

# Integrated statistical and geospatial and data for land accounts in Central Asia

3 November 2019

ICT and Disaster Risk Reduction Division



# Overview of the Project

## 1. Objective

- Strengthening capacity on integrating geospatial and statistical data, with a focus on land accounts in Central Asia

## 2. Key Output

- Analytical report
- Action plans to improve land accounts and statistics
- Joint work: Statistics + Geospatial

## 3. Period: May 2019 – September 2021

# Plan of the Project

## 1. 2019

- Analyze national gaps and challenges in using combined statistical and geospatial data related to land account
- Develop a framework based on good cases and models (analytical research)

## 2. 2020

- Conduct pilot project in Uzbekistan or other pilot country
- Expert meetings
- Capacity building trainings

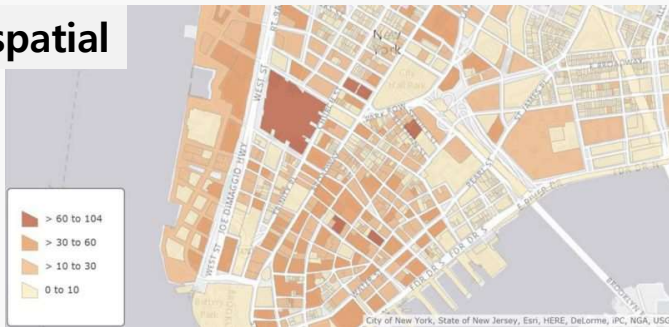
# Inception Regional Workshop

(14-15 Nov, Tashkent, Uzbekistan)

1. Identify needs, challenges and plans of Central Asian countries on the **application of statistical and geospatial data** related to land accounts and statistics;
2. **Share key findings** of assessment on geospatial and statistical data to strengthen land accounts and statistics in Central Asia;
3. Explore existing **frameworks, models and practices on application of geospatial information systems for statistics system and structure**, with the theme on land accounts; and
4. **Share good practices** on the use of combined statistical and geospatial data for monitoring SDG implementation, in particular, on land management and statistics.

# Statistical Geospatial Data

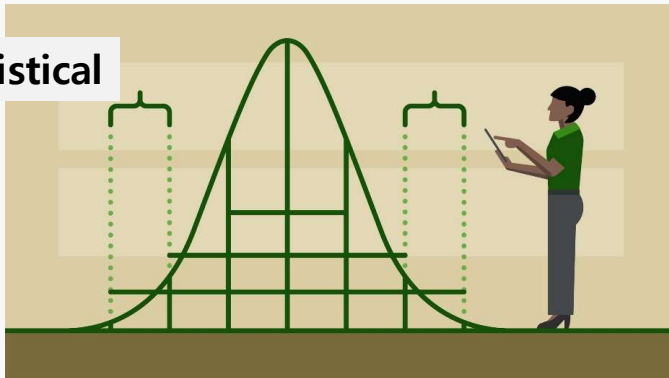
Geospatial



+

=

Statistical



Statistical Geospatial Data



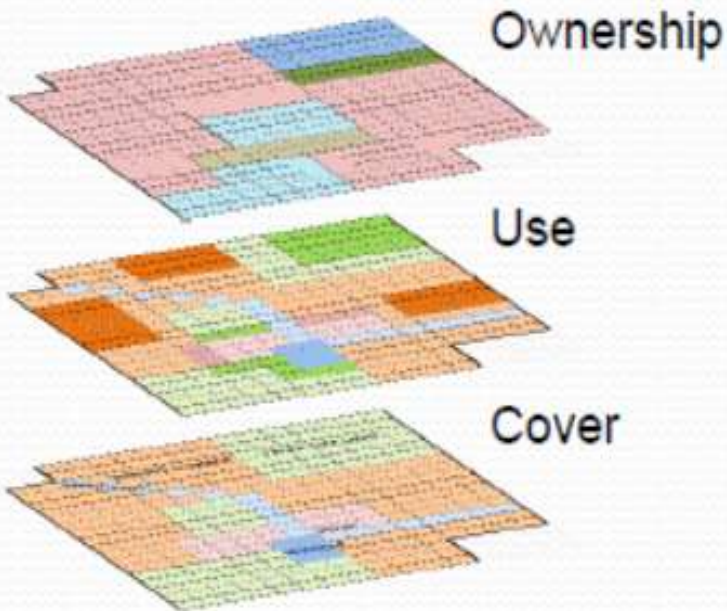
Source: Korea Univ

# How Look at Land

1. Land is a unique environmental asset
  - Land cover (physical)
  - Land use (monetary)
  - Land ownership
  
2. System of Environmental-Economic Accounting (SEEA)
  - a framework that integrates economic and environmental data
  - to provide a more comprehensive view of the interrelationships between the economy and the environment on land

# Views on Land

## Maps



## Tables

Table 5.13  
Physical account for land cover (hectares)

