Report

Stakeholder Forum of the Sub-sector Working Group on Irrigation (SSWG-IR):

The opportunities and potential of harnessing geographic information systems for irrigation management and development in Lao PDR

5 June 2025, Vientiane Capital, Lao PDR

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Abbreviations

ADB	Asian Development Bank
AWD	Alternative Wetting and Drying system
CFAVC	Climate-friendly Agricultural Value Chains Sector
DAEC	Department of Agriculture Extension and Cooperatives
DALaM	Department of Agriculture Land Management
DLF	Department of Livestock and Fisheries
DOI	Department of Irrigation
DWR	Department of Water Resources
EU	European Union
FLID	Farmer-led Irrigation Development
GIS	Geographic Information System
IWMI	International Water Management Institute
JICA	Japanese International Cooperation Agency
KOICA	Korean International Cooperation Agency
Lao PDR	Lao People's Democratic Republic
Lao WIS	Lao Water and Water Resources Information System
MAF	Ministry of Agriculture and Forestry
MONRE	Ministry of Natural Resources and Environment
MRC	Mekong River Commission
NAFRI	National Agriculture and Forestry Research Institute
NGD	National Geographic Department
SSWG-IR	Sub-sector Working Group on Irrigation
SWG-ARD	Sectoral Working Group on Agriculture and Rural Development
WGS 84	World Geodetic System in 1984

Summary

The first semi-annual Stakeholder Forum of 2025 of the Sub-sector Working Group on Irrigation (SSWG-IR) was held in Vientiane Capital, Lao People's Democratic Republic (Lao PDR). It was organized by the Department of Irrigation (DOI) under the Ministry of Agriculture and Environment and supported by the Asian Development Bank (ADB) together with the International Water Management Institute (IWMI). The event was attended by 80 participants from government, academia, development organizations, farmer groups, and enterprises from the banking, insurance, hydropower, and mining sectors.

The forum serves as a strategic coordination platform that offers high level support to the MAF's Sectoral Working Group on Agriculture and Rural Development (SWG-ARD) and regular coordination among key stakeholders for more effective resource utilization and synergy enhancements for different irrigation development agenda topics or issues. The specific objectives of this particular event are to facilitate discussions on the opportunities and potential of harnessing geographic information systems (GIS) for irrigation management and development in the Lao PDR and to disseminate the new Irrigation Development Strategic Plan from 2026-2030 and Vision to 2040. The event also offered useful thoughts for DOI's GIS-based database establishment plan by reflecting on lessons learnt from other sectors.

Key discussion outcomes and recommendations are summarized as follows:

- The establishment of a GIS-based irrigation database is seen as an opportunity for irrigation development in the context of Lao PDR to have comprehensive and accurate data to support effective water governance for socio-economic development and regional cooperation for Mekong basin development management. Key recommendations for the effective establishment of GIS-based database are as follows:
    - Integrating the planned DOI's irrigation database platform with other existing database platforms hosted by the Department of Water Resources (DWR) and the Department of Agricultural Land Management (DALaM) to facilitate better data access and linkages.
    - Strengthening synergies among the stakeholders to facilitate the exchange and effective utilization of existing databases at their project and sectoral levels to minimize the resources for new data collection and enhance networking and more cross-sectoral cooperation in different areas.
    - Advocating for, and taking further steps towards, more active application of the established databases and information for the policy formulation process, project planning preparations, and prioritization of resources to support decisions and management that impact food production, improved nutrition, and economic development.
    - Strengthening capacity building for irrigation professionals in GIS applications at national, provincial, and district levels.
    - Advocating for gender equality mainstreaming to ensure equitable access emerges from the use of the introduced technology.
- Prioritizing research in the implementation of the Irrigation Development Strategic Plans from 2026 to 2030 and the Vision to 2040.

1. Introduction

This report documents a summary of the Stakeholder Forum of the Sub-sector Working Group on Irrigation (SSWG-IR) organized on 5 June 2025 from 8.00 am to 12.00 am in Vientiane Capital, Lao People's Democratic Republic (Lao PDR). The event was co-chaired by Dr. Khamphachanh Vongsana, the Director General of the Department of Irrigation (DOI), and Ms. Shanny Campbell, the Country Director of the Asian Development Bank (ADB), featured in Photo 1. There were 80 participants, with 24 women, represented from government agencies, academia, development partners, farmer organizations, and the private sector from banking, insurance, hydropower, and mining sectors.

