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Hello, everyone!

Welcome to the two-day ECO webinar on 'The Current Technologies and Trends in Various Levels of Spatial Data Infrastructure (SDI)' organized for the Economic Cooperation Organization.

My name is Madad. I specialize in geospatial data management and currently serve as the General Manager of the SDI Department at the National Cartography Center. In this role, I am responsible for overseeing the development of Iran's spatial data infrastructures.

The purpose of the meetings of ECO member countries is to exchange ideas, share knowledge, and collaborate in various fields to increase the economic success of member states

These meetings can be great opportunities to enhance familiarity and grow expert interactions and discussions.

In fact, various topics which present by experts in these meetings, not only create a space for argue during webinars, but also enable participants to follow up on discussions after meetings, and cause continuous expert interactions.

The reason for gathering in this webinar is the topic of spatial data management.

We will address questions such as:

What are the characteristics of these type of data?

What appropriate methods exist for sharing and utilizing them?

How do we make spatial data accessible?

Why should we use open-source technologies?

What standards and open-source systems should we use for each part of the implementation?

In the field of SDI, each of the ECO member countries is at a different level of development compared to other countries. And it is appropriate that with the exchange of knowledge in such meetings, these distances be reduced and countries transfers their successful experiences in each part of SDI development to others.

In Iran, we managed to provide a coverage of national and provincial SDIs in recent years, and more than 20,000 layers have been shared by more than 500 executive bodies.

Pakistan has recently taken effective steps in establishing SDI. Türkiye has been very successful in three-dimensional city management and utilizing it in three-dimensional cadastre and crisis management.

We hope that such meetings and the familiarity of experts from various fields across different countries can accelerate the foundation and implementation of SDI projects, leading to advancements for all ECO member countries.

As we have seen in history, by emergence each new global revolution, the meaning of the word "power" changes. For example, during the industrial revolution, the use of the term "power" changed and referred to the extent of a country's access to capabilities of industrial facilities, sciences, and technologies.

Nowadays we are facing to a new global revolution which may be called as information Revolution. Once again the definition of Power is changed and it will be measured by the amount of accessibility to the information and its related technologies.

This issue brings the first major barrier to the establishment of SDI. This is because data providers are opposing to share their data, which would result in a loss of some of their power. In this context, spatial data have more significant characteristics compared to descriptive data, as they are much larger in volume and produced at a high cost.

To overcome the resistance to data sharing we ought to do three fundamental processes.

The first factor is culture.

We need to make the data owners believe that those tiny powers in their individual hands are neglectable against massive power which will be come back by integrating all data together and creating a National Data Infrastructure.

And of course in that case, they will also receive more benefit than their previous small single powers.

The second step is selecting appropriate Standards.

There are many standards that do not require data owners to share their original data.

Instead, these standards allow them to create and share services derived from their original data, enabling clients to use the services without needing access to the original data.

A favorable example of this, is the Web Map Service (WMS).

This service-oriented approach has encouraged data owners to participate in SDI

The final and most crucial step is establishing binding laws and government mandates for sharing spatial data services within national and provincial spatial data infrastructures.

We had built our SDI in National Cartography Center for many years ago and it was distributing in country slow by slow.

But when in the year 2020 we were successful to achieve an internal resolution that bounded all provincial subdivisions to share their spatial layers as services declared in the national SDI, we observed that the speed of distribution raised up with an incredible slope.

In fact by less than six months all provinces were connected to National SDI, and all of them were equipped by their own Geoportal which caused stablishing provincial SDIs.

After this favorable experiment we immediately continued to earn two more national approvals which obliged all organizations to share their spatial data services in National and Provencial SDIs. As I mentioned in the begging of my remarks, Now we have both of National and provincial SDIs which contain more than 20000 layers from 500 organizations, and serves to the most vital eGovernmental projects.

Over the next two days, we will delve into the world of Spatial Data Infrastructure (SDI) and explore its applications in various domains. On the first day, we will focus on the fundamental concepts of SDI, Geoportal, functional subportals, and spatial analysis. We will discuss the importance of SDI in managing and sharing spatial data effectively. Additionally, we will explore the functionalities of

Geoportals and how they serve as gateways to access and visualize geospatial information. Furthermore, we will delve into the concept of functional subportals, which provide specialized services and tools tailored to specific user needs. Lastly, we will explore spatial analysis techniques based on SDI, enabling us to gain valuable insights from geospatial data.

Moving on to the second day, we will dive deeper into the development of spatial information management technology and explore future perspectives. We will discuss the latest advancements in technology, such as TJS (Technology for Joining Spatial Data with statistical data) and GSGF (Global Statistical Geospatial Data Framework) Standards, which play a crucial role in enhancing the interoperability and integration of spatial data and statistical data.

Throughout the webinar, we will provide practical examples, and interactive sessions to ensure a comprehensive understanding of the topics covered. Our aim is to equip dear audience with the knowledge and skills necessary to leverage SDI, Geoportal, functional sub portals, and spatial analysis techniques in their respective fields. We hope you find this webinar informative and engaging. let's begin our exploration of SDI and its applications. Thank you.

### **Second day:**

Hello everyone, Yesterday's sessions provided a comprehensive overview of the current state of Spatial Data Infrastructure (SDI), its architecture, and the implementation of geoportals. Key topics included the integration of spatial data resources, the development of user-friendly platforms, and the importance of standardization in facilitating data sharing and interoperability. Additionally, we explored the creation of spatial analysis upon SDI services and how these analyses contribute to building robust Spatial Decision Support Systems (SDSS). These systems play a crucial role in informing decision-making processes across various sectors and promoting sustainable development. Today, we will continue to build upon these foundations as we delve deeper into the applications and potential of spatial data technologies.

Having explored the current state of SDI, its components, and its role in shaping Spatial Decision Support Systems, we now shift our focus to the future. Today, we will examine our most recent action plans and the innovative strategies we are implementing to enhance and expand the capabilities of SDI. By sharing our vision for the future of SDI, we aim to foster collaboration and inspire further advancements in spatial data infrastructure, ultimately contributing to more informed decision-making and sustainable development across a wide range of sectors." This introduction highlights the progression from yesterday's discussions on the foundations of SDI to today's forward-looking exploration of plans and strategies for its future development.

Our vision for the future of SDI is centered around the development of Digital Twins and the advancement of the digital economy. To achieve this, we have identified three key milestones that will guide our progress: 1. Combining SDI with descriptive data, such as statistical information, by leveraging the proposed standards of the GSGF working group of UN-GGIM. 2. Transitioning from traditional 2D GIS to advanced 3D model GIS, enabling more comprehensive and immersive spatial analysis. 3. Implementing a 5-year strategic plan that embraces cutting-edge technologies, including IoT and AR/VR, to enhance decision-making and create a more connected, data-driven ecosystem. By focusing on these milestones, we aim to build a strong foundation for future innovations and collaborations, ultimately driving the growth and success of the SDI landscape