

## Funding climate-friendly soil management – key issues

### Ownership, tenure, and other land rights: The link to climate-friendly land use<sup>1</sup>

## 1 Background

**Definition:** Ownership, tenure rules and other land use rights determine who can use which resources of the land for how long, and under what conditions.<sup>2</sup>

**Importance:** The design, absence or insufficient enforcement of such rights can disincentivise land users to use soils sustainably.<sup>3</sup> This is especially relevant in countries or instances where land ownership is not regulated or registered (Bodle et al. 2020). In addition, in several countries, local and indigenous rights are a serious and sensitive issue that might be a challenge for new governance mechanisms for climate-friendly soil use (Hannam 2018; Kamunde-Aquino 2018). Even where ownership rights are clear, complementary rights to use such as lease may lack sufficient incentives or permission to implement sustainable soil management measures, in particular over long time periods.

**Relevance:** This issue is relevant for all types of mitigation actions, including emissions reductions and sequestration. It is particularly challenging for measures where permanence is a problem (i.e. all sequestration and carbon storage measures).

## 2 Key issues

### The impact of land rights for climate change

The link between land rights, in particular tenure, and climate change is addressed widely in literature (Murken and Gornott 2022) and throughout in the 2019 IPCC Special Report on Climate Change and land (IPCC 2019). It states that securing land tenure can enable the adoption of sustainable land management (IPCC 2019). For instance, strengthening land tenure security is a major factor contributing to the adoption of soil conservation measures in croplands (IPCC 2019). The World Bank, too, recognises that addressing climate change depends on secure land tenure, and that secure tenure is essential for safeguarding forests against external forces, in particular forests managed by indigenous peoples (Kukkonen and Pott 2019).

However, there is no direct or automatic link between a certain land ownership or land use right arrangement and the degree of climate-friendly land use (Hijbeek et al. 2018; Bartkowski et al. 2021). Land use rights are highly complex because they are defined by each individual country's specific legal system, and in every country there is a multitude of aspects such as types of land use rights (e.g. private, communal or public property, ownership, rent, lease), rules on how such

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<sup>1</sup> This factsheet was also published as part of the UBA report "Funding climate-friendly soil management", available at <http://www.umweltbundesamt.de/publikationen/Funding-climate-friendly-soil-management>.

<sup>2</sup> For a brief introduction to the implications of the legal concept of ownership and property with regard to soil see Stankovics et al. (2020).

<sup>3</sup> For an overview of the large amount of literature and country studies see e.g. Richardson (2018), Akram et al. (2019), Murken and Gornott (2022).

rights can be acquired and passed on (e.g. through sale or inheritance), or the degree of protection and enforcement.

### **Customary tenure arrangements**

An example of the complexity of land rights and tenure is given by customary tenure arrangements, which can mix aspects of common property and exclusive ownership, with complex systems of rights and duties among users (Hannam 2018). For instance, under Kenyan law, soil carbon can either be considered to be part of the soil, as a collectivity that forms the land (belonging to its rightful owners), or be considered as a special resource that belongs to the State and that is subject only to the control and ownership of the State (Kamunde-Aquino 2018). Yet where ownership rights are difficult to ascertain, investors may shy away, and it may even incentivise so-called land grabbing which displaces indigenous peoples. With the increasing pressure on land, land seizures - which displace a local (indigenous) population to the benefit of large investors - are a serious issue, in particular where the property status was unclear or based on customary right (Schmeichel 2018).

### **Main interactions between land tenure and climate change**

A recent review of literature found three main interactions between land tenure and climate change in farming contexts (Murken and Gornott 2022):

- ▶ Land tenure characteristics affect the uptake intensity and type of adaptation or coping strategies undertaken by farmers;
- ▶ Land tenure systems also influence farmers' vulnerability to climate change, in particular the vulnerability of different demographic groups within farming communities, such as women, migrants and indigenous peoples;
- ▶ Land tenure systems themselves are impacted by climate change, in particular the perceived tenure security of farmers, mostly via indirect channels.

## **3 Examples**

**Silvopastoral and silvoarable agroforestry**<sup>4</sup> involve the planting of shrubs and trees as part of arable or pastoral farmlands. The issue of land rights, ownership, and tenure can pose a challenge to implementation of this measure: the operators of a piece of land may not own it and may have limits on the measures that they can take. Land rights, ownership, and tenure also pose a challenge related to permanence: it may be challenging to transfer obligations to maintain shrubs and trees to future owners or operators of a piece of land.

**Reduced soil compaction**<sup>5</sup> by managing vehicle traffic over farmland soils can mitigate climate change. The issue of land rights, ownership, and tenure is unlikely to pose a challenge to implementing this measure. However, they do pose a challenge for permanence, as it may be difficult to transfer obligations to maintain the measure to later land owners/operators, and a reversal of this action can undo any emissions reductions/sequestration.

