

Learning Question 1: *What are the contributions of systems thinking approaches and tools to changes in health system outcomes?*
How do systems thinking approaches affect health system outcomes?

Strengthening Interoperable Data Systems for Health Security in Indonesia

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Context

EMERGING INFECTIOUS DISEASES ARE A ONE HEALTH CHALLENGE

Indonesia was declared a hotspot of emerging infectious diseases (EIDs) at the 2019 Global Health Security Agenda in Sydney, Australia.

Many emerging infectious diseases are driven by zoonoses, with more 70 percent of new or reemerging diseases originating in wildlife.

The frequency of spillover events, where EIDs originate in animals and jump to humans, is increasing.

KEY INITIAL HEALTH SYSTEM CHALLENGES

- Structural and regulatory barriers to information sharing between sectors (e.g., human-animal-environmental and laboratory-hospitals-field epidemiologists-government)
- Decentralized health system and political structure of Indonesia, which devolve data, authority, and responsibility without access to a central data system
- Multisectoral stakeholders that must collaborate across and at different levels of the health system, making ownership of the *Sistem Informasi Zoonosis dan EID (SIZE)* system challenging.

SIZE (Zoonoses and EID Information System) is an integrated health surveillance information system that links public health, animal health, and wildlife health information systems to enable a One Health approach to disease surveillance in Indonesia. SIZE was initiated by the Coordinating Ministry in 2016, and further developed in 2018 by the Ministry of Agriculture and the U.N. Food and Agriculture Organization (FAO). In 2020, IDDS identified that SIZE would experience a gap in support that would endanger its future success. In partnership with the Ministry of Health, the Ministry of Agriculture, the Ministry of Environment and Forestry, and the National Research and Innovation Agency, and the Coordinating Ministry (Kemenko PMK), IDDS developed a comprehensive long-term system implementation plan. IDDS' efforts aided Indonesia to implement a One Health system strengthening approach to sustainably improve surveillance and detection of emerging infectious diseases with epidemic and pandemic potential.

GHSA

IDDS supported Indonesia to strengthen capacity and increase World Health Organization (WHO) Joint External Evaluation (JEE) scores in aligned focal areas. These areas included Real-Time Surveillance, Zoonotic Disease, and the National Laboratory System.

Activities

The USAID Infectious Disease Detection and Surveillance (IDDS) project, the Government of Indonesia (GOI), and other stakeholders identified the need to strengthen interoperable information systems in support of domestic health security. A five-year plan with a regulatory strategy to create enabling policies was established to develop and operationalize SIZE (see timeline). IDDS coordinated with nine GOI ministries and several international partners through a combination of working groups, workshops, and one-on-one engagements to gather input on a broad range of expertise and overcome the challenges posed by the decentralized health system (see SIZE stakeholders figure at right).

During the COVID-19 pandemic, several activities were conducted virtually. For example, IDDS held a large-scale virtual workshop to present the results of a Rapid Assessment conducted in collaboration with FAO, WHO, and other local partners that examined implementation of a Four-way Linking (FWL) data system in Indonesia and to facilitate future implementation of this initiative and SIZE. FWL is a surveillance data sharing program from WHO, which GOI adopted in 2013. The event had 90 key stakeholder participants, including five director-level officials from GOI, and demonstrated the feasibility of virtual workshops which were critical for ensuring the forward movement of this important endeavor even during the pandemic.

IDDS continued to support interventions and planning to overcome information sharing and regulatory barriers across sectors. To advance the objectives of the GOI Presidential Decree (INPRES) No. 4/2019 and the National Action Plan for Health Security (NAPHS) 2020–2024, IDDS supported GOI to establish the Decree of the Deputy III Coordinating Ministry for Human Development and Culture No. 12 of 2021 concerning the Coordination Working Group for the Prevention, Detection and Response of Zoonoses/EIDs across Sectors. This type of supportive institutional architecture at the national level enabled multisectoral collaboration in developing the SIZE system and demonstrated the importance of such initiatives to strengthening the broader testing and surveillance system. In 2021, IDDS helped to develop the SIZE National Roadmap, which facilitated the use of SIZE nationwide.

In early 2022, IDDS worked with GOI to shift focus from development of SIZE to national scale-up and sustainability of the system. IDDS led efforts to find a government agency to house SIZE, which would help to sustain the system in the long term. IDDS facilitated a task force to support migration of the system from the National Research and Innovation Agency (BRIN) to the Ministry of Communication and Information while also providing technical assistance and training to support national rollout of SIZE.

2018

Engaged with GOI and other international partners in Indonesia to identify key challenges and design approach.

2019

Formed a better understanding of the SIZE 2.0 system and its implementation status through review and translation of technical documents and associated regulations. Stood up SIZE working group to engage stakeholders.

2020–2022

Supported development of regulatory interventions and planning to enable information sharing between sectors, funding and adoption at multiple levels of government.

2021–2022

Identified that SIZE needed to transition to a new agency to ensure long-term financial and IT resources from GOI.

2022–2023

Providing technical assistance (TA) and training support for the SIZE 2.0 system transition and scale-up.

Scoping Trip

Technical review

Rapid Assessment

Regulatory Support

IT Transition

Training & TA

SIZE Stakeholders

Coordinating Ministry for Human Development and Culture

Ministry of Health

Ministry of Agriculture

Ministry of Environment and Forestry

National Research and Innovation Agency

Ministry of Home Affairs

National Disaster Management Agency

National Development Planning Agency

Ministry of Communication and Information

Activity Impact

SIZE displays information from all three information systems so that health officers in all sectors can access and analyze OH data.

