



Webinar “Socio-economic Benefits of Geospatial Information”, 19 May 2022

Webinar report prepared by Elena Busch, project leader, Norwegian Mapping Authority

Background

The UNECE Working Party on Land Administration, jointly with the Norwegian Mapping Authority (Kartverket) and with the support of the Food and Agriculture Organization of the United Nations (FAO), organized a webinar on socio-economic benefit of geospatial information, drawing on the experience gained from Norwegian funded international activities for implementing the Integrated Geospatial Information Framework (IGIF).

IGIF is a United Nations-endorsed Framework, jointly developed by the United Nations Statistics Division and the World Bank, to support the development of national infrastructures for geospatial information management in lower and middle-income countries. During past 10-15 years, Kartverket provided support to several countries with the development of geospatial sector, building up national spatial data infrastructures and improving public services to support security of tenure, economic growth, and evidence-based decision-making at all levels. Since the endorsement of IGIF, the Norwegian Mapping Authority has taken an active role in promoting its implementation. From the Norwegian donor perspective, the IGIF methodology, including socio-economic impact assessment, provides a tool for measuring societal, economic, and environmental benefits of the Norwegian-funded projects in the cooperation countries.

The webinar took place on 19 May 2022 and 75 participants joined the event. It examined the IGIF methodologies, which leverage established approaches in the fields of finance and economics for socio-economic impact assessments. The presenters provided background on the development of standard-based techniques for assessing the socio-economic benefits of geospatial information and looked at the different aspects of their application drawing on the results of four recent country-scale studies.

The webinar was moderated by **Rumyana Tonchovska**, Senior Land Administration – Information Technology Officer, FAO.

Opening

Rumyana Tonchovska, UN FAO



Rumyana holds a master's degree in Information Technology. She is a certified international IT Project Manager with practical experience in design, development, and implementation of large-scale complex information systems for land tenure, indirect finance and building Spatial Data Infrastructure. She has 26 years' work experience from over 23 countries in Eastern Europe, Asia, and Africa. Under the FAO – World Bank Cooperative Program, 70% of her time is allocated to support the Bank-financed land administration projects.

Rumyana is leading various innovations to test new approaches and technologies, aiming at improving tenure governance, making best use of the available geospatial data and technologies, and building local capacity for evidence-based policymaking.

She has been actively involved in the development of the Integrated Geospatial Information Framework and its implementation at country level.

Rumyana started the webinar by welcoming the participants and setting out the challenging context in which the world is operating, highlighting the global health pandemic, climate change, conflict in Ukraine, high inflation, and economic recession.

Governments struggle with many problems and competing priorities. As with all crises, they bring opportunities for change and geospatial information can provide tools to help solve problems. Further, donors and national governments are stretched fighting these crises, precipitating a strong need to do more with less. So, justifying spending money on geospatial becomes more and more important. To meet governments' priorities, it is important to prepare use cases and demonstrate socio-economic benefits of geospatial information.

Rumyana has passed the floor to Kathrine Kelm, Senior Land Administration Specialist of the World Bank.

Socio-economic Impact Assessment within the Integrated Geospatial Information Framework

Kathrine Kelm, World Bank



Kathrine is a senior land administration specialist at the World Bank, currently covering the East Asia Pacific region.

Kathrine is a land lawyer and is leading the global geospatial project, focusing on supporting IGIF country level implementation to enhance technical support, capacity strengthening, and financing for geospatial information and infrastructure.

The World Bank, which collaborated with the UN Statistics Division in developing the IGIF, was represented by Katherine Kelm who has become the driving force for IGIF within the Bank.

Kathrine set the stage for the panel discussion on IGIF framework, strongly supporting the relevance of geospatial technology and information for addressing global and local development challenges. Mobilizing resources for investment calls for concrete evidence to convince decision-makers and donors to finance the development of Spatial Data Infrastructure (SDI).

Katherine advocated continued efforts to build use cases on the implementation of IGIF at sub-national level, particularly in cities, which tend to have greater flexibility and consequently are quick adopters.