	Artificial surfaces	Crops	Grassland	Tree-covered area	Mangroves	Shrub-covered area	Regularly flooded areas	Sparsely vegetated areas	Terrestrial barren land	Permanent snow, glaciers and inland water bodies	Coastal water and intertidal areas
Opening stock of resources	12 292.5	445 431.0	100 180.5	338 514.0	214.5	66 475.5	73.5	1 966.5		12 940.5	19 351.5
<b>Additions to stock</b>											
Managed expansion	183.0	9 357.0									
Natural expansion			64.5								1.5
Upward reappraisals			4.5								
Total additions to stock	183.0	9 357.0	69.0								1.5
<b>Reductions in stock</b>											
Managed regression		147.0	4 704.0	3 118.5	9.0	1 560.0	1.5				
Natural regression					1.5	64.5					
Downward reappraisals						4.5					
Total reductions in stock		147.0	4 704.0	3 118.5	10.5	1 629.0	1.5				
Closing stock	12 475.5	454 641.0	101 545.5	335 395.5	204.0	64 846.5	72.0	1 966.5		12 940.5	19 353.0

Note: Crops include herbaceous crops, woody crops, and multiple or layered crops.

# Land Cover Classification

1. Artificial surfaces (including urban and associated areas)
2. Herbaceous crops
3. Woody crops
4. Multiple or layered crops
5. Grassland
6. Tree-covered areas
7. Mangroves
8. Shrub-covered areas
9. Shrubs and/or herbaceous vegetation, aquatic or regularly flooded
10. Sparsely natural vegetated areas
11. Terrestrial barren land
12. Permanent snow and glaciers
13. Inland water bodies
14. Coastal water bodies and intertidal areas
15. Marine



# Land Use Classification

1. Agriculture
2. Forestry
3. Land used for aquaculture
4. Use of built-up and related areas
5. Land used for maintenance and restoration of environmental functions
6. Other uses of land
7. Land not in use

# Land Ownership Classification

- By institutional sector (e.g. corporations, general government, households, NPISH)
- OR By industry/activity (e.g. mining, forestry, agriculture, manufacturing, services...)

# Geospatial Data for Land

1. Understand changing patterns of land cover and use
2. Evidence for policy making
3. Value linked to user: shelters, hospital, green park

# Limitation: Geospatial Data for Land

1. Small features (e.g., streams)
2. Features underlying canopy (e.g., wetlands)
3. Difference between crops and grasslands (see Nepal)
4. Infrastructure (e.g., roads and transmission lines)
5. Elevations (e.g., mountain vs. valley) & slopes

Table	Use land accounts to	To address SDG	Indicators
Land use	Distinguish agricultural areas	Goal 2: Zero hunger	2.3.2 Income of small-scale farmers 2.4.1 Productive and sustainable agriculture
	Distinguish marine and coastal protected areas	Goal 14: Life below water	14.5.1 Protected marine areas
	Distinguish forestry area	Goal 15: Life on land	15.2.1 Sustainable forest management
Land ownership	Agree on land tenure (who owns?)	Goal 1: No poverty	1.4.2 Land tenure rights
		Goal 5: Gender equality	5.a.1 Rights over agricultural land

Land cover & change	Provide detail within urban	Goal 11: Sustainable cities and communities	11.1.1 Urban population living in slums
			11.3.1 Land consumption rate
			11.7.1 Urban open space for public use
	Distinguish catchment areas	Goal 14: Life below water	14.1.1 Coastal eutrophication and floating plastic
	Distinguish marine and coastal areas	Goal 14: Life below water	14.2.1 Ecosystem-based management of exclusive economic zones
	Distinguish forest area	Goal 15: Life on land	15.1.1 Forest area share of total land area
			15.2.1 Sustainable forest management
15.2.2 Net permanent forest loss			
Distinguish degraded land	Goal 15: Life on land	15.3.1 Proportion of land that is degraded	
Distinguish mountain areas	Goal 15: Life on land	15.4.1 Sites for mountain biodiversity	
		15.4.2 Mountain Green Cover Index	

# Key Questions for Developing Countries

1. Spatial image to maps to data to statistics (accounts)
2. How to strengthen knowledge and capacity in using combined statistical data + geospatial data? (person)
3. How to develop combined systems between statistical community and geospatial community? (system)
4. Where to start?
  - Identify and analyze?



# Key Questions for Developing Countries

## 1. Land accounts

- What national data and classifications for land accounts are already available?
- If there are no national land accounts, what alternative data source to create land account?
- What would be the priorities (Cover, Use, Ownership; Agreement on “One Map”)?

# Global Land Cover Datasets

## 1. **FAO Global Land Cover-SHARE**

- 1km / year 2014 Beta-Release 1.0

## 2. **MODIS Land Cover**

- Land Cover Type Yearly L3' (version Q2 is the latest)
- Annual products based on NASA's MODIS imagery
- Available at 500m x 500m spatial resolution.
- Downloadable from <http://reverb.echo.nasa.gov>

## 3. **GlobeLand30**

- High resolution (30m), produced by China, Years 2000 and 2010
- 10 land cover classes, based on NASA Landsat satellite (freely available)

## 4. **Australia's Land Accounts**

- MODIS 250m Land Cover, aggregating 25 classes to seven categories



# Thank You

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