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Land and climate change: the relevance of spatial data

Uchendu Eugene Chigbu

Namibia University of Science & Technology /
Global Land Tool Network (UN-Habitat)



1. Land and climate change scenario.
2. Land and climate change relationships.
3. The land use paradox - a peek into the land and climate bringing land tenure perspective to climate action.
4. Climate action – a land governance or tenure rearrangements for climate adaptation or mitigation.
5. Why geospatial data matters.
6. The sources of land tenure data.

Lake Chad – the vanishing lake in the West and Central Africa



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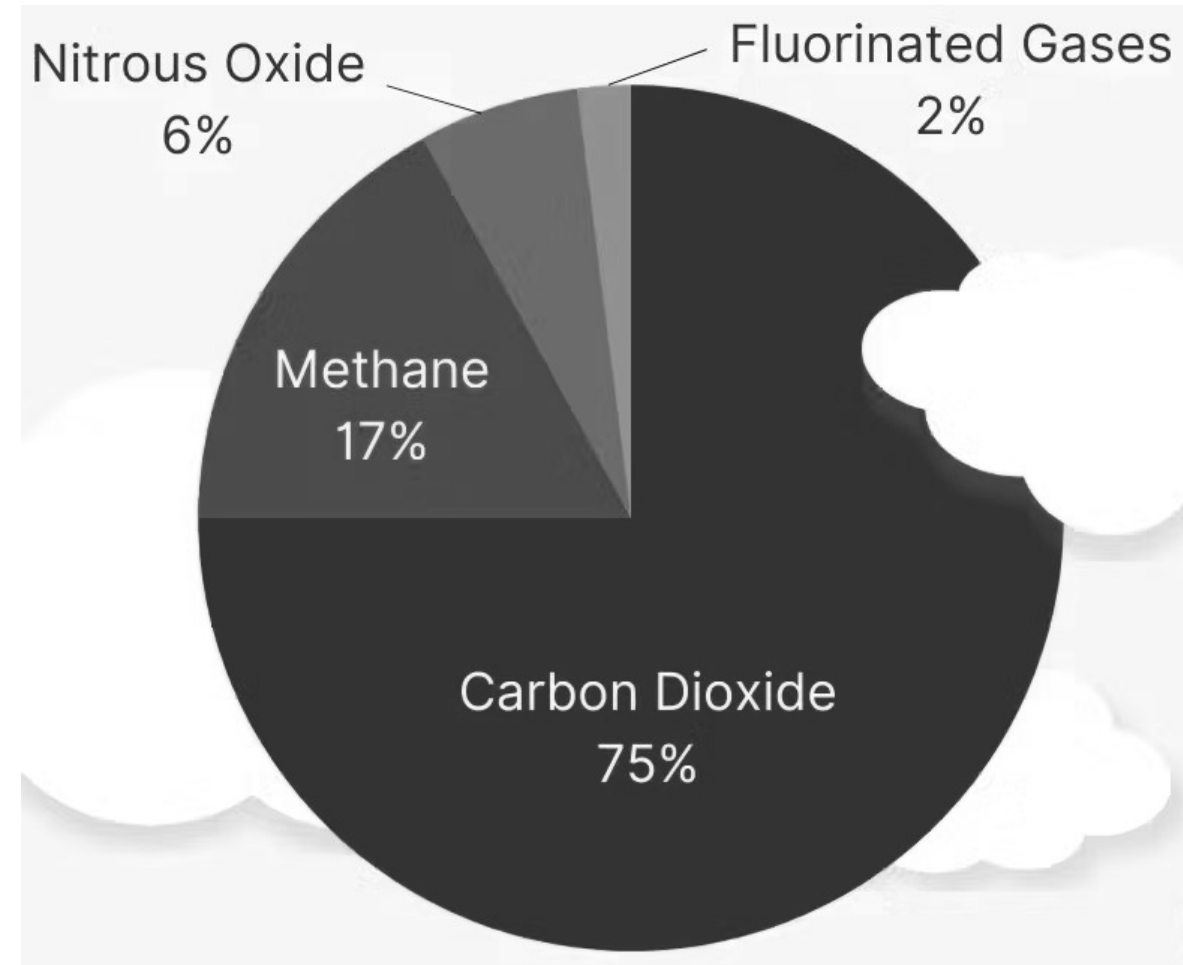
- From 1960s to present day: Lake Chad receded from 25,000 square km in the 1960s to between 20,000 square km and 14,000 square km (depending on the season) over the last 50 years.