PHOTO 1: Delivering the opening remarks by the chairperson, Dr. Khamphachanh Vongsavan, DOI Director General together with Ms. Shanny Campbell, ADB Country Director. Photo credit: Department of Information and Disseminations, MAF.

***"Harnessing the GIS technology in irrigation development and management, especially enhancing quality and real-time database management, is crucial and needed for planning and making decision in irrigation"**, Dr. Khamphachanh, during the opening remarks.*

***"As we collectively work to improve water governance, boost agricultural productivity, and enhance resilience to climate change, GIS offers us powerful tools to better plan, manage, and monitor irrigation systems"**,* emphasized by Ms. Campbell in her acknowledging remarks.

The event was organized to serve as a strategic coordination platform that offers high level support to the Sectoral Working Group on Agriculture and Rural Development (SWG-ARD) of the Ministry of Agriculture and Forestry (MAF) or currently known as the Ministry of Agriculture and Environment, following its merger with the Ministry of Natural Resources and Environment (MONRE) in March 2025[1]. It is also convened to facilitate regular coordination and discussions among key stakeholders for more effective resource utilization and synergy enhancements for different irrigation development agendas or issues. This first semi-annual stakeholder forum of the year 2025 focused on the opportunities and potential of harnessing geographic information systems (GIS) for irrigation management and development in the Lao PDR and on presenting the new Irrigation Development Strategic Plan from 2026-2030 and Vision to 2040 as part of the policy dissemination process to facilitate its implementation.

[1] Vientiane Times. 2025. NA approves ministry mergers, amendments to constitution, laws, investment incentives. Available at: https://www.vientiane-times.org.la/freefreenews/freecontent_056_NA_approves_y25.php.

2. Meeting process

Key agenda items to facilitate the discussions during the event included six presentations on progress and lessons learnt on the use of GIS in database management and digital mapping and two discussion sessions. A detailed agenda is attached in Annex 1 of this report. A summary of the presentations and discussions are as follows:

2.1. A presentation on "the irrigation development strategic plans from 2026-2030 and the vision to 2040 and GIS-based irrigation database management"

The presentation was delivered by Dr. Vongsakda Vongxay, DOI Director of the Planning and Cooperation Division. The presentation covers four topics on current irrigation development, challenges, irrigation development strategic plans from 2026 to 2030 and the Vision to 2040, and integration between development strategy and establishment of the irrigation database. Key contents of the presentation were as follows:

- Status of the irrigation development:
  - There are 19,470 projects counting from six types of irrigation as shown in Figure 1.
  - The recent irrigation supply of these projects included about 318,000 hectares in the rainy season and about 182,000 hectares in the dry season. They reached 41 percent and 24 percent of the total paddy land of about 771,000 hectares, accordingly.

