

Internal Ex-Post Evaluation for Development Planning Project

conducted by European Division, Middle East and European Department/Ukraine Field Office: October, 2021

Country Name	Project for Creation of a National Geospatial Data Infrastructure of Ukraine
Ukraine	

I. Project Outline

Background	The Government of Ukraine decided at a cabinet meeting in 2007 to establish the National Spatial Data Infrastructure (NSDI) with the aim of integration, database creation, and establishment of a sharing method of geospatial data for adequate and efficient management and use of the geospatial data. The State Agency for Land Resources (currently the State Service of Ukraine for Geodesy, Cartography, and Cadastre (SSGCC)) under the Ministry of Agrarian Policy and Food, in charge of NSDI, did not have sufficient techniques for the integration and management of the geospatial information necessary for establishment of the NSDI, however.				
Objectives of the Project ¹	<p>The project aims to produce a draft NSDI creation and operation plan, cooperation framework between the related agencies, draft standards for the geographic information, and an NSDI creation and operation prototype targeting the pilot area², and to transfer techniques on NSDI creation and operation in Ukraine, thereby contributing to dissemination of the NSDI creation and operation prototype outside the pilot area.</p> <p>1. Expected Goals through the Proposed Plan³: The NSDI creation and operation prototype established through the project is disseminated to outside the pilot area.</p>				
Activities of the Project	<p>1. Project Site : Ukraine (Vinnytsia District in Vinnytsia City as the pilot area for the NSDI creation and operation prototype (about 1,023km²)⁴)</p> <p>2. Main Activities: Production of the draft NSDI creation and operation plan, the cooperation framework between the related agencies, the draft standards for geographic information, the NSDI creation and operation prototype, and transfer of techniques on the NSDI creation and operation.</p> <p>3. Inputs (to carry out above activities)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <p>Japanese Side</p> <p>(1) Members of Study Team: 18 persons</p> <p>(2) Trainees Received: 24 persons</p> <p>(3) Equipment: Personal computers, software etc.</p> </td> <td style="width: 50%; border: none; text-align: right;"> <p>Ukrainian Side</p> <p>(1) Staff Allocated: Staff from the SSGCC, including those from the Research Institute of Geodesy and Cartography (RIGC), the State Enterprise affiliated with the SSGCC</p> </td> </tr> </table>			<p>Japanese Side</p> <p>(1) Members of Study Team: 18 persons</p> <p>(2) Trainees Received: 24 persons</p> <p>(3) Equipment: Personal computers, software etc.</p>	<p>Ukrainian Side</p> <p>(1) Staff Allocated: Staff from the SSGCC, including those from the Research Institute of Geodesy and Cartography (RIGC), the State Enterprise affiliated with the SSGCC</p>
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Project Period	(ex-ante) September 2015-August 2017 (actual) September 2015-March 2018	Project Cost	(ex-ante) 408 million yen; (actual) 362 million yen		
Implementing Agency	The State Service of Ukraine for Geodesy, Cartography, and Cadastre (SSGCC)* *During the project implementation, the State Agency for Land Resources of Ukraine was reorganized to SSGCC.				
Cooperation Agency in Japan	Kokusai Kogyo Co., Ltd.; PASCO Corporation.				

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- Regarding the Utilization Status of the Proposed Plan, the target year was set to be 2021, as the ex-post evaluation was planned after 3 years from the completion of the project in the Ex-ante Evaluation Sheet. In addition to the indicator (“Results of cities/areas in which the NSDI is created based on the NSDI creation and operation prototype”), utilization status of other major outputs of the project (i.e., draft NSDI creation and operation plan, cooperative framework, and draft standards of geospatial information) as well as operation and utilization statuses of the NSDI creation and operation prototype established in the pilot area was confirmed as Supplementary Information 1, 2, 3 and 4 respectively. Their utilization was considered as the efforts to create the NSDI based on the NSDI creation and operation prototype.

1 Relevance

<Consistency with the Development Policy of Ukraine at the Time of Ex-Ante Evaluation>

The project was consistent with the Concept of the draft NSDI law, officially adopted by the decree of the Cabinet of Ministers of Ukraine in November 2007, which was formally referred to as a Decree on “Approval of Concept draft law of Ukraine on the NSDI”.

<Consistency with the Development Needs of Ukraine at the Time of Ex-Ante Evaluation>

The project was consistent with the development needs of Ukraine for creation of the NSDI as stated in <Background> above.

<Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation>

The Japan’s County Assistance Policy for Ukraine (2013) set forth “Industrial development for sustainable economic growth” as one of the priority areas, under which development of economic infrastructure that will be the basis of the economic growth is mentioned. The project was consistent with this policy as it aimed at efficient sharing and utilization of the geospatial information necessary for various planning through establishment of the NSDI.

¹ In principle, outputs are based on the Ex-ante Evaluation Sheet, except for the second output (“cooperation framework between the related agencies”), which was included as a survey item in the Ex-ante Evaluation Sheet but included as an output in the Record of Discussion (RD) and the Final Report of the project. As for English translation of the technical terms, those in the RD and the Final Report were referred.

² The NSDI creation and operation prototype consisted of the NSDI prototype data (or draft product specifications for basic geospatial data) and the NSDI prototype system.

³ The degree of achievement of the expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of crystallizing the proposed plan (“output” of the project).

⁴ According to the Ex-ante Evaluation Sheet, the pilot area was Fastive District in Fastive City. It was changed mainly because of its landscape variety. Within the project, it was necessary to test how the data from highly urban area may be merged with the data from rural area. Such territory was found in Vinnytsia District.

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Objectives at the Time of Project Completion>

The Objectives of the project were achieved at the time of project completion. The draft NSDI creation and operation plan (the draft NSDI plan) was developed, which proposed the principal tasks to be carried out in the first 5 years after adoption of the draft NSDI law under discussion (then). Total of 15 principal tasks were proposed in the following fields: (i) establishment of the central executive body called the NSDI coordination council; (ii) determination of rules of procedures of the NSDI; (iii) creation of geospatial data; (iv) enhancement of the NSDI prototype system (or the prototype geoportal) and development of tools and services; and (v) public awareness raising and human resource development). The proposed organizations in charge of the principal tasks included the Ministry of Agrarian Policy and Food, the SSGCC, the administrator of the national geoportal to be appointed, and local authorities. As the cooperation framework after adoption of the draft NSDI law, the Steering Committee (SC) and the Working Group (WG) under the SC were proposed, and, as the framework until adoption of the draft NSDI law, the Sub-group for NSDI coordination (the NSDI Sub-group) was formally established in July 2017 as part of the existing WG on land reform under the Ministry of Agrarian Policy and Food. The draft of Ukraine Geographic Information Standard (UkrGIS) was also developed, which was submitted to the National Body of Standardization for approval. Targeting the pilot area, the NSDI creation and operation prototype (the NSDI prototype) was produced: the NSDI prototype data (product specification based on the draft of UkrGIS and the basic geospatial data referred in the draft NSDI law) was created and the NSDI prototype system for data sharing and common utilization was developed, which was made operational on the internet site as the prototype geoportal. The knowledge and techniques on the NSDI creation and operation (i.e., preparation of the draft NSDI plan, establishment of the cooperation framework, preparation of the draft standards for the geographic information, and creation of the NSDI prototype) were transferred to the SSGCC, including the RIGC, and the related agencies, through collaborative work with the JICA experts, seminars, and training in Japan. The Final Report of the project was officially accepted by the SSGCC.

<Utilization Status of the Proposed Plan at the Time of Ex-post Evaluation>

The Proposed Plan was utilized at the time of ex-post evaluation.

Although the draft NSDI plan was not officially approved, it was used as the major guide to further development of the NSDI initiative. In fact, some of the principal tasks proposed in the draft NSDI plan were initiated even before adoption of the NSDI law in April 2020 and, the others were undertaken step by step after the adoption. For example, enhancement of the NSDI prototype system and public awareness activities started in 2020 under a new pilot project for development of the NSDI approved by the Cabinet of Ministers in February 2020, which mainly aimed to establish a pilot NSDI system aimed at integration of geospatial data from different data holders in the new pilot areas in online mode (on a geoportal) with use of web-based geographical information system (GIS) services according to the revised draft of NSDI law (then)⁵. The new pilot project was initiated by the SSGCC and implemented by the RIGC. After adoption of the NSDI law, the NSDI Council, the highest decision-making body consisting of the members of the Cabinet of Ministers, was established and the RIGC was officially appointed as the administrator of the national geoportal (often called as the NSDI geoportal). The documents which could be referred to as the state development program for basic data creation (i.e., the Order of Functioning of the NSDI, an executive act of the NSDI law, and the 3-year action plan for creation and development of the NSDI) and the state development program for the geoportal, proposed in the draft NSDI plan, were drafted, in which the experiences and the results of the above-mentioned new pilot project were reflected. They were expected to be approved within 2021 and, based on them, step-by-step creation of the NSDI in the entire country was expected to start from 2022 (Supplementary Information 1).