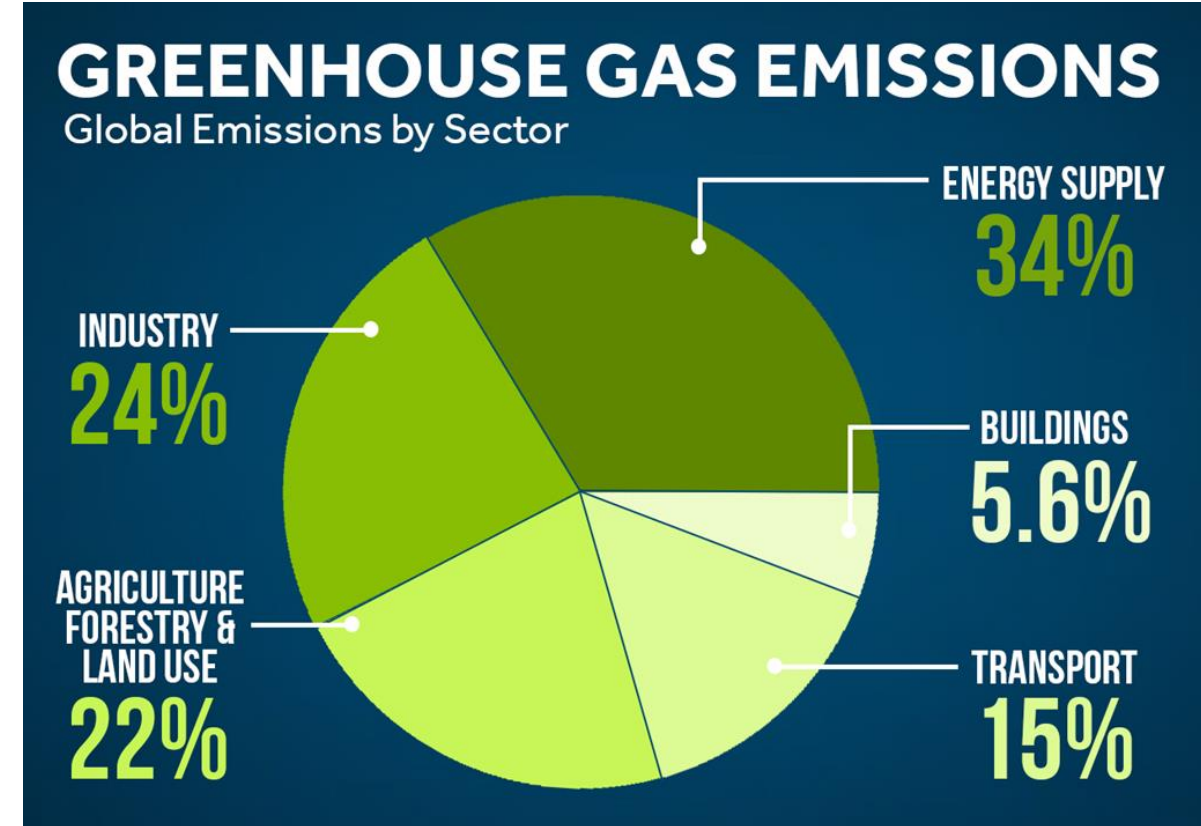
Lake Chad's 6 November 1984 (US Landsat 5 satellite) and on 31 October 2018 (Copernicus Sentinel data) images (US/European Space Agency, 2019) CC BY-SA 3.0 IGO

- Land stores 3 times as much CO₂ as the atmosphere.
- 98% of CO₂ stored on land is in forests and cropland while 2% is in deserts and grazing land.
- Approximately 2.6 billion tonnes of carbon dioxide (one-third of the CO₂ released from other sources), is absorbed by forests every year.