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<sup>4</sup> See factsheets on silvoarable and silvopastoral agroforestry, available at [www.umweltbundesamt.de/publikationen/Role-of-soils-in-climate-change-mitigation](http://www.umweltbundesamt.de/publikationen/Role-of-soils-in-climate-change-mitigation).

<sup>5</sup> See factsheet on reduced soil compaction, available at [www.umweltbundesamt.de/publikationen/Role-of-soils-in-climate-change-mitigation](http://www.umweltbundesamt.de/publikationen/Role-of-soils-in-climate-change-mitigation).

## 4 Relevance for the EU

**EU:** The EU basically does not have the legal competence to regulate actual ownership of land and does so in very limited areas such as conveyancing.<sup>6</sup> However, the EU has addressed aspects of property rights regarding land and soil use for instance in connection with free movement of capital, farmland concentration and so-called land take.<sup>7</sup> Indirectly, EU legislation and other measures such as agricultural subsidies affect and influence in particular how agricultural land is used in the EU.

**Member States:** Land rights, tenure, and ownership are generally regulated at the Member State level, meaning that there can be significant differences in approaches across EU countries.

## 5 Addressing challenges

While land rights, ownership, and tenure are challenges that go far beyond climate-friendly soil funding mechanisms, the latter can be significantly affected and should take these aspects into account. The challenge this poses is illustrated by the difficulty of defining theoretical frameworks for analysing and addressing not only the link between land use rights and agricultural practices generally, but also climate change (Bartkowski et al. 2021; Murken and Gornott 2022). With regard to security of tenure, while it is frequently mentioned as one important element (Amelung et al. 2020), there is no consensus on what constitutes secure tenure in which context, and land reform efforts have often proven ineffective, slow and at times even harmful (Murken and Gornott 2022). Only a fraction of investments by multilateral development banks are said to aim at increasing land tenure security (Kukkonen & Pott 2019). A number of international instruments address and provide guidance on land rights, although they differ significantly in how specifically they address the link to soil protection and climate change:

In the **climate regime**, neither the UNFCCC nor the Kyoto Protocol explicitly mention land rights or indigenous peoples. Land tenure issues were mentioned very rarely as an issue in the context of the Clean Development Mechanism and REDD+.<sup>8</sup> However, the Paris Agreement (PA) as well as several COP and CMA decisions recognise the role of indigenous peoples.<sup>9</sup> Article 7 PA acknowledges that adaptation action "should be based on and guided by [...], as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems [...]"<sup>10</sup> The decision that adopted the Paris Agreement also established the Local Communities and Indigenous Peoples Platform for the sharing of best practices on mitigation and adaptation.<sup>11</sup> Recent decisions more specifically acknowledge "the important role" of indigenous peoples in addressing and responding to climate change and urge parties to involve them.<sup>12</sup> While none of these instances establish clear obligations for parties, they nevertheless mark a shift towards political recognition of these actors. For instance, in 2018 the Green Climate Fund adopted a decision setting out its approach to incorporating the circumstances of indigenous peoples,

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<sup>6</sup> Art. 345 TFEU provides that the "Treaties shall in no way prejudice the rules in Member States governing the system of property ownership". On areas of EU property law see chapter 13 of Sparkes et al. (2016) and van Erp (2020).

<sup>7</sup> For further information see Stankovics et al. (2020) and the Commission Interpretative Communication on the Acquisition of Farmland and European Union Law, C/2017/6168, OJ C 350, 18.10.2017, p. 5–20.

<sup>8</sup> For example, to be addressed as a socio-economic impact of a CDM activity, decision 5/CMP.1, Appendix C; Decision 1/CP.16, para 72.

<sup>9</sup> See for example the preamble to the Paris Agreement, that parties "should, when taking action to address climate change, respect, promote and consider their respective obligations on [...] the rights of indigenous peoples", repeated e.g. in 2021 in the preamble to decision 1/CMA.3. The same wording also appears in the preamble to the decision that adopts the Paris Agreement, decision 1/CP.21. The last preambular paragraph of this decision also lists indigenous peoples among the non-party stakeholders.

<sup>10</sup> See article 7.5 Paris Agreement, reiterated in decision 7/CMA.3, preamble.

<sup>11</sup> See decision 1/CP.21, para 135; 2/CP.23, 2/CP.24, 16/CP.26. On its history see Riedel and Bodle (2018). The platform's web portal is located at <https://lcipp.unfccc.int/homepage>. For the work plan 2022-204 see FCCC/SBSTA/2021/1, annex IV.