The cooperation framework of the related agencies was continuously utilized. Until adoption of the NSDI law, the NSDI Sub-Group was continuously operated. After adoption of the NSDI law, the NSDI Council and the NSDI Sub-Group were functioning as the SC and the WG proposed by the project (Supplementary Information 2).

The UkrGIS was approved by the National Body of Standardization in 2018 and widely used by all data producers and data holders both from private and public sectors (Supplementary Information 3).

The NSDI prototype created in the project pilot area itself was not operated online after the project completion due to absence of legal background for the NSDI operation at that time; however, it was utilized as the basis to advocate the process of the NSDI development in the country⁶. As mentioned above, the NSDI prototype system was already enhanced under the new pilot project for development of the NSDI and the enhanced prototype system was being operated online as the pilot NSDI geoportal, through which the data created in the project pilot area was accessible by any other organizations for free. The enhanced prototype system (=the pilot NSDI system) was also used to demonstrate/disseminate the benefits of the NSDI⁷ (Supplementary Information 4).

Under the above-mentioned new pilot project, the NSDI was created⁸ in 8 new pilot cities/oblasts (highest administrative division of Ukraine)⁹ based on the NSDI prototype in 2020, which was being operated online on the pilot NSDI geoportal. The NSDI was created in line with the draft NSDI plan as some of the principal tasks proposed in the said plan (e.g., public awareness activities and enhancement of the NSDI prototype system) were implemented under the framework of the new pilot project. In addition, 6 other cities/oblasts¹⁰ started to

⁵ As per the previous draft of the NSDI law (2018), the data was to be gathered and operated in the National Data Center, a new State Enterprise to be created after adoption of the law. Through the new pilot project, a local SDI was developed online in each local authority independently, which was integrated with the NSDI in online mode.

⁶ For example, the SSGCC utilized the NSDI prototype to present the benefits of the NSDI to the Prime Minister of Ukraine in October 2019 and the Parliament Committee in February 2020 to ensure support for the NSDI development and the draft NSDI law. The SSGCC and the RIGC also utilized it to disseminate the benefits of the NSDI to local authorities under the framework of the new pilot project.

⁷ For example, in February 2021, the SSGCC and the RIGC used the enhanced prototype system (=the pilot NSDI system) to demonstrate the benefits, necessity, and importance of the NSDI at the meetings with the President and the Prime Minister of Ukraine.

⁸ According to the implementing agency, “the NSDI is created in the city/area” meant that “the maximum available quantity of data sets is received from data holders, including the city/area level, and these data sets are available on the single geoportal”.

⁹ The new pilot areas (Lviv, Zhytomyr, Bila Tserkva, Mariupol, Mykolaiv, and Poltava Cities and Lviv and Kharkiv Oblasts) were selected mainly based on the level of local initiatives on the activities related to geospatial data.

¹⁰ They are Kyiv and Chernihiv Cities and Ternopil, Odessa, Vinnytsia and Ivano-Frankivsk Oblasts.

create local SDIs based on the NSDI prototype with their own initiatives and technical support by the RIGC, which would be integrated with the NSDI in online mode once completed. The SSGCC and the RIGC considered that the number of areas in which the NSDI was created so far was appropriate because, even before enforcement of the NSDI law in January 2021, they managed to create the NSDI for 8 new cities/oblasts and motivated 6 others to initiate the process. It is noted that more cities/oblasts were expected to start the process from 2022 after the approval of the Order of Functioning of the NSDI and the action plan for creation and development of the NSDI (Indicator).

<Status of Achievement for Expected Goals through the Proposed Plan at the time of Ex-post Evaluation>

Progress was already observed towards the Expected Goals through the Proposed Plan, which are medium-to-long-term goals. As described in <Utilization Status of the Proposed Plan at the Time of Ex-Post Evaluation>, the NSDI prototype was already disseminated in 8 cities/oblasts where the NSDI was created in 2020 and in 6 other cities/oblasts where the NSDI was being created. In addition, step-by-step dissemination in the entire country was expected to start from 2022.

<Other Impacts at the Time of Ex-post Evaluation>

Negative impacts were not observed. Meanwhile, positive impacts were observed. For example, the project contributed to adoption of the NSDI law through demonstration of the benefits of the NSDI to the Prime Minister and the Parliament Committee by the representatives of the SSCGG and the RIGC who participated in the project, using the deliverables of the project such as the draft NSDI plan and the NSDI prototype, and through recommendation of the adoption of the NSDI law to the Parliament by the NSDI Sub-group established under the project. The draft of the NSDI law, which was adopted in April 2020, was also prepared by the staff of the SSGCC and the RIGC who participated in the project based on the experiences and results of the project. It is noted that the project was expected to contribute to transparency of the land market in Ukraine, which was open in July 2021, because the NSDI would enable the transparency of data, in particular, about land parcels, infrastructure objects, etc., which would be crucial for potential investors in the land market¹¹.