Climate healers (2023) & IPCC (2019)



- Land sector: Energy, industry, transport, buildings, agriculture, forests and other land uses are among the main origin of the GHGs emissions.
- About 77% of the agricultural land on the planet is directly used for raising animals.
- About 23% is used for raising crops.
- Since half of the crops are fed to animals, animal agriculture accounts for more than 86% of the agricultural land area on earth.



Climate healers (2023) & IPCC (2019)



- Raring livestock requires more than 80 per cent of agricultural land globally while producing less than 20 per cent of calories. Depending on where one is located, both crop and animal farming lead to massive bush-clearing.
- **How do we compromise the future of livestock farming (even though it is central to the survival of millions of people) to reduce methane emission?**



- 饲养牲畜需要全球 80% 以上的农业用地，而产生的热量却不到 20%。根据地点不同，农作物种植和畜牧业都会导致大规模的灌木砍伐。
- **为了减少甲烷排放，我们该如何牺牲畜牧业的未来（尽管它对数百万人的生存至关重要）？**



- Cattle is the leading driver of deforestation in the Amazon region of South America, followed by soybean (a crop also cultivated for feeding chickens and pigs).
- **How do we reduce cattle rearing to conserve land while hoping to produce enough meat for the daily calorie needs of current and future populations?**



- 牛是南美洲亚马逊地区森林砍伐的主要驱动力，其次是大豆（一种也用于喂鸡和喂猪的作物）。
- **我们如何减少养牛以保护土地，同时又希望生产足够的肉类来满足当前和未来人口的日常热量需求？**



- Humanity must reduce agricultural land use to conserve forests and mitigate climate change. Nevertheless, we must produce more food to feed a growing population.
- **How are governments of hungry citizens expected to put policies in place to ban deforestation (since every parcel of farmland is essential for producing more food and conserving animal and plant species)?**

