land managers to provide certain services (generally water, carbon and biodiversity purposes) in certain regions. Such programmes are often limited in geographical scope however (with the notable exception of Mexico, which has a national payments for ecosystems services programme) and are often not ambitious enough to effectively improve the sustainability of national land-use systems as a whole. The balance of support for the delivery of different ecosystem services from land (e.g. food, carbon, water, habitat provision) should ensure that the growth in food production – necessary to meet growing global demand - does not compromise the delivery of other services. Paying land managers for each ecosystem service from the same area of land (also called 'payment stacking') is a promising approach for improving the incentives available for sustainable management.

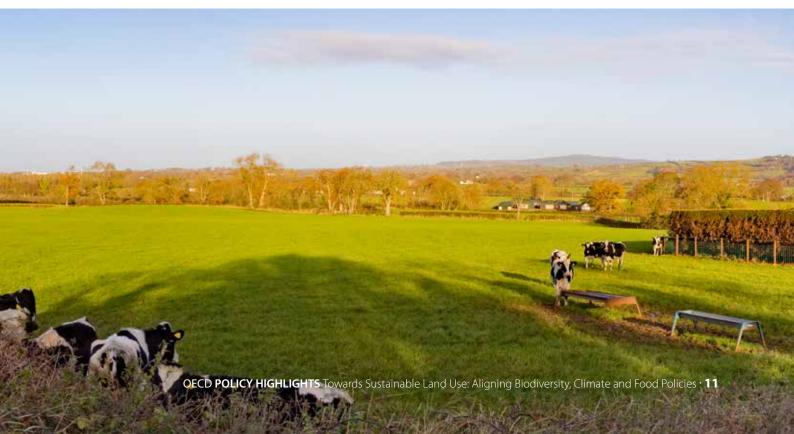


In the case study countries, government support for agricultural production is larger than support for other land uses (with the exception of New Zealand). Despite recent progress on reforming support, potentially market-distorting support, which can lead to unsustainable practices and encourage the expansion of agriculture at the forest frontier, is still prevalent across the case study countries. More effort is needed to reform potentially market-distorting and environmentally harmful agricultural support. In addition, biofuel production subsidies and biofuel blending mandates can lead to increased emissions from land-use change, ecosystem degradation, and put pressure on food production (particularly for 1st generation biofuels). However, these impacts are context- and crop-specific.

Although the SDGs include targets relating to reducing food loss and waste, quantitative, national targets for reducing food loss and waste are lacking in most of the relevant national-level strategies across the case study countries. There is a clear economic and environmental rationale for action to address food loss and waste, with many potential synergies across other key national policy agendas, such as climate change and biodiversity. Addressing food loss and waste is a rapidly evolving policy area and one in which France has set a good example through bold policies such as granting tax benefits to farmers who donate food that would otherwise be lost and requiring supermarkets to sign agreements with local charities to donate unsold, but still edible, food. However, data and information at national and local levels of food loss and waste is incomplete in the case study countries, hence better and more consistent food loss and waste monitoring at national and sub-national levels is needed to assess progress over time.

International trade in agricultural and forestry products facilitates the import and export of products generating negative externalities outside the reach of domestic policies (e.g. climate mitigation and biodiversity protection). Coherent policy approaches in the land-use nexus are needed to avoid the "leakage" of adverse impacts (such as GHG emissions or biodiversity loss). Leakage can occur when production shifts (within or between countries) in response to a certain policy instrument, for example, if protecting a specific area of land from deforestation shifts deforestation pressures to neighbouring areas. International trade in agricultural and forest goods means that international leakage will occur if country A protects its domestic forest but allows for imports of forestry or agricultural products from country B, where deforestation takes place. Coherent policy approaches minimise and prevent misalignments that can lead to leakage.

Better assessment of land-use impacts of trade and supply chains and the disclosure of relevant information are key for effective and coherent polices. Improved assessment of ecosystem services and their integration into cost-benefit analysis and more broad application of life cycle assessment (LCA) approaches are important tools for achieving this. A number of policy instruments are available to manage interactions between trade and land use. Product-specific mechanisms, including product-specific trade agreements and memorandas of understanding, can be effective instruments, especially if they cover traded products with major land-use implications and include environmental provisions that are strictly enforced. For example, the EU has concluded voluntary partnership agreements (VPAs) for trade in forest products with a number of countries. Under a VPA the timber producing country agrees to only export products from legal sources. There is currently a VPA in place between EU and Indonesia.





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This Policy Highlights is based on the OECD publication, Towards Sustainable Land Use: Aligning Biodiversity, Climate and Food Policies.

Land use is central to many of the most pressing socio-economic and environmental issues facing society. This report examines on-going challenges for aligning land-use policy with climate, biodiversity and food objectives, and the opportunities to enhance the sustainability of land-use systems. It examines six countries with relatively large agricultural and forestry sectors and associated greenhouse gas emissions, many of which also host globally important biodiversity. These countries are Brazil, France, Indonesia, Ireland, Mexico and New Zealand. Drawing on these countries' relevant national strategies and plans, institutional co-ordination, and policy instruments, the report provides good practice insights on how to better align land use decision-making processes and to achieve stronger coherence between land use, climate, biodiversity and food objectives.

For more information:

OECD (2020), Towards Sustainable Land Use: Aligning Biodiversity, Climate and Food Policies, OECD Publishing, Paris, https://doi. org/10.1787/3809b6a1-en.



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