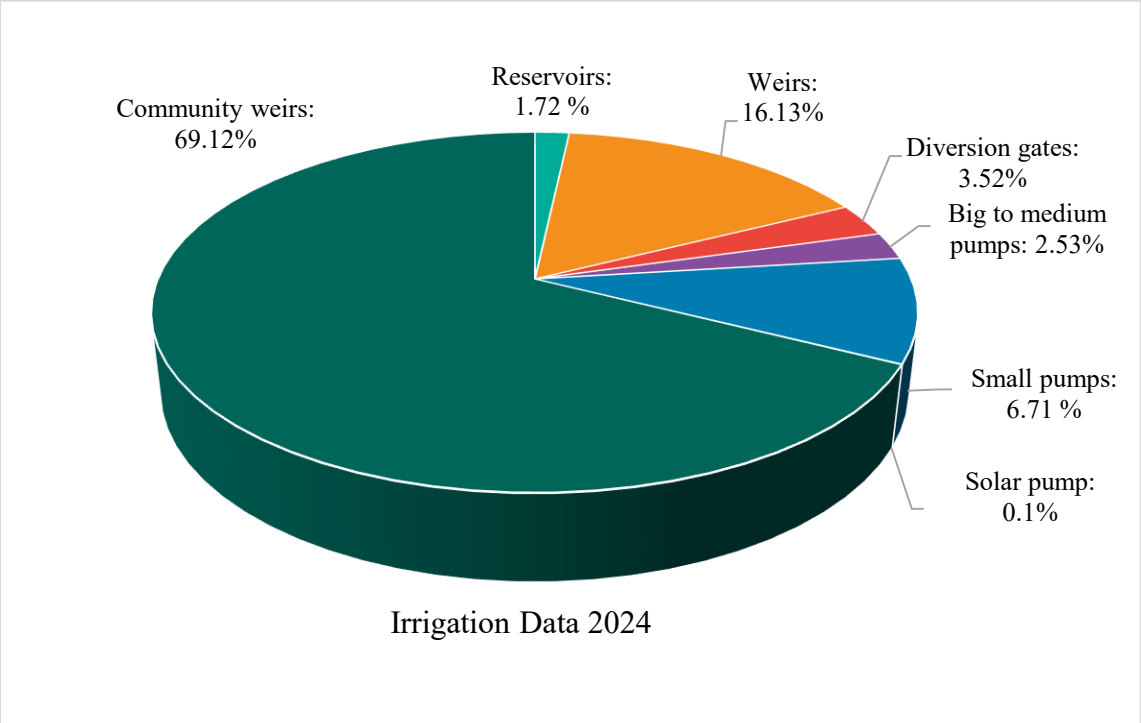

Figure 1: Irrigation database in 2024. Source: DOI cited in the presentation slides by Dr. Vongsakda.

- Key challenges are due to climate change worsening annual floods and droughts, insufficiency in water supply because 70 percent of the canals are unlined, a lack of infrastructure to store water for the use in the dry season, a lack of budget for maintenance, and the knowledge of water management is still required.

- 2026-2030 Irrigation Development Strategic Plans and the Vision to 2040:
  - Improving the water supply to ensure water security and availability.
  - Rehabilitating existing irrigation projects, which are old and deteriorated, especially to upgrade soil canals to concrete-lined canals, which are more permanent and standardized.
  - Improving the water management process and irrigation system modernization, including the modernized database improvement and management and the use of modernized technologies for monitoring.
  - Strengthening irrigation management, operations, and maintenance for the institutions, water user groups, and farmers to be able to operate and manage irrigation systems.
  - Strengthening human resources in the irrigation sector at both the central and local levels, and further improvements of the legal and regulatory framework as well as technical standards.
- Policy focus:
  - Increasing water storage and introducing water-saving distribution systems.
  - Using multiple options to expand modernized irrigation systems, enabling higher service delivery to farmers, especially promoting: i) gravity systems to save pumping cost; ii) introducing the two climate-resilient irrigation models by using groundwater irrigation with solar energy and constructing flood embankment or dike irrigation; and iii) establishing the GIS-based database.
  - Improving capacity building for water user groups to strengthen irrigation operation and maintenance capacity.
  - Improving irrigation efficiency by enhancing water management via different techniques, i.e., intermittent irrigation to reduce methane emission, increase production yield, save irrigation water, and reduce the cost.
    - Currently, DOI cooperates with other development partners like the Japanese International Cooperation Agency (JICA) to conduct a study or pilot project on irrigation water management by using alternate wetting and drying (AWD) and intermittent methane emission methods to introduce water saving, reduce greenhouse gas emission, and improve the productivity in Thangone.
  - Establishing an irrigation operation and maintenance fund at the community level to support water user groups and to increase water use efficiency.
- A brief concept of the GIS-based irrigation database establishment:
  - Its purpose is to make available comprehensive and real-time access to the irrigation database, which is crucial for irrigation development planning and management.
  - Key designed contents of the database comprise irrigation projects (point), reservoirs (polygon), irrigated areas (polygon), headworks (point), and irrigation canals (line).
  - The database establishment plan will be supported by an ADB-funded project, as part of the support for irrigation development master plans of the project to strengthen governance and institutional capacity.
  - The planned irrigation database will comprise datasets from the permanent irrigation projects and will build on the existing database from DOI's previous joint initiative with the Mekong River Commission (MRC) in 2014. The previous database comprises 3,115 out of the 6,321 large-scale projects at present.