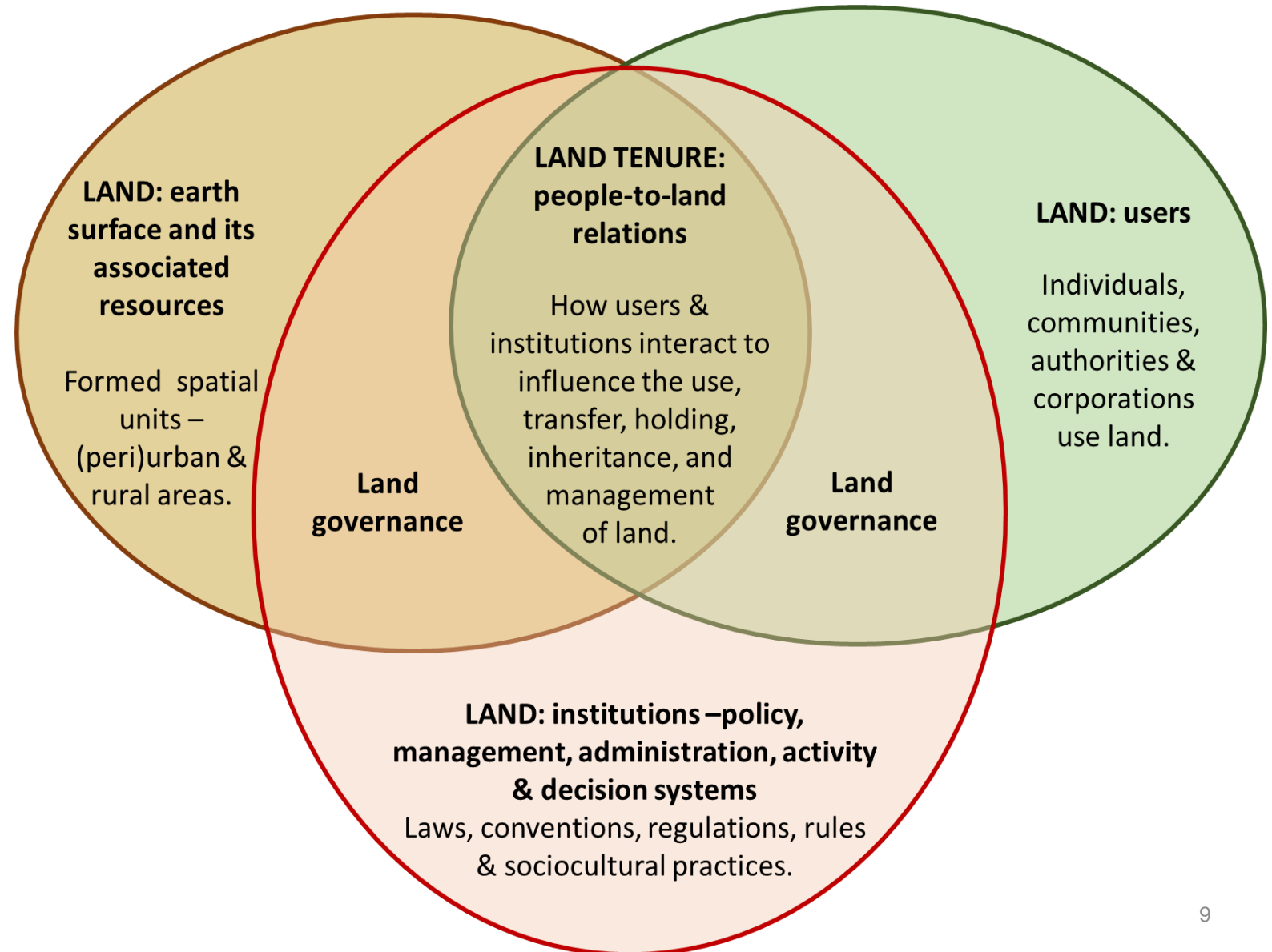


- 人类必须减少农业用地的使用，以保护森林和减缓气候变化。然而，我们必须生产更多的粮食来养活不断增长的人口。
- **公民缺少粮食，政府又如何制定政策去禁止砍伐森林呢（因为每块农田对于生产更多粮食和保护动植物物种都是至关重要的）？**

Land tenure nexus of the climate governance



- Land tenure is about people-to-land relationships.
- Addressing vulnerability will depend on how individuals, corporations, communities and countries use their land.
- Mitigation and adaptation of climate change effects depend on how the land-to-people relationships (land tenure) are managed and/or addressed (i.e., land governance).
- **Capacity to cope, adapt, and recover from climate change depends on land tenure.**



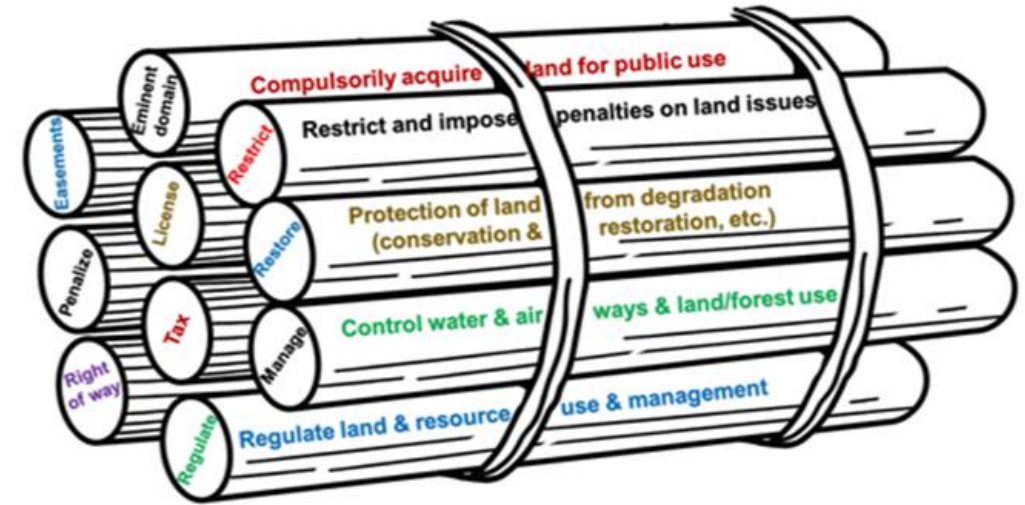
Land governance means rearranging bundles of rights for climate change or restoration