Kathrine presented the [4-step methodology for IGIF implementation](#) at the country level, starting with a baseline assessment using the Diagnostic Tool; continuing with Alignment to policy drivers; following with Socio-economic Impact Assessment and concluding with Action and Investment plans.

She also presented targeted tools for the socio-economic impact assessments, such as Green Growth Use Cases, Cost Benefit Analysis and Generic Process Description. Drawing on country experiences, she demonstrated how these tools provide concrete justifications for convincing decision-makers and donors to invest in SDI.

She explained that geospatial enhancements would rarely justify launching projects. Rather, national agencies should work with their governments to link IGIF action plan initiatives with larger projects, such as Mongolia’s digital transformation project – Geo-driven eGovernment and Innovation, Moldova’s Land Administration project, and other.

In conclusion, Kathrine noted the courses offered by the Bank’s Open Learning Campus on IGIF Self-paced online learning and 2-series of the IGIF Virtual Knowledge Exchange.

Rumyana passed the floor to the next speaker, **Andrew Coote of ConsultingWhere**, a UK based consultancy, to share the results of the socio-economic impact assessment of geospatial information systems in Moldova.

Socio-economic Impact Assessment for Moldova

Andrew Coote, ConsultingWhere



Andrew has over thirty years’ experience in the development and use of information systems, specialising in the management of location-enabled applications. He has held senior management positions in both the public and private sector in the UK and Seychelles. His expertise lies in strategy development and implementation, return on investment and market assessment. He has undertaken an extensive range of strategic assignments in East Asia, Eastern Europe, Southern Africa, Australasia, North and South America and the Middle East for customers including the World Bank, European Union, United Nations Food and Agriculture Organisation, Land Information New Zealand, and Ordnance Survey.

In his introductory remarks, Andrew explained that ConsultingWhere was engaged by the Norwegian Mapping Authority – Kartverket, to implement the Integrated Geospatial Information Framework in Georgia, Moldova, Kyrgyzstan, and Ukraine. These activities are part of larger capacity development projects financed by the Government of Norway. Andrew thanked Kartverket for providing this great opportunity and expressed appreciation for the work Kartverket has done globally, citing particularly his discussions with the cooperating agencies that have benefited from Norway’s contribution.

Andrew informed that from the Moldovan perspective, all four tools developed by the Bank were used. He underlined that these tools are necessary for decision-makers to understand the socio-economic benefits that Spatial Data Infrastructures bring to the welfare of a nation. Andrew further explained that Spatial Data Infrastructures are long-term investments which require a strategic vision. He presented the results of quantified benefit assessment for nine use cases, including improved data

sharing of National Address database, Faster Emergency Response and Land Market Growth. The assessment, which covered the four beneficiary countries, identified 50 use cases relevant for further study. The results for Moldova were impressive with evaluated Benefit to Cost Ratio of 4 to 1. This work fed into the National Action Plan and Investment Plan.

Important takeaways are

- A standards-based, repeatable approach to assessing the socio-economic impact of SDIs has been used
- The impact assessment includes both qualitative and quantitative (financial) benefits
- It has used proven quantified benefits for different use cases across a variety of economic sectors
- It provides the economic evidence necessary for presentation to local and international decision makers on strategy and funding

Rumyana introduced **Simon Wills of ConsultingWhere** to speak about use of the IGIF methodology in Kyrgyzstan.

Kyrgyzstan: A model for sustainable base mapping

Simon Wills, ConsultingWhere



Simon Wills has over twenty-five years of experience in the development and use of information systems, specialising in the management of location-enabled applications and statistical modelling of spatial data. He is a geologist by background and worked in Botswana in the field of remote sensing for many years undertaking both managerial and senior consultancy work for the local distributor of Esri and ERDAS software. Now working with ConsultingWhere, he was part of the team assessing the socio-economic benefits of strengthening geospatial infrastructure in Mongolia and is now leading the consultancy team advising on the implementation of IGIF in Kyrgyzstan.

Simon presented a model for sustainable base mapping in Kyrgyzstan. In particular, he examined two use cases that aligned with government priorities. Fit-for-purpose land registration using Orthoimagery would cost around quarter the price of traditional survey methods and thus also help increase security of tenure. However, this change would need political commitment and adaptation of the legislation and regulatory framework.