<sup>12</sup> See decision 1/CMA.3, preamble, para 88 and 93 and also paragraph 62 regarding loss and damage; 7/CMA.3 para 9

including land rights, into decision-making (Green Climate Fund 2019). In addition, the guidance for the mechanisms under article 6.2, 6.4 and 6.8 refers to indigenous peoples. In particular, activities under article 6.4 have to undergo some form of local and subnational consultation also in relation to local communities and indigenous peoples.<sup>13</sup>

The **IPCC Special Report on Land** lists tenure reform as one of the "proven measures that facilitate implementation of practices that reduce, or reverse land degradation" (IPCC 2019). However, in a more nuanced section, the IPCC also recognises that "[l]and tenure systems have implications for both adaptation and mitigation, which need to be understood within specific socio-economic and legal contexts, and may themselves be impacted by climate change and climate action" (IPCC 2019). It states medium confidence that land titling and recognition programmes, particularly those that authorise and respect indigenous and communal tenure, can lead to improved management of forests, including for carbon storage (IPCC 2019).

The **Sustainable Development Goals** of 2015 aim at equal rights for all men and women to ownership and control over land, with a particular focus on reforms aimed at women. The SDGs also specifically mention "secure and equal access to land" as one of the means to achieve SDG 2.3: "By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers...".

With regard to public policies and planning, the non-binding **World Soil Charter**, as revised in 2015, recommends addressing land-tenure structures that constitute obstacles to sound soil management (FAO 2015; Bodle et al. 2020).

The 2003 **Maputo Convention**, a regional treaty by the African Union, formulates more detailed requirements for the implementation of agricultural practices (African Union 2003). Parties are required to develop and implement land tenure policies that can facilitate the measures to prevent land degradation and to conserve and improve the soil (Bodle et al. 2020).

In 2012 the **UN Food and Agricultural Organisation** (FAO) endorsed the "Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests" (VGGT) (FAO 2012).<sup>14</sup> The VGGT were subsequently promoted by the G8, G20, Rio+20, and other bodies, including large multinational corporations (Bodle et al. 2020). They do not mention "soils" explicitly, and only briefly address the governance of land tenure in the context of climate change, mainly emphasising that states should protect tenure rights and the importance of participation in negotiating and implementing mitigation and adaptation programmes (FAO 2012).

The **FAO's "Voluntary Guidelines for Sustainable Soil Management"** recognise the role of sustainable soil management in addressing climate change and refer to securing land tenure under the VGGT as one element of promoting sustainable soil management (FAO 2017).

## 6 Relevant literature

African Union (2003) Revised African Convention on the Conservation of Nature and Natural Resources, Maputo, 11 July 2003. <https://au.int/en/treaties/african-convention-conservation-nature-and-natural-resources-revised-version>

Akram, Nida, Muhammad Waqar Akram, Hongshu Wang, and Ayesha Mehmood (2019) "Does Land Tenure Systems Affect Sustainable Agricultural Development?" Sustainability 11: 1–15.

Amelung, W., D. Bossio, W. de Vries, I. Kögel-Knabner, J. Lehmann, R. Amundson, R. Bol, et al. (2020) "Towards a Global-Scale Soil Climate Mitigation Strategy." Nature Communications 11, no. 1: 5427.

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<sup>13</sup> See decision 1/CMA.3, annex para 31(e). See also the (softer) provisions in decision 3(CMA.3, preamble, para 5(h), annex para 24(ix); 4/CMA.3, preamble, annex para 3(e)

<sup>14</sup> Endorsed by the FAO's Committee on World Food Security, see <https://www.fao.org/tenure/voluntary-guidelines/en/>.