土地治理会重组和管理一系列权利，会促进或阻碍气候变化或土地修复

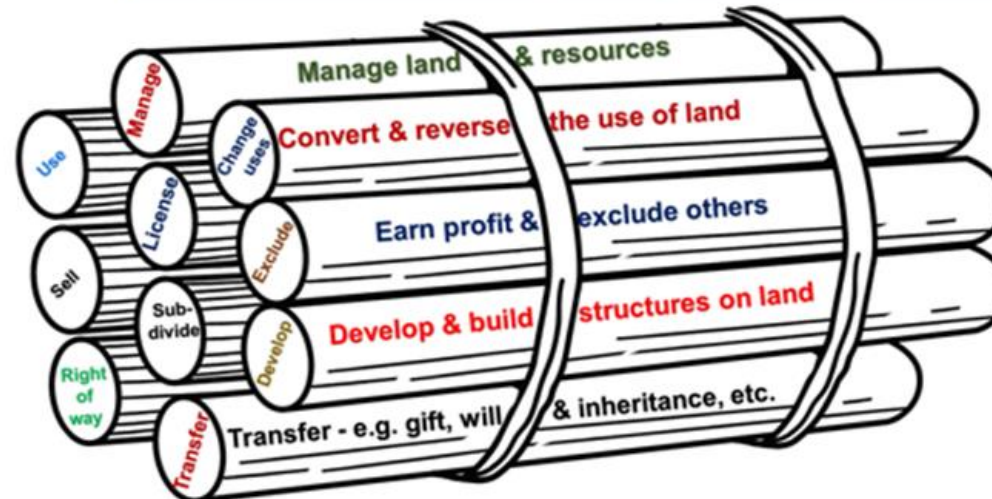


- Climate change effects have plenty to do with managing bundle of forestland tenure rights
- Rights on forest/land evolve depending on culture, practices and mechanisms for coping with challenges.
- **How people exercise their bundles of land rights matters for climate change.**

Typical bundle of rights that **governments** can have on land



Rights on land **evolve** depending on culture, practices and mechanisms for coping with challenges



Typical bundle of rights that **individuals and groups** can have on land

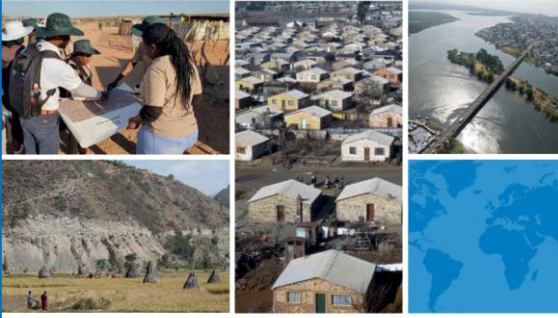
Emerging land governance tools for climate action



