

**ADB-LX Corp Joint Workshop  
on Building National Spatial Data Infrastructure**

# **NSDI BASELINE ASSESSMENT IN KAZAKHSTAN**

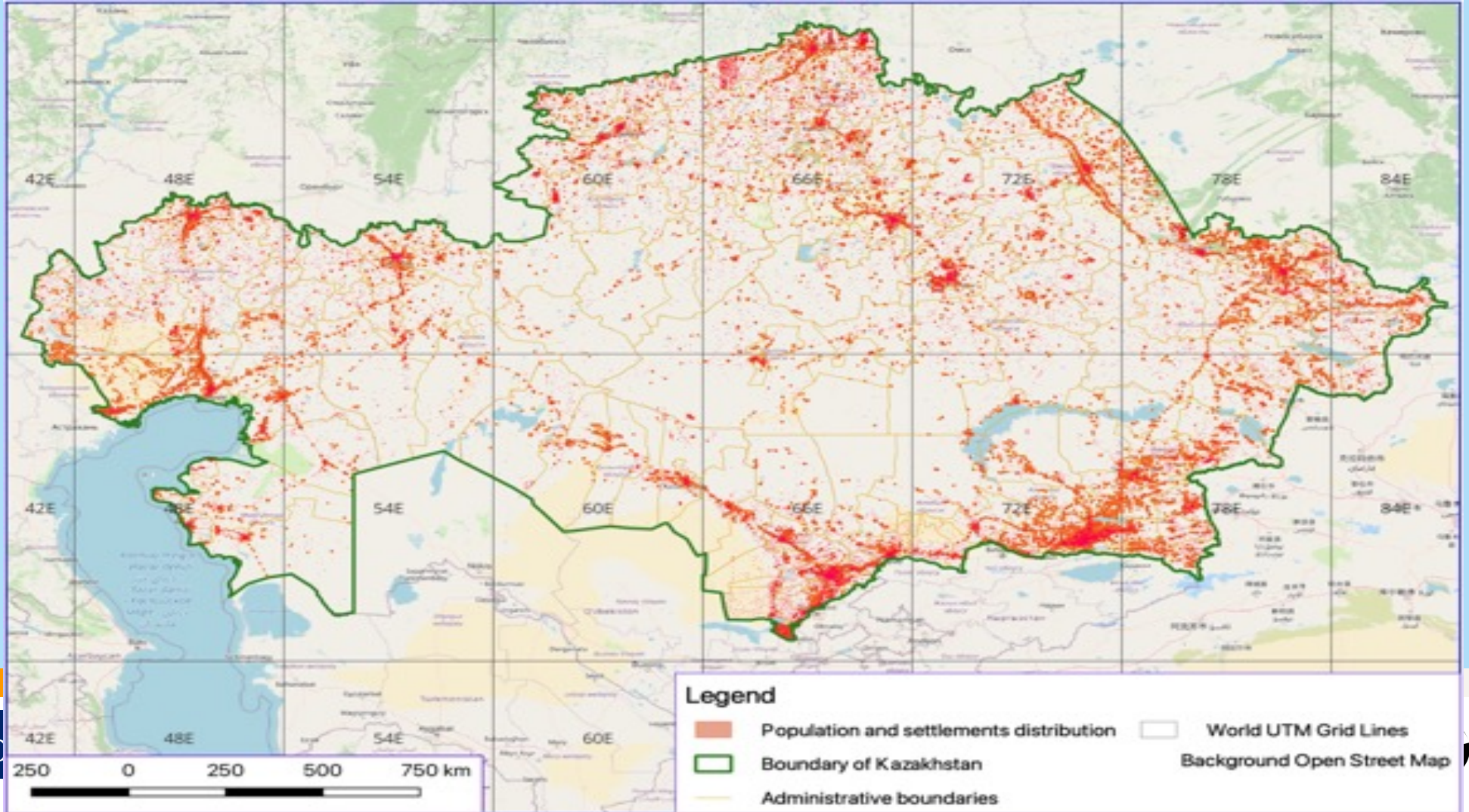
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Seoul, South Korea  
05 November, 2024

## Some information about Kazakhstan

- Area of 2,700,000 square km (1,000,000 sq mi) – equivalent in size to Western Europe
- Kazakhstan is the ninth-largest country and largest landlocked country in the world.
- It shares borders with Russia, Uzbekistan, China, Kyrgyzstan, and Turkmenistan;
- It has a population of 20 million (including 12.4 million urban and 7.6 million rural as of 2024) and one of the **lowest population densities in the world**, that is 7,28 people per square kilometre.