2.2. A presentation on "GIS database creation for sustainable agricultural development"

The presentation was delivered by Ms. Bounsou Pavongviengkham, Deputy Chief of the Mapping Division of the Survey and Mapping Center of the National Geographic Department (NGD), the Ministry of Home Affairs. Key points include the need to establish GIS-based databases for sustainable agricultural area development and management, a common challenge in relation to inconsistent systems for database management, updating, and the development process of integrating GIS in databases for agricultural land management.

- Key benefits of integrating GIS in database management are to i) resolve mapping systems for a consistent and common system operation across the country, ii) convert a paper-based system to digitalization operating via only platforms and databases, iii) support effective demonstration of outcomes, and iv) facilitate data collection, improvements, and so on.
    - Converting paper-based databases and maps to digital forms will be crucial for the relevant sectors like MAF to use the visualized data for agricultural land development purposes.
- Common challenges are often associated with data components, in terms of data asymmetry between the central and local levels and inconsistent systems causing difficulties in managing, checking, and making spatial analysis for the agricultural land, affecting the achievement of the national and local socioeconomic development plans due to incorrect spatial analysis.
    - To facilitate data surveys, especially to collect and record non-registered land into the national system, the National Geographic Department has applied the national reference station or continuously operating reference system for the national use.
- There is a need to update and develop base maps for a common operating standardization and system to facilitate sustainable agricultural land management when digitalizing the database operation and connecting with other servers.
- Integrating GIS into agricultural land management can be developed by two key steps, including turning paper-based land management maps into digital maps and creating new digital maps. Implementing procedures by NGD are outlined as follows:
    - Creating a new photo of a base map by using the coordinate system of the World Geodetic System 1984 (WGS 84) with a suggested large scale of 1/2000.
    - Convert the base maps of the agricultural land into digital maps by scanning the maps and rectifying or correcting the coordinates from the previous system, LAO 97 to WGS 84 coordinate system.
    - Digitalizing the maps by using computer software programs such as: AutoCAD, ArcGIS Pro, and Global Mapper.
    - Inserting the data into the map sheet by using the Lao National Map Index to ensure system consistency.
        - NGD has introduced the system in Savannakhet and Vientiane Capital with support from the Korean International Cooperation Agency (KOICA).
    - Inputting the database to the central server, MAF's server, which can be later linked to other servers.

2.3. A presentation on "Using GIS in agricultural land management"

The presentation was delivered by Ms. Soraty Sengxeu, Technical Officer from the Center for Agricultural Land Survey and Planning of the Department of Agricultural Land Management (DALaM). The presentation features the background and key applications of the GIS-based database and maps for the agricultural land management as follows:

- GIS has been integrated in agricultural land development and management in the Lao PDR since 1991 to support agricultural land use planning and land allocation, led by the National Agriculture and Forestry Research Institute (NAFRI) prior to the establishment of DALaM.
- Key areas for using GIS include agricultural land maps, soil fertility maps for cash crops, such as maize, banana, and cassava, as well as soil physical and chemical content maps.
    - With the GIS-based maps, the agricultural land use and forest coverage maps at the provincial level were completed in 2019, and the mapping manual for agricultural processing areas was completed in 2024 by reflecting irrigated maps to identified land for crop cultivation and agricultural processing as part of the manual.
    - DALaM also plans to use agricultural land maps at the village level to support the government's development plans and strategies for securing land ownership and sustainable agricultural land and forestry resources management, sustainable biodiversity management, and agricultural and forestry land management for food security, agricultural product commercialization, and livelihoods of Lao people.
        - Currently, about 10 percent of the villages across the country have been completed.

2.4. A presentation on "Rural infrastructure asset management system"

The presentation was delivered by Mr. Khambane Inthipunya, national rural infrastructure specialist of the "Climate-friendly agribusiness value chains sector (CFAVC)" project, implemented by the Department of Agriculture Extensions and Cooperatives (DAEC) in cooperation with DOI. Key features of the presentation include objectives, conceptualization, and lessons learnt as follows:

- This project component aims to build a GIS-based database for a rural infrastructure asset management system that is suitable for the local context in Lao PDR. The system is to support and provide the data needs for the planning and management at the national, provincial, and district levels.
    - The conceptual model of the introduced system comprises the three levels of operations.
        - At the national level, the process involves data collection, data processing, and storing in hard databases. From the database, desktop and online dashboards are developed, which are convenient for the management and planning for the policymakers and convenient for creating digital maps by respective professions.
        - For the provincial level, it starts with consolidating data from the district level and the provincial geodatabases prior to sending the consolidated data to DOI. A desktop database is also managed at the provincial level in addition to the online access to data of the respective districts.
        - The district level is responsible for collecting, processing, and sending data to the provincial level.