The second use case focused on disaster risk management, in particular the capital city of Bishkek, given creeping development towards a geological fault line. Benefits of the latter case were difficult to quantify, but nationally the benefits of the use of geospatial data and technologies to prepare and react to the current level of natural disasters was estimated at USD 2,7 million annually.

Communicating the benefits of geospatial information: Experiences from Georgia

John Kedar, Geospatial Initiatives



John Kedar is a global geospatial strategy advisor. Previous employments include a career in the British Army and more recently as Director of International Engagement in Great Britain's national mapping agency, Ordnance Survey.

In this work, he is an advocate of the United Nations Integrated Geospatial Information Framework. Elsewhere he chairs a collaboration of government and businesses developing a future geospatial concept, the Geospatial Knowledge Infrastructure and is a contributing editor to Geospatial World.

John was involved in the implementation of IGIF in Georgia as part of the Norwegian funded project. He started with presenting the history of the Norwegian support to capacity development of the geospatial sector in Georgia. He particularly underlined that the Norwegian support along with consultancy and knowledge transfer, has delivered tangible products, including digital orthophoto, digital terrain model, orthophotos, and large-scale basemaps.

Upon completion of the four IGIF reports, John was engaged in the development of Communications and Engagement plan, so the collected geospatial data could be used to generate benefits, to be maintained, and thus to be sustainable. Communications are crucial for implementation of the IGIF Action Plan, which includes 52 actions and 75 documented use-cases aligned with Georgia strategies and national plans. Based on quantified 10 use-cases Benefit to Cost Ratio is calculated at between 2,6 and 3,8.

John demonstrated how Socio-economic Benefits and Communications and Engagement are tight together. Further, he showed how the communications plan was developed, resulting in an overarching engagement strategy, a communications plan, a brief for senior stakeholders, and a social impacts brief.

Three consistent strategic messages

- The Norwegian gifted geospatial data enables Georgian organisations and people to understand the country's physical and environment consistently, accurately, and in line with European Union standards and norms.
- The new digital basemap of Georgia heralds a new era for the digitalisation of Georgia and supports broader EU integration. It allows accurate and consistent analysis of information that should deliver efficient and effective government. All organisations can benefit from using it.
- The new digital basemap of Georgia will significantly improve the protection of property rights, land use planning and land management processes in the country. In addition, it will support national defence and security, environmental protection, and the response to natural disasters. It is already enabling better achievement of some national priorities.

Lessons learnt

- Build sustainability into a project from the outset and that includes communications.
- Local knowledge is important in communications planning
- Do not overlook Defence and Security as key use cases
- We need to use national financial figures to win national arguments
- Get useable data into the hands of users as only they can add value.

Panel discussion:

Four panellists were invited to elaborate on the questions below:

- What role does socio-economic impact assessment play in decision making?
- Why is it important to align to policy drivers?
- Who are typically the key decision makers in assessing investments?

Nino Bakhia, National Agency of Public Registry, Georgia



Nino Bakhia is Head of Addressing Service at the National Agency of Public Registry under the Ministry of Justice of Georgia since 2018. She received her master's degree in Land Management from Stockholm Royal Institute of Technology in 2007. Since 2007, she has been working in various departments of the National Agency of Public Registry, representing one of the core spatial data producing authorities of Georgia.

On behalf of the National Agency of Public Services, Nino expressed her gratitude to the Norwegian government and Kartverket for many-year support to the land sector in Georgia providing core data sets, enhancing professional and technical capacity and implementation of the IGIF. She also thanked the consultancy, which supported NAPR with the implementation of IGIF. Nino underlined that the IGIF methodology represents a useful tool to justify investments and to take evidence-based decisions, in particular to countries like Georgia, with limited resources.

She noted the development of over 70 use cases and a socio-economic benefits impact assessment. The action plan is set out with each initiative clearly linked to an IGIF strategic pathway. Nino voiced a common challenge in many nations in that there was no budget for NSDI and thus a reliance on donor organisations to date. She also stressed how the process of developing the documents had led to positive re-engagement with stakeholders across government and the private sector.