# Kazakhstan – built up areas and population distribution



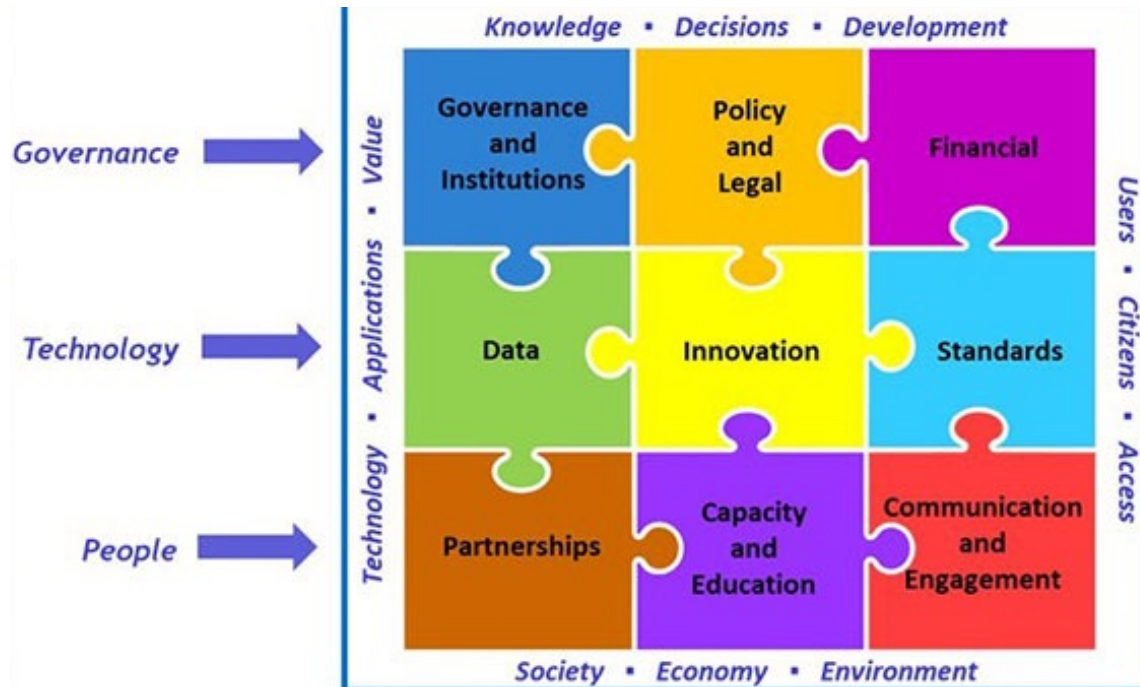
# UN-IGIF and NSDI and baseline assessment

Assessment of comprehensive systems requires appropriate approach, instruments and tools.