<Evaluation Result>

In light of the above, the effectiveness/impact of the project is high.

Status of Achievement of Utilization Status of the Proposed Plan and Expected Goals through the Proposed Plan

Aim	Indicators	Results	
(Utilization Status of the Proposed Plan)	Indicator: Results of cities/areas in which the NSDI is created based on the NSDI creation and operation prototype.	(Ex-post Evaluation) achieved. - Even before enforcement of the NSDI law (January 2021), the NSDI was created in 8 cities/oblasts based on the NSDI prototype under a new pilot project for development of the NSDI initiated by SSCGG and implemented by the RIGC, which was operational in online mode. The NSDI was created in line with the draft NSDI plan developed under the project because enhancement of the NSDI prototype system, etc. proposed in the said plan was implemented under the framework of the new pilot project. In addition, 6 other cities/oblasts started to create local SDIs, which would be integrated with the NSDI in online mode once completed.	Source: Questionnaire and interviews survey to the SSGCC and the RIGC.
(Expected Goals through the Proposed Plan) The NSDI creation and operation prototype established through the project is disseminated to outside the pilot area.		(Ex-post Evaluation) partially achieved. - The NSDI prototype was already disseminated in 8 cities/oblasts where NSDI was created in 2020 and 6 other cities/oblasts where NSDI was being created. In addition, full-fledged dissemination was expected to start in 2022. (See the Results of “Utilization Status of the Proposed Plan” above for details.)	Source: ditto

3 Efficiency

While the project cost was within the plan (ratio against the plan: 89%), the project period exceeded the plan (ratio against the plan: 129%). The project was extended mainly because arial photography was postponed for several months due to weather conditions, which caused delays in the NSDI prototype system development, and the coordination authority of the NSDI (i.e., the NSDI Sub-group) was not officially established until the end of the planned period mainly due to bureaucratic procedures. The outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

The NSDI law was adopted in 2020 and became effective in 2021. In addition, the draft of the Order of Functioning of the NSDI was being finalized and expected to be approved by the parliament by the end of 2021. In parallel, the draft of the action plan for NSDI creation and development was being developed based on the above-mentioned draft Order, which was also expected to be approved by the NSDI Council by the end of 2021.

<Institutional/Organizational Aspect>

The NSDI Council and the NSDI Sub-group were functioning as the cooperation framework between the related agencies. The SSGCC was continuously in charge of the NSDI in Ukraine and a member of the NSDI Sub-group. Within the SSGCC, the Department of Development and Standardization of NSDI and the Division of NSDI under the Department were newly created¹², to which 22 experts were assigned (5 of them working at the Division of NSDI). It is noted that, after the project completion, most of the SSGCC staff involved in the project left the office due to political shifts in the country although they were replaced by the new staff. According to the SSGCC, it would take some time for the new staff to come into the full picture, but serious problems were not observed in promoting NSDI creation and operation due to the staff replacements. The RIGC, a member of the NSDI Sub-Group and the administrator of the NSDI geoportal,

¹¹ In the past, the land reform in Ukraine was supported by the World Bank and the European Union Twinning projects (“Capacity Development for Evidence-Based Land & Agricultural Policy Making Project in Ukraine” (2015-2017) and “Creation of Transparent Agricultural Land Market in Ukraine” (2014-2016) respectively), which resulted in adoption of the Land Market Law of Ukraine in 2020. So, in a sense, it could be considered as a synergetic effect between this project and the above- mentioned projects.

¹² The Department of Development and Standardization of NSDI was responsible for a wide range of functions, including the NSDI and the Division of NSDI was responsible for the activities related to the NSDI in particular and reported to the Director of the Department. The technical support to the Department was provided by State Enterprises (such as the RIGC) for specific and technical issues.

allocated about 20 experts for the NSDI related activities. The SSGCC and the RIGC considered the current structure and the number of staff was appropriate to assume their roles in the NSDI because the structure was built and the staff were allocated in accordance with their assigned roles.

