



**LAND MANAGEMENT, ENVIRONMENT & SOLID-WASTE:
INSIDE EDUCATION AND BUSINESS IN CENTRAL ASIA
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MICRO-CREDENTIAL

LAND MANAGEMENT IN CENTRAL ASIA

5.- Land Use Concept and Forms

Concept and Forms of Land Use
PDF W05



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1. SUMMARY OF KEY IDEAS

Land use refers to the way humans utilize land resources for different purposes such as agriculture, industry, housing, and recreation.

It reflects the interaction between human activities and the natural environment.

Land use is influenced by physical factors (soil, climate, topography) and socio-economic factors (population, technology, policies).

The main forms of land use include agricultural, industrial, residential, commercial, transportation, forestry, and recreational uses.

Improper land use can lead to environmental problems such as land degradation, pollution, and loss of biodiversity.

Sustainable land use aims to balance economic development with environmental protection.

2. LEARNING OBJECTIVES

By studying this topic, learners should be able to:

1. Define the concept of land use and explain its importance.
2. Identify and describe different forms of land use.
3. Understand the factors influencing land use patterns.
4. Analyze the environmental impacts of various land use practices.
5. Explain the principles of sustainable and efficient land use planning.

3. INTRODUCTION

Land use is a key concept in geography, environmental science, and land management. It describes how land is utilized by humans to meet their needs, including food production, shelter, transportation, and economic activities. The pattern of land use varies across regions depending on natural conditions such as soil fertility, climate, and terrain, as well as human factors like population density, economic development, and government policies.

Over time, land use has changed significantly due to technological progress and population growth. These changes have increased pressure on land resources, often resulting in environmental challenges. Therefore, understanding the concept and forms of land use is essential for planning and managing land in a sustainable and efficient way.

4. DEFINITION OF LAND USE

How humanity chooses to use the land beneath our feet defines the health of our planet, the strength of our economies, and the quality of our lives. This presentation explores the definition, categories, impacts, and future of land use — one of the most consequential decisions we make as a society. Before we can manage, protect, or improve our landscapes, we must first understand what land use means — and why it matters more than most people realize.

Land use describes the **human activities and purposes** for which a parcel of land is utilized. It encompasses the benefits derived from land and the management actions humans undertake to shape and maintain it.



Figure 1. Land

Land use is fundamentally about the *purpose* of the land — not just its current physical state. A plot of land may look green and natural, yet serve radically different human functions depending on how it is managed and what goals it serves. Refers to the **physical characteristics** of the land's surface — what you can observe or measure. Examples include forest, grassland, bare soil, wetland, and open water.

Refers to the **human purpose or activity** associated with that land cover — how people are using and managing it. Examples include forestry, agriculture, conservation, and recreation.

The same forested landscape can serve entirely different human purposes. Whether it is managed for commercial timber, protected as a wildlife sanctuary, or opened for public recreation — the **cover** remains a forest, but the **use** tells a very different story.

Land use is not a single category — it is a rich spectrum of human activities, each with its own ecological footprint, economic value, and social role.

From above, agricultural land reveals its stunning complexity — a mosaic of cultivated rows, lush pastures, and orchards stretching across the countryside. Each patch of color represents a distinct human decision about how best to use the soil beneath.

Indigenous land rights remain especially vulnerable. Despite international frameworks like the UN Declaration on the Rights of Indigenous Peoples, ancestral territories are frequently **overlooked, encroached upon, or seized** for commercial development.

5. FORMS OF LAND USE

Before we can manage land wisely, we must understand what it truly is — a complex, living resource that underpins all human civilization and natural life on Earth.

Land is far more than the ground beneath our feet. It encompasses the full spectrum of the Earth's surface — its natural terrain, the water bodies that cover it, and both the renewable and nonrenewable resources embedded within it. Human improvements such as drainage systems, terracing, and infrastructure are also considered part of land.

Even aquaculture ponds and submerged coastal zones are classified as land, reflecting a definition that is as broad as it is essential to modern planning and policy.