    - There are five registered data components under the system, including pond, canal, road, inspection, and maintenance.
    - The established system is designed to have comprehensive datasets on infrastructure identify, geographic location, sub-national administrative identities, physical dimension (e.g., depth and width of the pond), beneficiaries (e.g., farmer households), construction cost, production area coverage, and maintenance.
    - Currently, the system is piloted in Khammouane and Sekong provinces, in one district each.
- Lessons learned and recommendations:
    - The rural infrastructure management system is a digital and modernized system, which can provide the data for the management and planning within a short time.
    - It is very important to strengthen capacity building for the irrigation professionals at both the central and local levels to facilitate the sustainability of the system.
    - The system is designed with a consideration for further data integration to support centralized data management.

2.5. A presentation on "Farmer-led irrigation development (FLID) tool for climate-resilient agri-food systems"

The presentation was delivered by Dr. Mansoor Leh, IWMI Researcher. The presentation outlines an overview of the suitability mapping framework and the preliminary results of the FLID tool as follows:

- The FLID tool is developed to support climate-resilient irrigation as part of the ASEAN-CGIAR Innovate for Food Security Regional Program (https://asean-cgiar.irri.org/). The study focuses on the cropping areas, comprising rain-fed and irrigated areas. Farmer-led irrigation (FLI) is part of the total irrigated area, in addition to the major irrigation, which is often the focus for irrigation development, while FLI is often overlooked.
    - FLI is a small-scheme irrigation led by smallholder farmers, although it has contributed quite a lot to the livelihoods of the society.
    - Key research questions for this research project are about how to expand the FLI production in the entire industry and its irrigated areas, which form the overall purposes of the project.
    - By using GIS, the study explores the areas where FLI is undergoing and can be expanded by integrating other factors such as climate condition, socio-economy, and technical capacity.
- The preliminary results of the study are available online via the link https://darshanacw.github.io/FLID/Index.html, where FLID suitable areas in the Lao PDR and Cambodia can be found based on irrigation data sources in 2009 from MRC.
    - With the approach, more needed information can be further added to the datasets.

2.6. A presentation on "water and water resources database management"

The presentation was delivered by Ms. Soukphaphone Southalavong, Deputy Director of the Water and Water Resources Assessment Division of the Department of Water Resources (DWR), MONRE.

The presentation outlines supporting policies, challenges, and progress on the database management as follows:

- The water and water resources data management under DWR is governed under the law and legislations, such as the law on water and water resources, particularly in part three on asset management and data management; the strategy for the water and water resource management to 2030 and vision to 2040, outlined in the second strategy; and the data management plan as part of the watershed management plans.
- Common issues in water and water resources data management are mainly due to inconsistent modes, systems, and types of data for further exchanges and integration with other data platforms, causing difficulty for water governance and water availability assessment, as DWR also needs to have the data from all relevant sectors, especially the irrigation sector.
    - On watershed situational assessment, available data is one of the three components, in addition to the use of GIS for the analysis and making a watershed management plan, and the use of a model based on associated data on water and water resources management.
    - The water assessment is crucial for making and managing a watershed management plan and having the data on the water availability for further water management and allocation to different sectors for their socio-economic development activities, including the irrigation sector.
- The Lao water information system (Lao WIS) was developed in 2019, and it was ready for open access in 2021 with some information; however, a formal request can be sent to DWR for access to any required data, i.e., water quality data.
    - Currently, the system has linked with some hydropower plants.
    - The system can be accessed via the link http://laowis.monre.gov.la/. However, it is still in its ongoing development with support from the International Office for Water under a French cooperation project funded by the Loire-Bretagne and Rhin-Meuse Water Agencies.
    - The system is not capable of providing real-time data for decision-making related to meteorology like early warning of extreme events.
    - Besides, the data connection between the sectors still needs to be improved in addition to the staff capacity on the use of information technology.