- Bartkowski, Bartosz, Stephan Bartke, Nina Hagemann, Bernd Hansjürgens, and Christoph Schröter-Schlaack (2021) "Application of the Governance Disruptions Framework to German Agricultural Soil Policy." *SOIL* 7, no. 2: 495–509.
- Bodle, Ralph, Heidi Stockhaus, Franziska Wolff, Cara-Sophie Scherf, and Sebastian Oberthür (2020) "Improving International Soil Governance – Analysis and Recommendations." Dessau-Roßlau: Umweltbundesamt.
- FAO (2012) Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. FAO. ISBN 978-92-5-107277-6. <https://www.fao.org/3/i2801e/i2801e.pdf>, accessed 23.05.2012
- FAO (2015) Revised World Soil Charter. Rome, Italy: FAO. At <https://www.fao.org>.
- FAO (2017) Voluntary Guidelines for Sustainable Soil Management. FAO, Rome, Italy. <https://www.fao.org/3/i6874en/i6874EN.pdf>, accessed 23.05.2022
- Green Climate Fund (2019) Green Climate Fund Board decision B.19/11, 01.03.2018, <https://www.greenclimate.fund/decision/b19-11>.
- Hannam, Ian (2018) "Governance of Pastoral Lands." In Harald Ginzky, Elizabeth Dooley, Irene L. Heuser, Emmanuel Kasimbazi, Till Markus, and Tianbao Qin, eds. *International Yearbook of Soil Law and Policy 2017 International Yearbook of Soil Law and Policy* Cham: Springer International Publishing. At [https://doi.org/10.1007/978-3-319-68885-5\\_7](https://doi.org/10.1007/978-3-319-68885-5_7), accessed May 14, 2021.
- Hijbeek, R., A. A. Pronk, M. K. van Ittersum, H.F.M. ten Berge, J. Bijttebier, and A. Verhagen (2018) "What Drives Farmers to Increase Soil Organic Matter? Insights from the Netherlands." Edited by Fiona Nicholson *Soil Use and Management* 34, no. 1: 85–100.
- Intergovernmental Panel on Climate Change (IPCC) (2019) "Climate Change and Land: An IPCC Special Report on Climate Change, Desertification, Land Degradation, Sustainable Land Management, Food Security, and Greenhouse Gas Fluxes in Terrestrial Ecosystems." At <https://www.ipcc.ch/srccl/>.
- Kamunde-Aquino, Nelly (2018) "Who Owns Soil Carbon in Communal Lands? An Assessment of a Unique Property Right in Kenya." In Harald Ginzky, Elizabeth Dooley, Irene L. Heuser, Emmanuel Kasimbazi, Till Markus, and Tianbao Qin, eds. *International Yearbook of Soil Law and Policy 2017 International Yearbook of Soil Law and Policy* Cham: Springer International Publishing.
- Kukkonen, M., and L Pott (2019) Why the fight against climate change depends on secure land tenure - blogpost. World Bank Blogs. At <https://blogs.worldbank.org/sustainablecities/why-fight-against-climate-change-depends-secure-land-tenure>, accessed May 23, 2022.
- Murken, Lisa, and Christoph Gornott (2022) "The Importance of Different Land Tenure Systems for Farmers' Response to Climate Change: A Systematic Review." *Climate Risk Management* 35: 100419.
- Richardson, Jesse J. (2018) "Uncertainty of Land Tenure and the Effects of Sustainability If Agriculture in the United States." In Harald Ginzky, Elizabeth Dooley, Irene L. Heuser, Emmanuel Kasimbazi, Till Markus, and Tianbao Qin, eds. *International Yearbook of Soil Law and Policy 2017 International Yearbook of Soil Law and Policy* Cham: Springer International Publishing. At [https://doi.org/10.1007/978-3-319-68885-5\\_8](https://doi.org/10.1007/978-3-319-68885-5_8), accessed May 18, 2022.
- Riedel, Arne, and Ralph Bodle (2018) "Local Communities and Indigenous Peoples Platform - Potential Governance Arrangements under the Paris Agreements." *TemaNord 2018:527* Copenhagen: Nordic Council of Ministers. At [www.norden.org/nordpub](http://www.norden.org/nordpub).
- Schmeichel, Andrea (2018) "Import Regulations and Certification as a Means to Enforce Sustainable Agriculture Abroad." In Harald Ginzky, Elizabeth Dooley, Irene L. Heuser, Emmanuel Kasimbazi, Till Markus, and Tianbao Qin, eds. *International Yearbook of Soil Law and Policy 2017 International Yearbook of Soil Law and Policy* Cham: Springer International Publishing. At [https://doi.org/10.1007/978-3-319-68885-5\\_10](https://doi.org/10.1007/978-3-319-68885-5_10), accessed May 14, 2021.

Sparkes, Peter, Dilsen Bulut, Magdalena Habdas, Mark Jordan, Hector Simon Moreno, Sergio Nasarre Aznar, Tommi Ralli, and Christoph Schmid (2016) Cross Border Acquisitions of Residential Property in the EU: Problems Encountered by Citizens. Brussels: European Parliament.

Stankovics, Petra, Luca Montanarella, Piroska Kassai, Gergely Tóth, and Zoltán Tóth (2020) "The Interrelations of Land Ownership, Soil Protection and Privileges of Capital in the Aspect of Land Take." Land Use Policy 99: 105071.

van Erp, Sjef (2020) "European Property Law: Competence, Integration, and Effectiveness." In Ronit Levine-Schnur, ed. Measuring the Effectiveness of Real Estate Regulation: Interdisciplinary Perspectives Cham: Springer International Publishing.

UN General Assembly (2015) "UNGA Res. 70/1 'Transforming Our World: The 2030 Agenda for Sustainable Development', A/RES/70/1." Available at [https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A\\_RES\\_70\\_1\\_E.pdf](https://www.un.org/en/development/desa/population/migration/generalassembly/docs/globalcompact/A_RES_70_1_E.pdf).

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