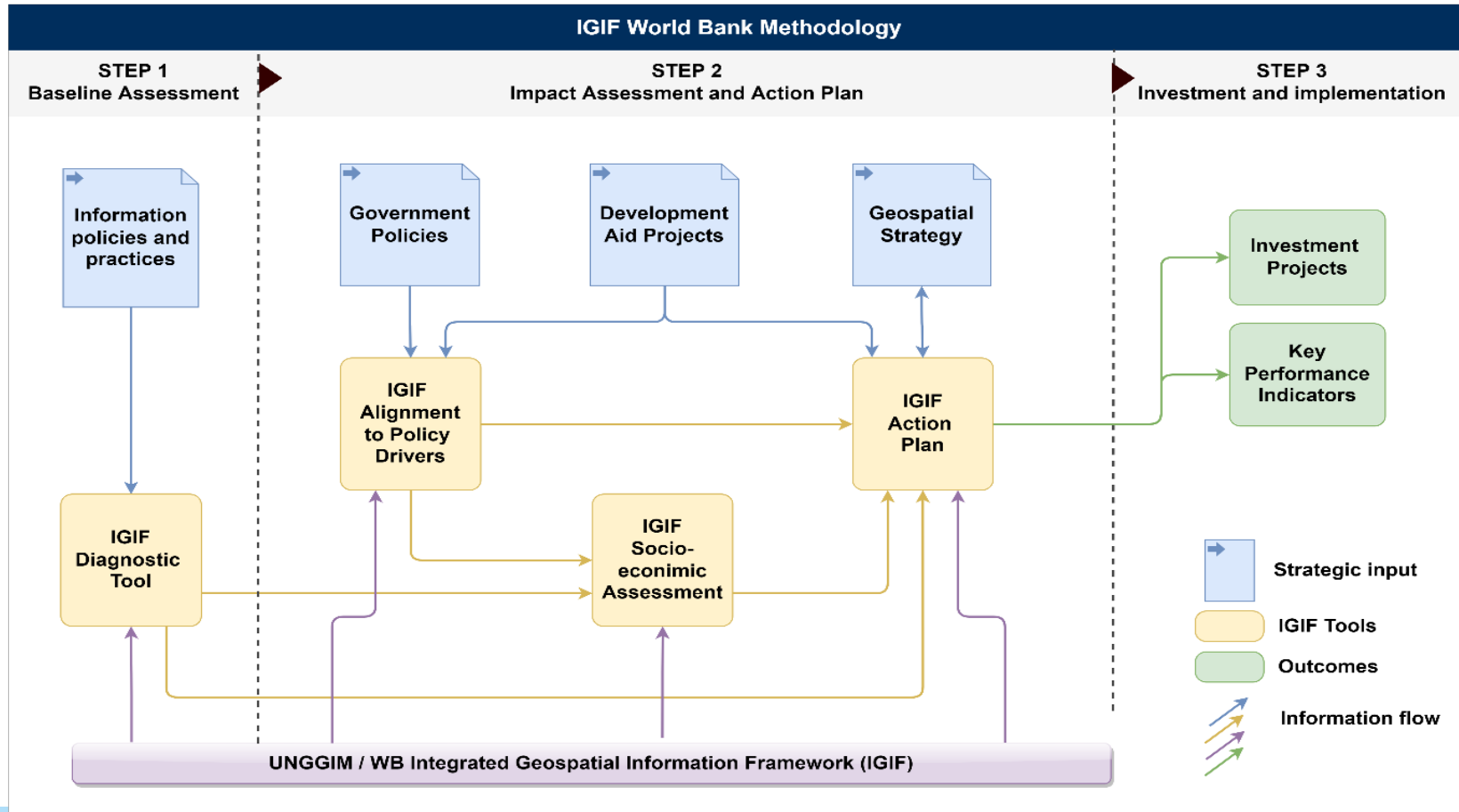
United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) developed the UN-IGIF

The Framework is anchored by nine strategic pathways in three main areas of influence

WB based on UN-IGIF developed the Baseline assessment Implementation Methodology.



# WB IGIF DT and Methodology used for Kazakhstan




# WB IGIF Diagnostic Tool (DT) for NSDI baseline assessment

INTEGRATED GEOSPATIAL INFORMATION FRAMEWORK

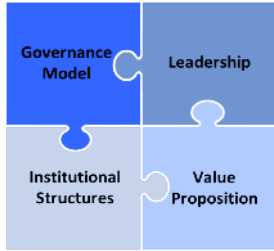
## Baseline Assessment

World Bank Implementation Methodology



Ref	Indicator	Scoring Guide	Notes from Interview	Score	Guidance
6,1	<b>STANDARDS GOVERNANCE:</b> Is there standards leadership embedded in the Governing Body and a Working Group on standards established and operational?	0 = None. 25 = The need for standards is recognized at the Coordination Unit level. 50 = The terms of reference for a Working Group, inclusive of relevant stakeholders, on standards have been agreed. 75 = The Working Group on standards is operational and strategy agreed. 100 = The importance of standards is recognized at the Governing Body level and is fully committed to an on-going maintaining of a common standards framework.	It's embedded in the legislation, but the degree of understanding will vary	0	<b>This indicator identifies the level of government commitment to standards.</b> Standards are a key component of geospatial governance and policy at the national level and essential to effective data sharing and interoperability of systems. Nationwide success in standards requires an efficient governance model inclusive of relevant stakeholders, and a commitment to assess, establish, and maintain a common standards framework. A clearly defined and empowered working group to lead cross-government and community coordination, working within the structure of national standards organization is essential.
6,2	<b>STANDARDS NEEDS ASSESSMENT AND PRIORITIZATION:</b> Has the national need for geospatial information management standards been undertaken, priorities agreed, and an on-going review process established?	0 = None. 25 = Requirement recognized at Governing Body level. 50 = Needs assessment study is underway. 75 = Needs assessment study complete and priorities agreed. 100 = The needs assessment results are integrated into SDI policy in relation to strategy and regular review program agreed.		0	<b>This indicator identifies if a needs assessment for standards has been undertaken.</b> The needs assessment will look to establish stakeholder needs for the technology and data content, considering the tiered structure for standards appropriate to the objectives of the SDI. The assessment should also consider the current gaps and identify suitable existing national and international standards. IGIF Part 2 Appendix titled "Needs Assessment and Gap Analysis Template" is useful for assessing this indicator.