Refers to **what people do** on the landscape — the human activities and purposes assigned to a given area. Examples include agriculture, commerce, residential settlement, recreation, and conservation. Land use reflects intent and socioeconomic function.

Refers to the **physical material present** on the land's surface — crops, forests, water bodies, bare soil, or built structures. Land cover is observable and measurable, serving as a key indicator and proxy for land use in remote sensing and mapping.

Classification systems give planners, governments, and communities a shared language to manage land effectively — and to protect it from misuse.

Land classification is not a bureaucratic exercise — it is a vital tool for ensuring the responsible stewardship of one of our most finite resources. Without clear classification systems, uncontrolled development consumes prime agricultural land, ecosystems are degraded without awareness, and communities lose the green spaces that sustain quality of life.

Accurate classification enables government agencies to share consistent data, coordinate planning initiatives, and make evidence-based decisions that balance development with conservation for generations to come.

6. LAND USE RIGHTS

Before we can secure land rights for all, we must understand the systems, pressures, and competing interests that shape how land is governed — and who ultimately benefits.

Feeding a growing global population requires vast and protected farmland, yet agricultural land is increasingly lost to urban expansion and infrastructure development.

Roads, utilities, and public services are essential for development, yet their expansion often displaces communities and fragments ecosystems.

Rapidly growing urban populations demand affordable, accessible housing — placing immense pressure on land near economic centers.

By 2030, the majority of humanity will live in cities. This historic transition brings opportunity — but also enormous risk. Urban growth in developing countries frequently outpaces the capacity of governments to plan and deliver services.

In Southern Asia and Sub-Saharan Africa, over half of all urban residents live in informal settlements — without legal recognition or basic infrastructure.

More than one billion people worldwide currently reside in slum conditions, a figure that continues to grow as urbanization accelerates. Sustainable development demands that we integrate the needs of growing cities with the fundamental right of every person to secure land. Planning without tenure security is planning without people.

Acknowledging the gap is only the first step. This chapter explores how a new generation of tools and frameworks is working to make land use planning genuinely responsive to the tenure needs of all people — particularly the most vulnerable.

Traditional land use planning focuses on zoning and spatial efficiency — but often ignores who actually holds rights over land. Tenure responsive planning bridges this divide by making land rights a central component of every planning decision.

By explicitly integrating tenure security into spatial planning processes, governments can prevent forced evictions, formalize informal settlements, and build inclusive urban environments that work for everyone.

This approach recognizes that secure land rights are not a luxury — they are a foundation for health, economic participation, and human dignity. Planning must reflect this reality.

7. LAND USE AS A PROCESS

Every decision about how we use land — whether to build, conserve, cultivate, or restore — shapes the communities and ecosystems we inhabit. This chapter lays the groundwork by exploring what land truly is, what it represents, and why its management demands such careful thought.

Land use planning is a systematic, government-led process for regulating how land is developed, conserved, and managed — with the ultimate goal of achieving desirable social, environmental, and economic outcomes for communities both today and in the future.

At its core, land use planning is a tool for ensuring the most efficient and equitable use of a finite resource. It weighs competing demands — housing, agriculture, industry, conservation — and charts a course that serves the broadest public interest while protecting what cannot be replaced.

Land supports all life. It is endowed with natural assets above ground, beneath the surface, and even in the airspace above — from minerals and groundwater to forests and biodiversity.

Land is a legally recognized asset. Ownership confers rights — including the right to use, transfer, lease, or exclude others — making it central to economic systems and personal wealth.

Land ownership is not a single, absolute right — it is best understood as a **bundle of sticks**, each stick representing a distinct right: the right to use, to develop, to lease, to sell, to exclude others, or to bequeath. Owners may hold all of these rights, or only some of them.

This bundle can be shaped and constrained by both **public rules** — zoning ordinances, environmental regulations, eminent domain — and **private agreements** such as easements, deed restrictions, and covenants. Understanding which rights apply to a parcel is essential before any land use decision can be made.