<Technical Aspect>

The SSGCC and the RIGC sustained and further developed the transferred knowledge and techniques for NSDI creation and operation by applying them in their daily operation. The new staff of the SSGCC managed to catch up with them mainly by referring to the materials produced under the project and through training and seminars by the staff who remained at their positions after the project completion. As part of their NSDI related works, the SSGCC and the RIGC started to actively disseminate the transferred skills and knowledge and the deliverables of the project through meetings, seminars, workshops and training to the relevant organizations (e.g., other members of the NSDI Sub-group, the data holders and the local governments in the new pilot areas). In addition, there is a plan to organize the practical courses on the NSDI at state universities, targeting data holders and users as well as students, and the RIGC already started to negotiate with several universities. The equipment provided under the project was well-maintained and being effectively utilized for the direct purposes of geoportal development and NSDI promotion by the RIGC.

<Financial Aspect>

Activities for creation, operation and development of the NSDI were carried out mainly at the expense of the state and local budgets. For example, the SSGCC and the RIGC secured the necessary budget to assume their roles in the NSDI creation and operation, including the operation and maintenance budget for the provided equipment, through its regular state budget except for some specific tasks¹³. In addition, the budget for administration of the NSDI geoportal was being discussed separately, which was planned to be allocated to the RIGC from 2021. The related agencies (the data holders) also created the geospatial data sets within their own budget according to their priorities. Meanwhile, the cost for creation, operation, and further development of the local geoportal/SDI was to be borne by the local governments, and the local governments in the new pilot areas allocated the necessary budget for that. It was expected that the main amount of the state and local funding for the NSDI would be implemented starting from 2022 with the approval of the Order of Functioning of the NSDI in 2021. This would be also promoted by coordination at the NSDI Council and the NSDI Sub-group as well as continuous public awareness activities by the SSGCC and the RIGC. However, it was uncertain whether all the related agencies and the local governments outside the new pilot areas would allocate the necessary budget for the NSDI because the budget allocation would solely depend on their internal decisions.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The project achieved its Objectives at the time of project completion because the draft NSDI plan, the cooperative framework of the related organizations, the draft of standards of geospatial information, and the NSDI prototype were produced and the techniques on NSDI creation and operation were transferred to the related organizations, including the SSGCC and the RIGC. Utilization of the Proposed Plan was achieved at the time of ex-post evaluation because the NSDI was created in 8 new cities/oblasts based on the NSDI prototype and other outputs were also utilized. Regarding the sustainability, no problems were observed in terms of the policy, institutional/organizational and technical aspects but slight problems were observed in terms of the financial aspects (i.e., uncertainty about the budget allocation by the local governments and the related agencies). As for the efficiency, the project period exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- In order to minimize the effects of the staff replacements on continuation of the project effects in the future, there are 3 recommended actions for the SSGCC : 1) It would be advisable to establish a Project Implementation Unit (PIU), with stable staff assignments regardless of any political events upon any project commencement related to the NSDI; 2) Information sharing should be further promoted and enhanced through periodical meeting and reporting in writing format among PIU members to prepare for staff replacements; 3) It is advisable to prepare internal manuals and guidelines so that newly appointed personals can get accustomed with new assignments.

Lessons Learned for JICA:

- When it comes to project components which are weather dependent such as aerial photography, to secure appropriate project period, conducting more scrutinized research would be favorable at the project planning stage through adequate document reviews as well as interview surveys with not only the implementing agency but also local experts in the field (in this case, local aerial photography experts or/and meteorology service of Ukraine). Such consultations would allow to confirm the latest weather patterns and plan more time for the relevant project component.

- Another lesson that might be used at the project planning stage for the future is to secure more time for the possible bureaucratic procedures of the target country. Things like special permissions and multi-layered legislative procedures for establishment of certain components usually take much more time than initially secured by the projects. Thus, comprehensive contingency plans should be elaborated for cases when official legislative procedures are envisaged and cannot be completed on time. Another solution would be to limit the project activities into those which the implementing agency can be fully responsible for, considering their jurisdiction, while anything outside their jurisdiction (such as cabinet resolutions and legal issues), could be positioned as external conditions.

¹³ For example, the cost of external experts who supported development of the draft action plan of creation and development of the NSDI was funded by the United States Agency for International Development and the World Bank.



Equipment provided under the project at the RIGC regularly used for geoportal development



(Top) Representatives from the SSGCC and the RIGC demonstrating the necessity of the NSDI law to the Prime Minister in October 2019

(Bottom) Representatives from the NSDI Sub-group recommending the Parliament to adopt the NSDI law in March 2020



Representatives from the SSGCC and the RIGC demonstrating the potential benefits of the NSDI to the President Zelenskyi in February 2021