# Highlights - Strategic Pathway GOVERNANCE AND INSTITUTIONS



Governance and  
Institutions

18

## Current situation, Strengths and Weakness

- "Digital Kazakhstan" program that included the “transition toward a digital state, and implementation of “Smart City” initiatives”.
- Law of the Republic of Kazakhstan “On Geodesy, Cartography and Spatial Data” of 21.12.2022 defines a leading authority in the NSDI development and implementation.
- Number of qualified professional in government and private sectors in the geospatial data domain and growing private sector;
  - Need of the NSDI Strategy and Action Plan*
  - Need of interagency **Governing Body (commission) and Geospatial Coordination Unit** to provide the necessary leadership.*

# Highlights - Strategic Pathways DATA



Data

25

## Current situation, Strength and Weaknesses

- i. Legacy geodetic reference frame (horizontal, vertical and gravimetric) covering the entire territory and reobservation is carried out as well as CORS Network is currently in use;
- ii. Plan for establishment of a modern, unified and open for use the state coordinate system, the "Kazakhstan Terrestrial Reference System" (QAZTRS);
- iii. A number of geospatial data sets (vector, raster) produced by different agencies based on different standards, portals for data access;
- iv. *The geodetic infrastructure requires updating and modernisation, extension of the CORS Network, upgrading the levelling network, and a high-accuracy geoid model;*
- v. *Lack of agreed data models and catalogues, data inventories with data profiles, and analysis of geospatial data needs and data gaps, data quality and compliance with agreed standards;*
- vi. *Geospatial data supply chains require modernisation to ensure coordination and collaboration of different authorities, organisations, and the business sector to avoid duplication of data and unproductive use of resources;*



# Highlights - Strategic Pathways STANDARDS

## Current situation, Strength and Weaknesses



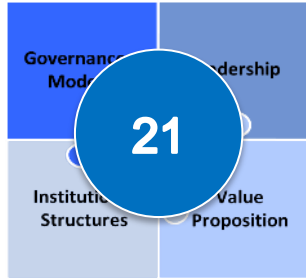
### Standards



- i. A number of regulations, instructions and guidelines are developed establishing requirements to the data, its accuracy and quality
- ii. Geology, cadastral agencies and institutions play a significant role in the standardisation efforts by integrating geospatial data and information;
- iii. The MDDIAI is the primary governmental body responsible for overseeing the NSDI and plays the main role in coordinating efforts, setting strategic policies and standards;
- iv. *NSDI struggles with adoption and implementing international geospatial standards (ISO, OGC), and the GO FAIR initiative.*
- v. *Lack of permanent intersectoral working group on standards, inconsistent application of data quality and metadata standards across different organisations and sectors, lack of uniformity in data quality standards*
- vi. *Not fully developed technical infrastructure to support geospatial standardisation, absence of centralised geospatial data repositories that conform to international standards, making it difficult to access and integrate geospatial data from different sources.*