Effective land use planning is not a single event — it is a structured, iterative process that moves from vision to analysis, from alternatives to decisions, and from adoption to action. This chapter walks through each essential phase. Every planning effort begins with defining *what success looks like*. This means articulating goals that reflect community aspirations — for housing, economic vitality, environmental health, social justice, and the conservation of irreplaceable resources. Without a shared vision, the process lacks direction and accountability.

Terms of reference define the geographic area, timeframe, legal mandate, and stakeholder responsibilities of the planning effort. They establish who is in charge, what questions must be answered, and how decisions will ultimately be made — ensuring transparency from the outset.

Examines soil quality, slope, drainage, proximity to infrastructure, ecological sensitivity, and existing constraints to determine what each land area can sustainably support.

A plan without implementation is just a document. This chapter explores how land use visions are translated into tangible action — through phased development processes, smart growth tools, community participation, and the ongoing monitoring that keeps plans relevant over time.

8. LAND USE AND PRODUCTION

A comprehensive exploration of how humanity manages its most precious resource — land — to sustain a rapidly growing global population while navigating economic, environmental, and political pressures.

Before we can understand the future of food production, we must understand the foundation — the land itself. This chapter examines how agricultural land is distributed, utilized, and structured across the globe, with a particular focus on the United Kingdom as a case study in modern land management.

The world's agricultural footprint is surprisingly stable. Total Utilised Agricultural Area (UAA) has remained between **17–18 million hectares globally** since the year 2000 — a remarkable plateau given population growth. This means that productivity, not expansion, is driving most output gains.

In the UK, agriculture commands an outsized share of the landscape: **17 million hectares**, representing **69% of the total landmass** as of 2024. The average UK farm covers 80 hectares, yet nearly half of all farms fall under 20 hectares — highlighting a landscape shaped by smallholders and family operations as much as large commercial enterprises.

Per capita cereal demand is projected to rise significantly by 2050, but the growth is far from uniform. Developing regions — particularly in Sub-Saharan Africa and South Asia — are driving the steepest increases as populations grow and diets diversify toward more grain-based calories.

Developed regions show slower growth as consumption patterns mature. The critical challenge lies in ensuring that key producing regions — the US Corn Belt, the Eurasian steppe, and South American breadbaskets — can reliably deliver these production increases year after year.

Rising incomes in developing nations are fueling a global shift toward protein-rich diets. Meat consumption is projected to climb substantially by 2050, placing enormous additional pressure on land resources — not just for grazing, but for the feed crops that underpin industrial livestock systems.

Producing 1 kg of beef requires roughly **7–10 kg of grain feed** and up to **15,000 liters of water**. As East Asia and Latin America increase consumption fastest, the land implications are staggering — demanding smarter, more efficient production systems across the entire protein supply chain.

Agricultural land does not exist in a vacuum. Economic forces, energy policy, global trade, and a changing climate all reshape how land is used from year to year and decade to decade. Understanding these drivers is essential to anticipating where — and how — production will evolve.

9. SOCIAL ASPECTS OF LAND USE

A Foundation of Society — from the first seeds planted in ancient soil to the sprawling cities of today, humanity's relationship with land has been the defining force of civilization.

For most of human history, our ancestors lived nomadic lives — following animals, foraging plants, and moving with the seasons. Everything changed around **10,000 BCE** with the Neolithic Revolution, when communities first learned to cultivate crops and domesticate animals.

For indigenous communities worldwide, land is not merely a resource — it is the living core of spiritual belief, cultural memory, and ancestral heritage. Displacement from ancestral land is not just economic loss; it is an erasure of identity.

Farming, fishing, and forestry communities develop deep social structures shaped by the land they inhabit. Seasonal rhythms, communal labor, and generations of knowledge bind people to place in profound ways.

The Maasai of East Africa have maintained ancestral grazing lands for centuries. Their pastoral system reflects an intimate understanding of landscape ecology, community governance, and cultural continuity — all inseparable from the land itself.