Maria Ovdii, Agency for Land Relations and Cadastre of the Republic of Moldova



Maria Ovdii is a Head of NSDI department and a secretary to NSDI committee in Moldova, working for the Agency for Land Relations and Cadastre (ALRC). She has been instrumental in gaining and coordinating support from a wide range of donors over many years including Kartverket, the World Bank, US AID, JICA and most recently the EU Twinning project.

Maria expressed her gratitude to the Government of Norway and Kartverket for many years of cooperation and support in building-up national infrastructure for geospatial information and delivery of core spatial data like orthophotos, and aerial imagery.

Responding to the first question, Maria Ovdii underlined that **the socio-economic impact assessment of the national SDI (NSDI) sector in the Republic of Moldova** played an important role in the process of planning assistance by the donor organizations. This evaluation covered not only social and economic aspects but also legal, institutional and organisational capacities, which allowed donor organizations to establish the priorities of the country, the sectors that needed urgent investment and the required funding. She argued that it is crucially important to adapt the institutional framework in developing countries, such as Moldova, to the local dynamics and context.

Maria supported the statement that the NSDI and GIS are collective instruments for value creation and that decision-makers need to understand the socio-economic benefits that NSDI brings to the welfare of a nation: for governments, for businesses, and for citizens.

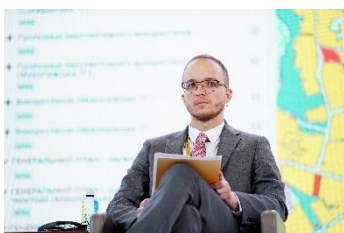
Furthermore, she explained that the costs associated with NSDI development remain one of the biggest challenges to developing countries such as the Republic of Moldova. Therefore, it is important to draw a clear action plan at the national and international levels in order to consolidate the benefits of NSDI. From interviews conducted within the context of the IGIF implementation assessment in the Republic of Moldova, which involved a variety of staff, representing 19 stakeholder organizations, including government ministries, agencies, state enterprises, and private sector companies, the team identified over 40 applications (use cases) where there were demonstrable benefits from the implementation of GIS technology requiring foundation geospatial data that a national SDI would provide.

On the importance to align with policy drivers, Maria explained that even though the Republic of Moldova was not an EU member, the country has been implementing European best practices in geospatial information as well as international ones. The existing frameworks such as UN GGIM, EU INSPIRE Directives, and GSDI act as policy drivers and are very important for the country. The transposition of these policy drivers into national legislation ensure the connection of the Republic of Moldova with the international geospatial society, contributing to the accomplishment of sustainable development goals. In addition, she explained that the alignment ensured a strong connection between the governmental institutions in the country. Cooperation between different administrative levels is of crucial importance for achieving high-level strategic goals. As competing priorities continue to pile up, a well-aligned and visible strategic plan would help employees understand where to focus their attention, ultimately enabling employees to make their own decisions.

As regards the **key decision makers involved in assessing investments**, Maria explained that the Agency for Land Relations and Cadastre (as the central authority responsible for geodesy, mapping, cadastre, land administration and NSDI) was the first level to evaluate the necessary investments for the geospatial sector. The assessments of possible investments are coordinated with the State Chancellery representing the Government of Moldova.

On the other side, donors' organizations do make their own assessments of needs, priorities and the possibility of financial allocations. Currently, the largest donors for the geospatial sector in Moldova are the Norwegian Government through the Norwegian Mapping Authority - Kartverket, European Union Delegation, World Bank and FAO. Maria expressed her gratitude to the donors for their constant support and financial assistance which contributes day by day to the sustainable development of the geospatial sector of Moldova.

Dmytro Makarenko, Senior Scientific Fellow, Research Institute of Geodesy and Cartography



Dmytro Makarenko is an international relations specialist with over 10 years of experience in various governmental positions in Ukraine.

During 2014 – 2020, he was working at the State Service of Ukraine for Geodesy, Cartography and Cadastre. In 2020, Dmytro joined a team of NSDI developers at the Research Institute of Geodesy and Cartography, to support the ongoing geospatial processes in the country. In this capacity, he is engaged in the Norwegian-funded project in Ukraine supporting the implementation of the IGIF in Ukraine.