# Strategic Pathways Highlights

## 1 - Governance and Institutions



10 Questions

## 2 - Policy and Legal



10 Questions

## 3 - Financial



7 Questions

## 4 - Data



13 Questions

82 Questions

36 Topics

9 Pathways

9 Scores

## 5 - Innovation



10 Questions

## 6 - Standards



8 Questions

## 7 - Partnership



8 Questions

## 8 - Capacity and Education



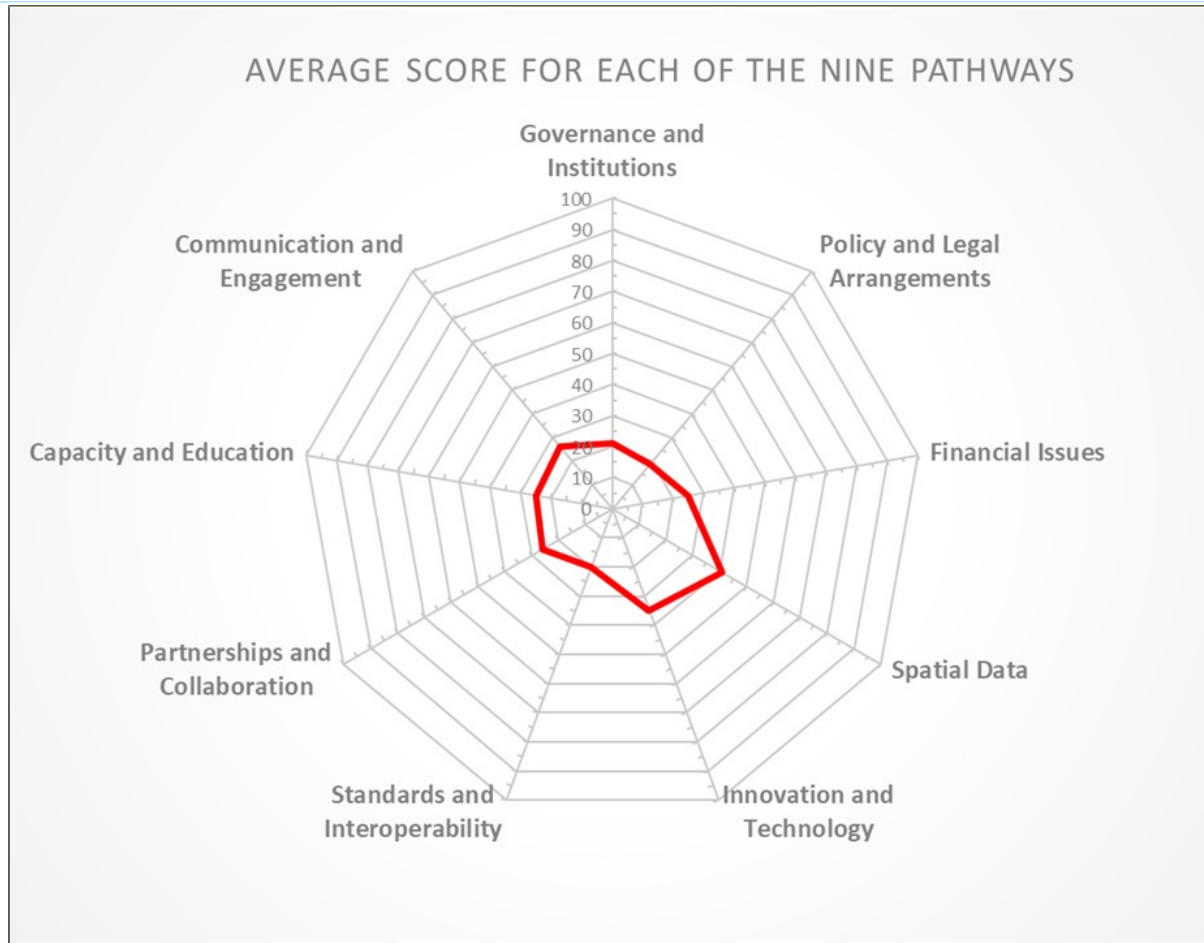
7 Questions

## 9 - Communication and Engagement



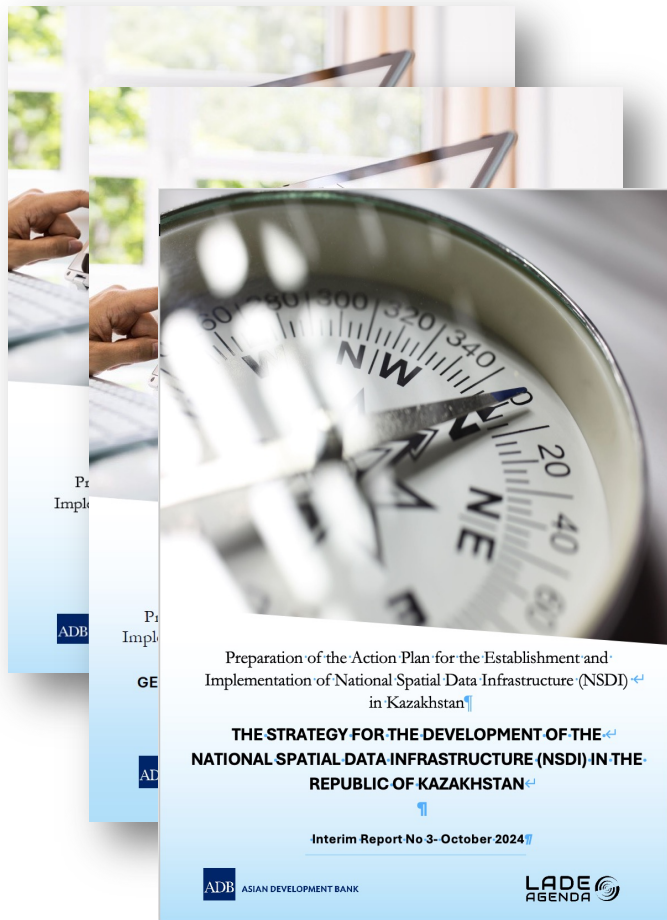
8 Questions