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REPORT 5 / 2021




TENURE-RESPONSIVE LAND USE PLANNING

A PRACTICAL GUIDE FOR COUNTRY-LEVEL INTERVENTION


A WORLD IN WHICH EVERYONE ENJOYS SECURE LAND RIGHTS




GLOBAL LAND OUTLOOK
Working Paper



STRENGTHENING TENURE AND RESOURCE RIGHTS FOR LAND RESTORATION




REPORT 3 / 2021

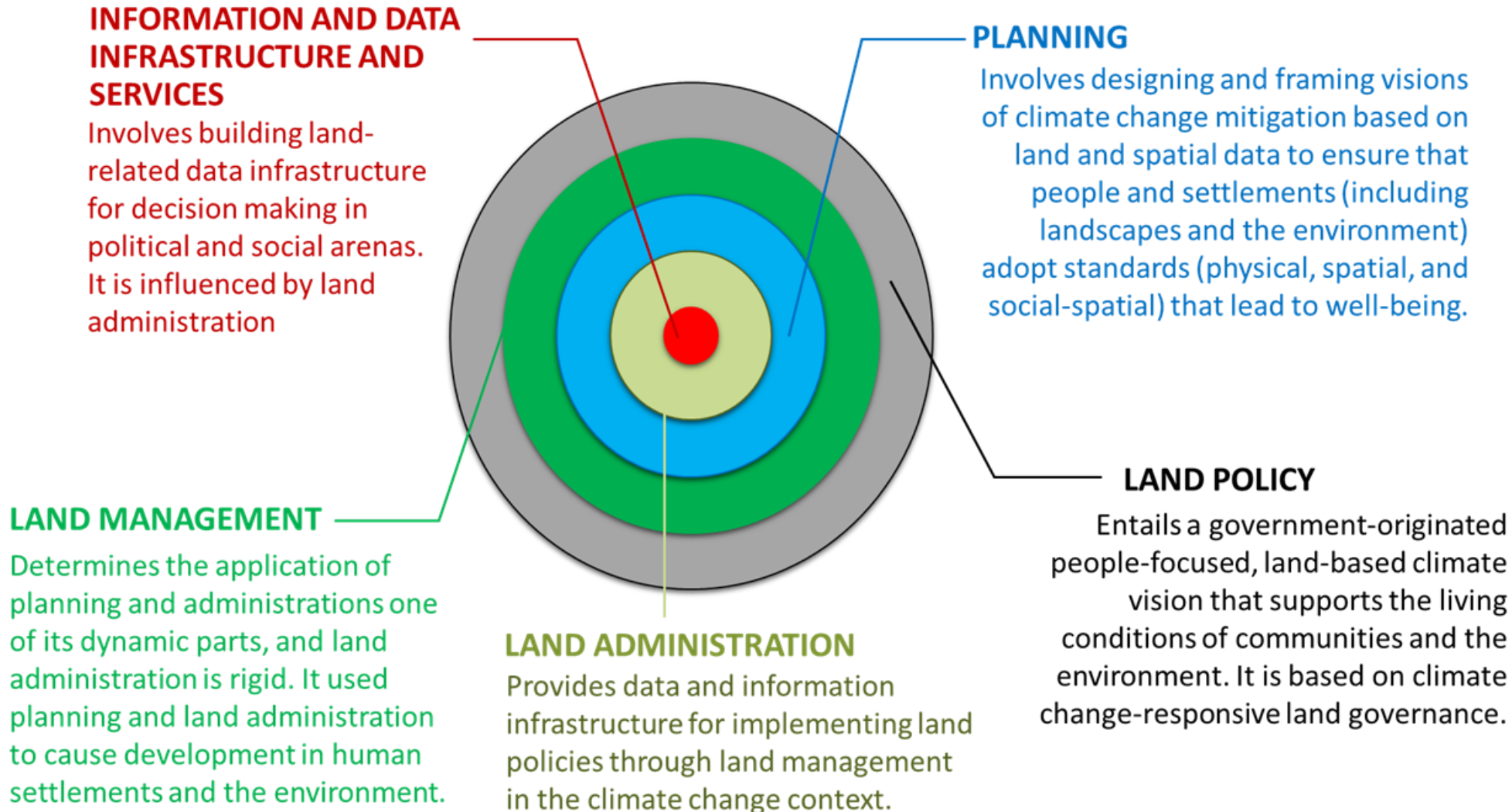


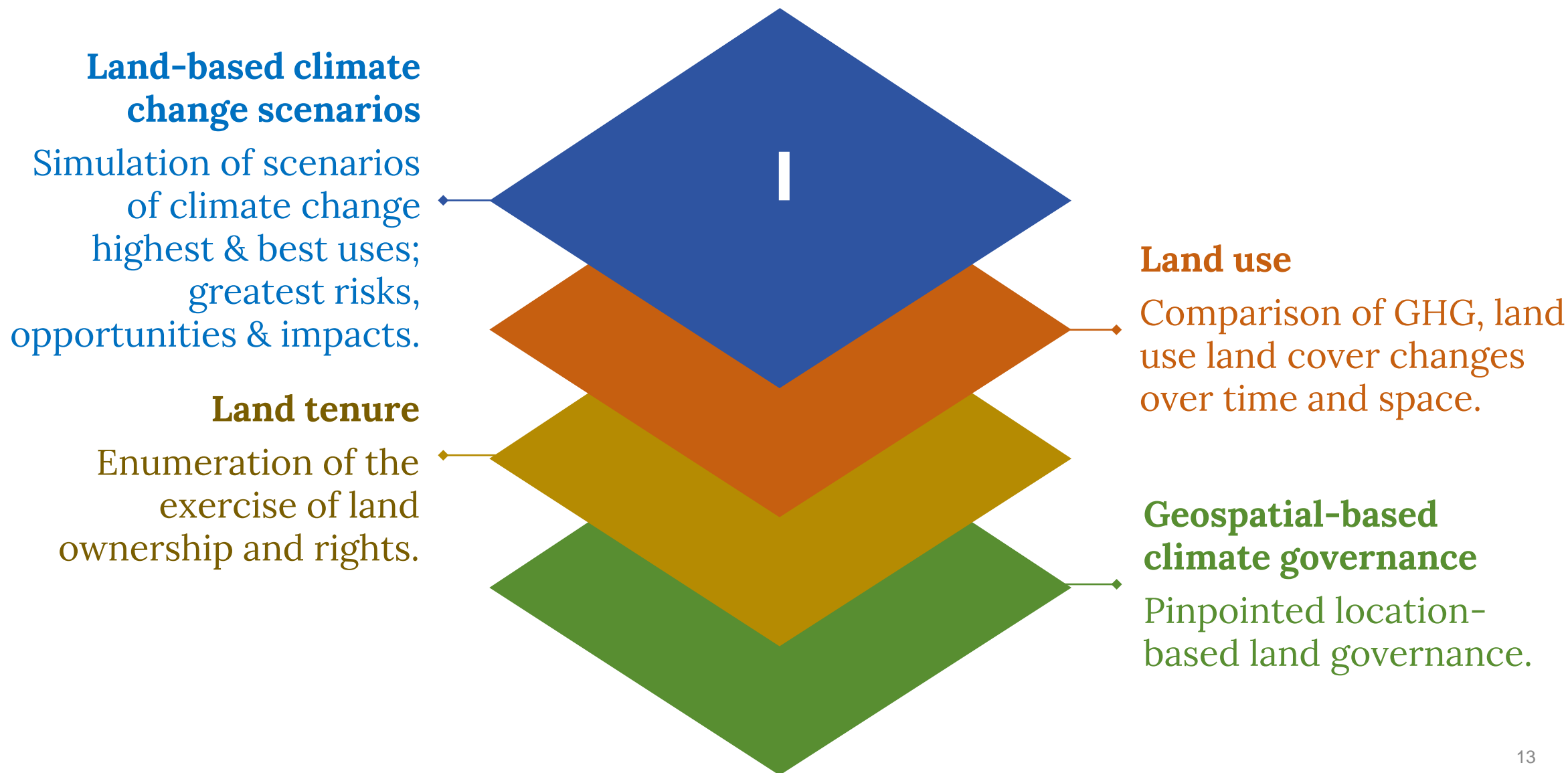
URBAN-RURAL LAND LINKAGES: A CONCEPT AND FRAMEWORK FOR ACTION

A world in which everyone enjoys secure tenure rights



Any land governance-based framework for climate action will depend on spatial data





- Population affected by land and housing property insecurity (and where).
- Map of tenure insecurity for land and housing property.
- Change in perceptions between 2020 and 2024.
- The largest drop and highest rise in tenure security.
- Levels of tenure documentation.
- Reasons for tenure insecurity.
- Tenure insecurity across forms of tenure and property types.
- Location of the main property from which tenure is derived in urban or rural areas.
- Tenure insecurity and socio-demographics – gender, etc.



Prindex

Measuring global perceptions
of land and property rights

**Prindex is launching land tenure report for
108 countries**



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THANK YOU