Dmytro Makarenko noted that Ukraine was a very bright example in the implementation of NSDI with more than 18 years of attempts. The lack of an implementation framework was the largest hinder. High-level politicians did not understand the benefits of NSDI for the country. It was challenging to explain these benefits.

Dmytro explained that with the IGIF in place, it has become much easier to formulate the benefits, and in particular that geospatial data would support evidence-based decision-making, avoid the duplication of public funds, and promote open data and transparency for citizens. The IGIF implementation was supported by the Norwegian-funded project. It started with the baseline assessment, alignment to policy drivers and socio-economic benefits analysis. It resulted in a detailed analysis of the benefits from three perspectives: For potential investors, for decision-makers, and for citizens. The Action and Investment plan was developed including the business model for continuous data maintenance and updates. Dmytro highlighted that Ukraine experienced the same challenge as Moldova – to make the plan done.

Dmytro further explained that after February 24, the main goals of NSDI have been reviewed. The top priority has become food security, logistics and satellite images for yield monitoring. Furthermore, geospatial data would be needed for damage assessment and restoration. Changed priorities and policy drivers have changed the investment plan.

Darko Vucetic, Republic Geodetic Authority, Serbia



Darko Vucetic is Head of the Centre for Geospatial Information Management at the Republic Geodetic Authority of Serbia. His main activity is to seek and provide the most optimal solutions based on geospatial data management to all public sector institutions within the NSDI and to ensure a strategic approach for geospatial data use at the national level.

The Centre apply innovative approaches and technologies, develop fit-for-purpose solutions, methodologies and business processes, and provides capacity building and awareness raising for the usage of geospatial data

Darko explained that the topic of this webinar is very actual to Serbia. He gave a brief overview of the history of the geospatial sector development in Serbia, which actively started in 2016 with major investments in technology, data, people and a new geoportal. However, there was no clear picture of the benefits of geospatial to the country. In the framework of the World Bank project, a baseline assessment of NSDI was done following the IGIF methodology. This Baseline assessment showed astonishing results that despite all efforts the use of geospatial data was at a very low level.

It was decided to do a socio-economic benefits analysis and to define a clear and detailed action plan, including an investment plan. The key drivers were the IGIF methodology and INSPIRE directive. The work was done between June 2020 and April 2021. As a result, the Republic Geodetic Authority (RGA) updated its strategy accordingly. The Action plan identified 32 national strategies and policies as well as over 20 international commitments, which could be improved with the use of geospatial data.

Darko underlined further that there were 56 stakeholders in the public and private sectors involved in the study. As part of this communication and engagement campaign, the stakeholders were provided with information to understand the benefits of geospatial for their particular cases. User experience feedback was used to improve RGA services. The result was a clearly defined Action Plan and benefits examples on how geospatial can improve particular sectors. Darko referred to a recently developed

tool for the Emergency response sector in Serbia – an information system for disaster risk resilience. He stated that the Action plan was needed, inter alia, to plan investments and resources. The socio-economic analysis evaluated Benefit to Cost Ratio with 5 to 1. In addition to economic benefits, there were certain social benefits related to the improvement of the situation with informal buildings in the country (more than 4 million informal buildings with a total value of €36 billion).

Furthermore, Darko explained that they continued to work on the NSDI model for Serbia, based on the Action plan and the Socio-economic assessment. He underlined that Serbia was undergoing a rapid digital transformation to comply with the EU INSPIRE directive. Finally, he concluded that the IGIF outcomes have got high political attention in Serbia, as an important tool towards EU accession.

Answering the question on open geospatial data in Serbia, Darko explained that the Agency has managed to integrate various datasets on their geoportal and made them available. He underlined the importance of following a clear business model and rules when providing open access to the data collected and owned by others. It must be regulated by appropriate agreements between the government and the datasets owners.

Conclusion

Rumyana concluded the webinar by summarising the main points of all contributions and thanking the presenters and participants. She conveyed special thanks to the Norwegian Government for supporting the IGIF implementation in Georgia, Kyrgyzstan, the Republic of Moldova and Ukraine.