# Strategic Pathways – Kazakhstan average scores



- It is important to appreciate that **the scores are ‘fuzzy’**, they provide an ‘indication’ of the current state.
- Scores could be argued up or down in many cases, but an overall picture emerges, and this **provides a benchmark** against which further progress can be measured.

# Strategy Documents

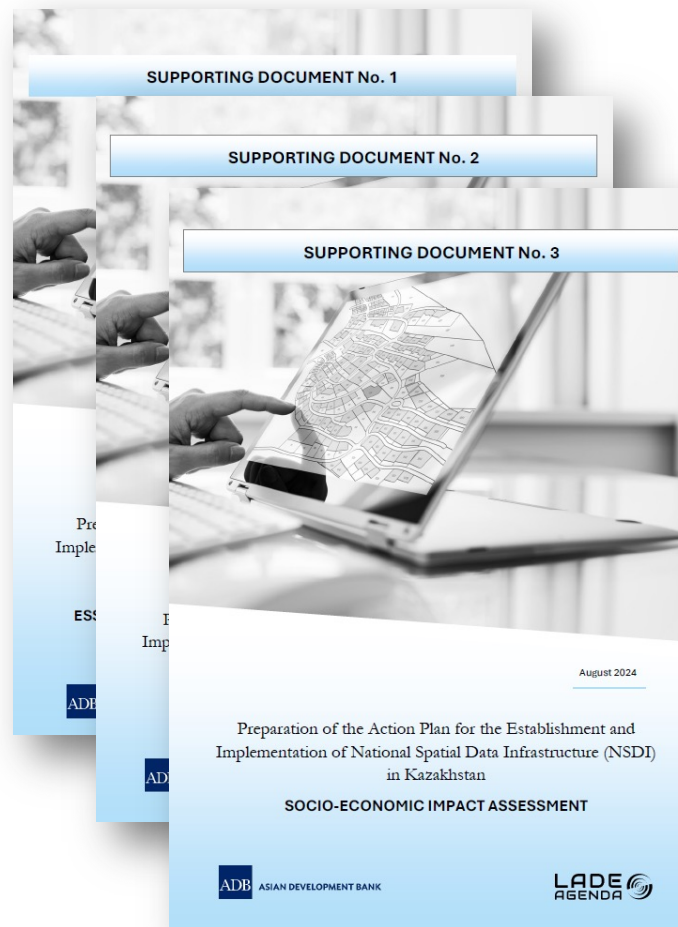


Preparation of the Action Plan for the Establishment and Implementation of National Spatial Data Infrastructure (NSDI) in Kazakhstan