As the global population races toward **9.7 billion by 2050**, cities are expanding at an unprecedented pace, consuming vast tracts of agricultural land, wetlands, and forests. Urban sprawl — the unplanned, low-density outward expansion of cities — doesn't just reshape the physical landscape. It dismantles rural communities, disrupts traditional livelihoods, and strains ecosystems that people depend on for clean water, food, and climate regulation.

The shift from subsistence farming to industrialized production has dramatically increased yields — but at significant ecological and social costs. Monocultures, chemical inputs, and mechanization have transformed rural landscapes and displaced smallholder farmers worldwide.

Insatiable global demand for palm oil, soy, and beef is the primary engine driving deforestation across the Amazon, Congo Basin, and Southeast Asian rainforests — displacing indigenous communities and erasing biodiversity hotspots in the process.

In tropical forests, mining concessions granted by governments transform entire landscapes within months, displacing local and indigenous communities while generating wealth that rarely reaches those who lose their homes. (*Rosero-Añazco et al., Ecology & Society, 2025*)

How land is governed — who owns it, who can use it, and who decides — is perhaps the single most powerful determinant of land use outcomes. **Land consolidation** programs, designed to reduce fragmentation and improve agricultural efficiency, often fail to account for the social fabric of rural communities, displacing smallholders and ignoring customary tenure rights.

Research highlights that equitable outcomes require explicit attention to social dimensions during land consolidation processes. (*de Vries, MDPI, 2022*) Similarly, the structure of **property rights** and land distribution profoundly shapes what gets grown, who benefits, and who bears the costs of land use change. (*Rhemtulla, Ecology & Society, 2016*)

10. LAND USE REVIEW

A comprehensive look at how thoughtful land use planning builds resilient, equitable, and vibrant communities — today and for generations to come.

Before communities can grow wisely, they need a shared vision. This chapter explores the essential tools — comprehensive plans, zoning codes, and land use maps — that form the bedrock of responsible planning.

A Comprehensive Land Use Plan is a proactive, forward-looking document that establishes a long-range vision for a community's growth, character, and future. It is not a rigid rulebook — it is a guiding framework that reflects shared community values and aspirations.

A **vision document** — it articulates aspirations, recommendations, and guiding principles for how a community should grow and evolve over time. It is advisory in nature, providing the "why" and "where" of development.

A **visual guide** depicting the desired long-term pattern of land uses across a community. It shows where future residential, commercial, industrial, and open space uses should ideally be located — and serves as the primary reference for evaluating rezoning requests and development proposals.

A **regulatory map** that assigns every parcel of land within a jurisdiction to a specific zoning district. Each district carries a defined set of rules governing what can be built, how tall, how dense, and how close to property lines. Unlike the future land use map, it is legally binding today.

Land use planning is not a one-time event — it is a continuous cycle of review, engagement, and refinement. This chapter highlights how different jurisdictions approach the process of updating their plans to meet evolving community needs.

Maryland's Critical Area Commission requires that all jurisdictions within the Chesapeake and Atlantic Coastal Bays Critical Area review their **entire program** — including zoning maps and land use policies — at minimum **every six years**. This ensures that protections for sensitive environmental resources remain current, comprehensive, and scientifically grounded.

The review process mandates updated resource inventories to capture changes in land cover, habitat, and development patterns, as well as precise acreage quantification to track gains or losses in protected lands over time.

North Salt Lake's General Plan update centers on revising the community's land use vision based on **seven guiding principles** developed through extensive public engagement and stakeholder collaboration. The process integrates public feedback at every stage to ensure the plan reflects genuine community priorities.

A revised **Future Land Use Map** that clearly defines the desired character, scale, and form of different areas across the city — providing a coherent framework for future development decisions.

11. CONCLUSIONS

Land use is a dynamic and essential aspect of human interaction with the environment. Different forms of land use serve various economic and social needs, but they also have significant environmental impacts. Unsustainable practices can lead to land degradation, pollution, and ecological imbalance.

Effective land use planning and management are necessary to ensure that land resources are used responsibly. By adopting sustainable land use practices, societies can achieve a balance between development and environmental conservation, ensuring the well-being of current and future generations.

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