



**DIGITAL
& SPACE**
MINISTRY

Kazakhstan's experience in developing NSDI strategy

ASIAN DEVELOPMENT BANK (ADB) TECHNICAL ASSISTANCE

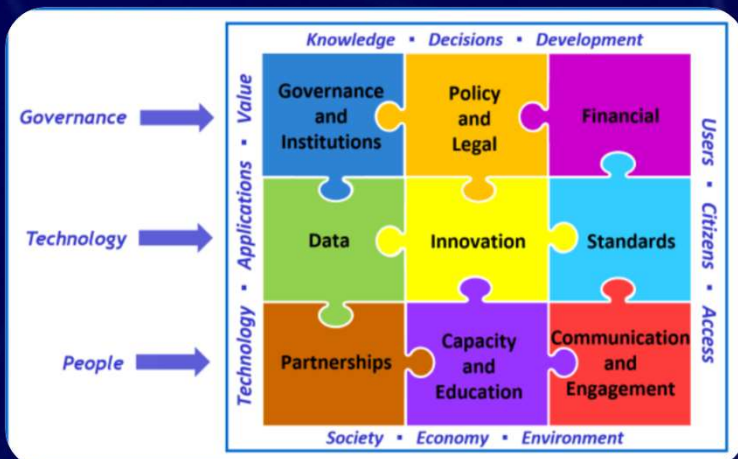
NSDI Baseline
Assessment

Geodetic Network and
Base Mapping
Assessment

Draft Strategy for the
Development of NSDI

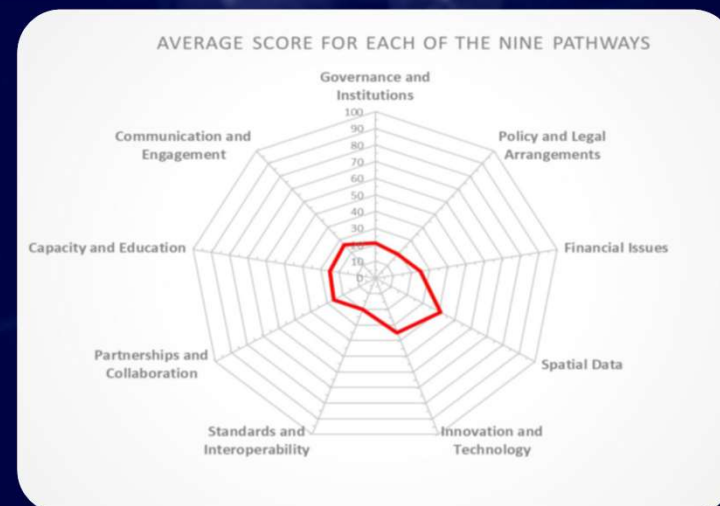


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The assessment was conducted using the UN-IGIF Diagnostic Tool, which applies a 0–100 scoring scale to measure progress. Scores were derived from stakeholder interviews and questionnaires.

The assessment took place in mid-2024, and by late 2024 Kazakhstan's National Spatial Data Infrastructure (NSDI) project was completed. We therefore expect the scores/indicators to improve.



Geodetic Network and Base Mapping Assessment. Recommendations



Figure 15: CORS Network Kazakhstan

Recommended:

- expansion of the CORS network to 315 stations
- integration of private sector stations into the national network
- creation of a backup Network Control Center (RNCC).