2.7. Discussion session:

The discussion session was facilitated by the Chairperson, Dr. Khamphachanh Vongsana, DOI's Director General. Participants were given the floor to share comments, feedback, and questions on the presentations after each of the two sessions. Main comments and thoughts shared during the sessions were around further integration of the existing databases among relevant sectors, resource synergy, sectoral cooperation, research prioritizations as part of the irrigation strategy implementation, and ways forward. Key points of the discussions are summarized as follows:

Data integration and exchange:

- A participant from the National Agriculture and Forestry Research Institute (NAFRI) shared his thoughts that it would be ideal to integrate and merge different presented database platforms, i.e., the DWR's database platform.
- The Co-chairperson from ADB also raised a brainstorming question about how the existing excellent resources (data sources) from the different sectors, such as NGD, DWR, and DALaM have been and will be utilized.
    - "To what extent do we or could we integrate these systems so that we can realize on the economy of scale, so we do not need to put off any of the things, we do not need much of the budget to run new things, and we do not have to look at five different places to get information to make better decisions?" asked the co-chairperson.
- The idea of the system integration and data sharing was also supported by a participant from the European Union (EU), who added that there may be a need to review the policy framework and whether further clarifications or a new addendum may be needed to facilitate the data integration among the sectors.

Networking and cross-sectoral cooperation:

- The Co-chairperson from ADB raised another question on networking and knowing the work of others. She asked, "To what extent outside this meeting do you network with each other, share information, and know what each other are doing? Is there any established professional network within the Lao community and also other organizations such as, IWMI and others who may have similar irrigation databases?" She added that those organizations may also have some databases created through their supported projects, which would be good for further building upon rather than replicating them in the future.
- The participant from the EU also made the point to support synergies and deepen cooperation among the projects and sectors working in the similar areas. He raised an example about project interventions on forest and land use planning and allocation between MONRE and MAF, which can be started from the project design stage to ensure similar datasets for further integrations.
- The participant from DALaM also shared its national survey on rice fields in irrigated areas, which could be useful for further collaboration with DOI in terms of the data exchange because DOI may plan some field monitoring to ensure accuracy of the datasets consolidated in 2014.

Prioritizing research and development (R&D) in the irrigation development plans:

- The participant from NAFRI shared his thoughts that there may need to be a clear outline of the R&D component of the DOI's irrigation development strategies and policies, for example, research on greenhouse gas emission reduction and groundwater irrigation in relation to water balance and sustainability, in case they are not yet planned. The chairperson from DOI acknowledged the suggestion and clarified that DOI has research plan, for example, a study on carbon credit in the rice field.

- On further implementations of the two promoted irrigation models for climate resilience, the participant from DALaM suggested feasible research cooperation on soil survey and soil quality assessment in the pilot areas of the irrigation models to facilitate the agricultural production in addition to the water supply. He added that this would support the land and water management interaction as part of the national green growth development direction.

Other food-for-thought on ways forward:

- Looking towards the way forward, the Co-chairperson from ADB shared her thoughts on the need to prove the needs to prioritize the additional resources for the establishment of the GIS-based irrigation database. She elaborated on the need to show the policymakers how information was used to make decisions about producing more crops with economical values and high nutritional values or more income for the farmers and then more tax revenues for the government. She recalled the advantages of the GIS technology, which has enormous potential to basically connect information and make it understandable because it is put in a visual context. However, it is often disconnected from applying the information for either policy, project preparations, prioritizations of resources (money), or operation and maintenance, she added.
    - She also raised further questions as food for thought, like "To what extent can we overcome some of the problems and some of the pain points in our systems, such as lack of people and lack of application of all the stuff (existing databases) for real-life things? How can we list down all the information to better nutrition for children? and how can we use the information to really accurately pinpoint where we should invest based on the scenario of the areas?"
    - She also raised gender equality as an inspiring issue to consider, recalling many men and women in the Lao context are left behind using the technology.
- The participant from NAFRI raised a further step to consider on having a cybersecurity policy to facilitate the implementation of online databases.
- The Chairperson from DOI re-emphasized the need to establish the GIS-based databases, with the need to reflect the above recommendations and thoughts, in addition to strengthening human resources capacity at the national, provincial, and district levels to have better understanding for further use and management, especially engaging women in the system management and using research evidence for further development and increasing the database efficiency.