**THE STRATEGY FOR THE DEVELOPMENT OF THE NATIONAL SPATIAL DATA INFRASTRUCTURE (NSDI) IN THE REPUBLIC OF KAZAKHSTAN**

Interim Report No 3- October 2024

ADB ASIAN DEVELOPMENT BANK LADE AGENDA



SUPPORTING DOCUMENT No. 1

SUPPORTING DOCUMENT No. 2

SUPPORTING DOCUMENT No. 3

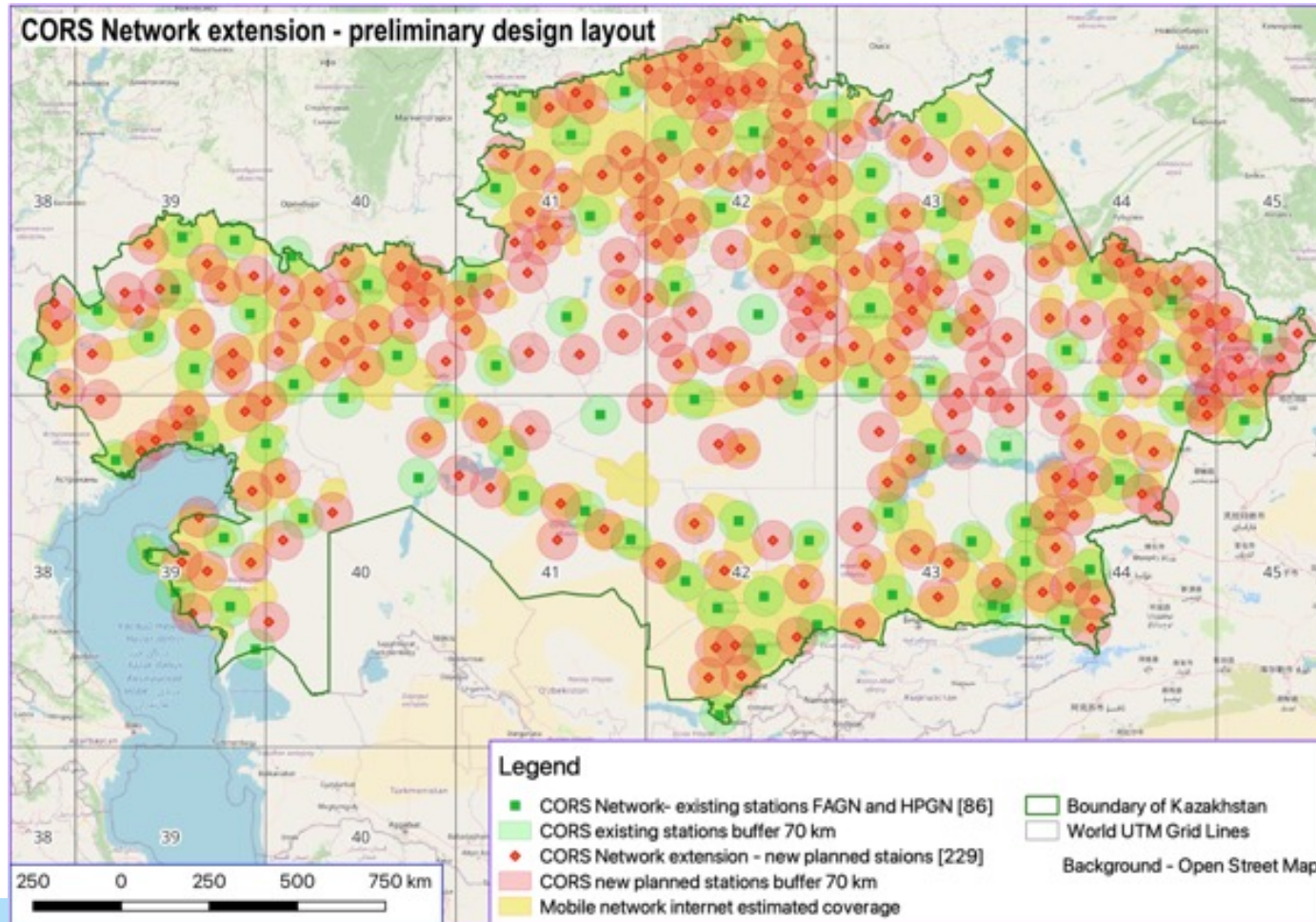
August 2024

Preparation of the Action Plan for the Establishment and Implementation of National Spatial Data Infrastructure (NSDI) in Kazakhstan

**SOCIO-ECONOMIC IMPACT ASSESSMENT**

ADB ASIAN DEVELOPMENT BANK LADE AGENDA

# CORS Network draft design – example of output



## **Some Conclusions of baseline assessment**

**In general Kazakhstan is demonstrating a good progress in the NSDI development and implementation (Good example is a NSDI law and State Unified Cadastre System and geoportal)**

**Main barriers on the way forward can be summarised as follows:**

- **Lack of a commonly accepted geospatial strategy;**
- **Need to strength the NSDI governance;**
- **Lack of consistent policies concerning access to and use of geospatial data and nonsufficient engagement with the private sector (need clear “rules of game”)**
- **Need to increase the NSDI awareness among government executives and business;**
- **Lack of suitable strategy for stakeholder communication and engagement;**
- **Need of closer cooperation between agencies and private sector**

**Thank you for your attention!**

**Questions, comments please**