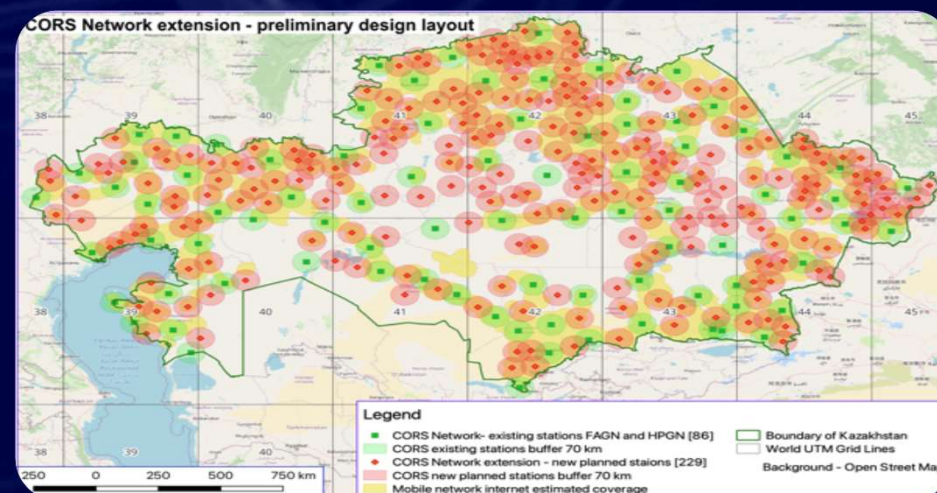


Figure 18: CORS Network extension preliminary design layout

Geodetic Network and Base Mapping Assessment. Recommendations

14 data themes

of Global Fundamental Geospatial Data, UN-GGIM, 2019



Global Geodetic Reference Frame (GCRF) ➤



Addresses



Buildings and Settlements ➤



Elevation and Depth ➤



Functional Areas ➤



Geographical Names ➤



Geology and Soils



Land Cover and Land Use



Land Parcels



Orthoimagery ➤



Physical Infrastructure ➤



Population Distribution



Transport Networks ➤



Water ➤

Recommended:

Include 9 of 14 topics in the Basic Mapping project

Implementation of conceptual data modeling

***Updating spatial data sets and maps of
economically active areas***

***Implementation of modern mapping technologies
such as LiDAR, high-resolution satellite images and
UAVs.***

DRAFT STRATEGY FOR THE DEVELOPMENT OF NSDI



VISION

Kazakhstan's National Spatial Data Infrastructure (NSDI) will ensure easy access to reliable, harmonised spatial information, supporting the formulation, implementation and evaluation of development strategies, and enabling citizens to access this information at local, national and international levels.

MISSION

Establishing the technological, institutional, legal, and administrative foundations for inter-agency cooperation.

OBJECTIVES

- a. Provision of up-to-date, harmonised and high-quality spatial information to support the development of national strategies and ensure its availability:*
- Data should be collected once and maintained where it can be managed most efficiently.*
 - It should be possible to combine seamless spatial information from diverse sources and deliver it to many users and applications.*
 - Information captured at one level/scale should be available across all administrative levels: detailed data for detailed studies; generalised data for strategic purposes.*
 - Spatial information should be accessible.*
 - Available spatial information should be easy to discover.*
- b. In the longer term, aim to integrate the NSDI into a broader, cross-sectoral infrastructure designed to provide spatial information for national policymaking across a wide range of sectors.*

Country Action Plan (CAP)

GOVERNANCE (25)

- Creation of the Interdepartmental Commission, Coordination Body, specialized working groups
- Assessment of the current geospatial business model
- Preparation of the NSDI business model
- Detailed assessment of the socio-economic impact

TECHNOLOGY (20)

- Preparation of conceptual data models
- Calculation of a new geoid model
- Implementation of the Geodetic Infrastructure Program
- Assessment of the technology maturity index
- Implementation of ISO, OGC geospatial standards

PEOPLE (20)

- Conducting a training program on NSDI, geospatial standards, conceptual data modeling
- Preparing the NSDI brand
- - Conducting public information and awareness campaigns

Problems, challenges and opportunities

Problems we encountered

- *Insufficient awareness of government agencies and technocrats about the importance of NSDI*
- *Lack of a clear architecture of the content, functions and interaction of state geoportals*
- *Insufficient understanding of the importance of transition to a new unified coordinate system*
- *Inconsistency of the structure of the projects of the NSDI Strategy and CAP on IGIF with the requirements of national legislation*
- *Conceptual changes in budget legislation since the development of the Strategy NSDI and the CAP, namely the exclusion of Strategies/concepts for the development of industries from the documents of the state planning system, the development of such documents only on the instructions of the Government, while lowering the level of the document to the level of the Ministry. All this complicates the process of approving the developed strategy/concept.*
- *The lack of a strategy/concept may, in the long term, weaken the political, administrative and financial support needed to develop NSDI.*

challenges and opportunities

It is proposed to develop the following instruments under the auspices of the UN or international organizations in the geospatial sphere:

- *A framework assessment tool is needed to monitor progress in the creation and development of NSDI. Based on such an annual assessment, the publication of country rankings based on progress in the geospatial sphere.*
- *Collection and publication of official capital/market geospatial data by country. This could be a tool for calculating economic benefits*
- *Development of analytical tools for calculating the socio-economic benefits of investments in geospatial data*

A stylized globe is centered in the background. It features a grid of latitude and longitude lines. Overlaid on this grid is a pattern of small, light-colored hexagons that form the continents. The globe is rendered in a light blue or grey tone against the dark blue background.

***THANK YOU FOR YOUR
ATTENTION!***