3. Summary and reflections

This section summarizes key discussion points in reflections with lessons learnt and recommendations from the presentations as follows:

The opportunities and ways forward harnessing GIS in irrigation database management:

The establishment of a GIS-based irrigation database is seen as any opportunity for irrigation development in the context of Lao PDR, based on the evidence from different project presentations and positive thoughts during the discussions. These include the needs to support water governance for more effective distribution to different socio-economic development sectors, regional cooperation on Mekong basin governance, and cross-sectoral cooperation on the interacted water and soil governance to facilitate effective food production and commercialization.

Key recommendations and ways forward for effective and sustainable implementation are summarized as follows:

- Integration of the existing database platforms is recommended to benefit from the economy of scale of the collective actions among different departments such as DOI, DWR, and DALaM. The recommendation is also supported by the existing practices of the CFAVC project of DAEC and the FLID project of IWMI, whose database systems are designed for further data integration.
- Collaboration and synergy of resources among the sectors are recommended to facilitate more exchange and effective utilization of existing databases at project and sectoral levels, minimize the resources required, and avoid creating replicated databases. The concept of the interacted soil and water governance for agricultural production is an example of further cross-sectoral cooperation in different areas in addition to data exchange.
- To justify the needs and also facilitate the resource synergy, the key stakeholders and relevant actors may need to take further next steps in facilitating the exchange and use of existing data sources to support the policy formulation process, decision-making, resource prioritizations, management, and so on that impacts food production, nutrition improvement, and national economic growth.
- Capacity building for the irrigation professionals at national, provincial, and district levels is also recommended as another key priority to ensure effective and sustained implementation of the database management. The recommendation was made for all the institutions and projects, such as DWR, DALaM, and CFAVC project, which are implementing the GIS-based database management.
- Promoting gender mainstreaming through active engagement to benefit from the introduced technology should be ensured as well.

Reflections on irrigation development strategic plans:

- Prioritizing research in the implementation of irrigation development policy is a key comment on the presented Irrigation Development Strategic Plans from 2026 to 2030 and Vision to 2040. Further joint research is also proposed by DALaM and NAFRI to conduct soil surveys and greenhouse gas emission studies in the irrigated areas, for instance.

Annex 1: Agenda

Time	Description	Facilitator/in-charge person
8.00-8.25	Registration	All
8.25-8.30	Stating the purposes and introducing the agenda	MC from DOI
8.30-8.50	Opening remarks by the chairperson and the co-chairperson	• Dr Khamphachanh Vongsana, DOI DG • Ms Shanny Campbell, ADB Country Director
8.50-9.00	Group photo session and setting the presentation floor	MC
9.00-9.20	A presentation on i) the Irrigation Development Strategic Plan from 2026-2030 and Vision to 2040 and ii) GIS-based irrigation database management	Division of Planning and Cooperation, DOI
9.20-9.30	A presentation on establishing GIS-based map data for development	National Geographic Department, Ministry of Home Affairs
9.30-9.40	A presentation on harnessing GIS in agricultural land management	Department of Agricultural Land Management
9.40-10.10	Q & A session for the presentations	The chairperson
10.10-10.30	Coffee break	All
10.30-10.40	A presentation on GIS-based rural infrastructure management system	Climate-friendly agribusiness value chains sector project
10.40-10.50	A presentation on farmer-led irrigation development tool for climate resilient agri-food systems	IWMI
10.50-11.00	A presentation on water and water resources information management system by using GIS	Department of Water Resources
11.00-11.50	Q & A session for the presentations and other discussions	A chairperson
11.50-12.00	Closing remark	Dr Khamphachanh Vongsana, DOI DG
12.00-13.00	Lunch	All participants are cordially invited

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Cover photo:
The group photo on the Stakeholder Forum on 5 June 2025, in Vientiane Capital (photo credit: Souphalack Inphonephong, IWMI).

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This publication has not been peer reviewed. Responsibility for editing, proofreading, and layout, opinions

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