SIZE can be accessed by GOI users on a mobile application or web browser, and it has a cellular phone version of the application for use when telephone signal or internet connectivity is limited.

SIZE OPTIMIZED INDONESIA'S EID REPORTING

IDDS' efforts in Indonesia created linkages across sectors and health system levels, developing multisectoral partnerships and networks as part of a broader health systems strengthening approach. IDDS institutionalized efforts by working to develop a supportive policy context with advocacy for and subsequent creation of the Coordination Working Group for the Prevention, Detection and Response of Zoonoses/EIDs across Sectors.

In addition to bolstering governance and multisectoral coordination, IDDS was able to obtain commitment and align visions across the varied stakeholders that make up the One Health approach: human, animal, and environmental health. The actual development of the SIZE system also strengthened interoperability between the One Health information systems, enabling health officers in all sectors to access and analyze One Health data.

SIZE is supporting GOI to optimize resources for surveillance and testing systems and improving timely and more accurate data collection and analysis for more effective disease monitoring and response. In the long term, this activity will contribute to GOI being able to improve the quality of its detection and response to emerging and priority diseases with epidemic and pandemic potential and mount a measured, timely, and less resource-intensive response.

Evidence of Impact

GOVERNMENT-OWNED

When IDDS began, SIZE was not operational. Today SIZE is hosted by a GOI ministry and has been tested nationally and locally through mobile apps and websites. The system is hosted here: <https://size.go.id>.

SUPPORTIVE INSTITUTIONAL ARCHITECTURE

When IDDS began, there was no roadmap to deploy SIZE, and ministries were uncertain about the legality of sharing data through the system. GOI has since issued legislation and a roadmap for implementation.

LOCAL OWNERSHIP

At the start of the project, IDDS took responsibility for organizing workshops and working groups in close collaboration with GOI. Now, GOI runs a working group organized under an official decree that oversees SIZE and associated activities.

NATIONAL TRAINING PROGRAM

GOI launched a SIZE and One Health pilot in four districts in four provinces in collaboration with FAO in 2018–2019. IDDS assisted the monitoring and evaluation of the pilot program in 2020.

IDDS proposed to expand the pilot program to a national scale. GOI and partners agreed to share the activities and budget to support nationwide expansion in 2021. A training module was developed in 2021. SIZE was also further developed by GOI and partners in preparation for the nationwide expansion.

June–September 2022: WHO and Australia Indonesia Health Security Partnership (AIHSP) will roll out the new program to prioritized districts. After September 2022, the program will be rolled out by FAO, AIHSP, and IDDS. IDDS is prepared to hold SIZE training in 17 of 34 prioritized provinces in collaboration with FAO after September 2022.

GLOBAL EXPOSURE

G20 INDONESIA 2022

SIZE was selected by GOI as a case study and for publication to illustrate successful implementation partnerships. The project will be exhibited as a "best practice example" at the G20 One Health side event in June 2022.

Facilitators

SUCCESSFUL COLLABORATION

IDDS has worked with a broad range of partners throughout the implementation process, and this has been critical for the success of the program. Collaboration has occurred across a variety of venues both virtually and in person, including:

- Conferences
- Workshops
- Regular working groups
- Structured and unstructured meetings
- Written communication and collaboration

Indonesian Government

- National Research and Innovation Agency
- Ministry of Home Affairs
- National Disaster Management Agency
- National Development Planning Agency
- Ministry of Communication and Information
- Coordinating Ministry for Human Development and Culture Affairs
- Ministry of Health
- Ministry of Agriculture
- Ministry of Environment and Forestry

International Partners

- Food and Agriculture Organization
- World Health Organization
- International Federation of Red Cross and Red Crescent Societies
- Australia Indonesia Health Security Partnership

Local Partners

- Indonesia One Health University Network

Challenges

The IDDS Indonesia team overcame several challenges to successfully implement the SIZE system with partners.

Staffing Transitions

Key contacts at high-level ministries, agencies, and partners moved to other institutions, so IDDS had to build new relationships.

Changing Government Agency Priorities

Changes in the structure of GOI resulted in the migration of SIZE to a new agency, requiring identification of a new GOI home agency and changes to the SIZE development timeline to accommodate transition.

Rolling Out Nationally

Indonesia is a large and diverse country, organized into 34 provinces and 514 districts. The pilot program succeeded in four provinces and four districts; national scale-up is logistically challenging.

Generalization to Other Zoonotic Diseases

SIZE originally focused on rabies. The national rollout will initially include six priority zoonotic diseases. Adapting the system to include a wider array of diseases was a challenge.

Lessons Learned

PARTNERSHIP IS POWERFUL

For the SIZE activity, IDDS' partners all contributed resources (financial, human, and technical), enabling the program to achieve a national scale and the flexibility to overcome many obstacles.

IMPLEMENT WITH LOCALS

The IDDS team is led by an Indonesian in-country expert with extensive experience in government and a passion for OH. The team's deep expertise and connection to GOI and the partner community have been key to success.

A SLOW START IS OK

Sometimes it is better to start a program slowly, especially in a complex environment with many existing partnerships. In Indonesia, fully understanding the landscape prior to initiating implementation allowed IDDS to find the most productive way to contribute to the team effort to implement SIZE.

HOLD TRANSITION MEETINGS

When key stakeholders transition to new positions, hold meetings with the incumbent and replacement to enlist the current advocate in persuading their replacement to continue to champion the project.

CHANGE IS CONSTANT

Unpredictable changes can occur in ministry/agency/partner structures, funding, and priorities, which can significantly affect a program. It is essential to regularly monitor these factors and have a strategy to adapt and overcome resulting obstacles.

NIMBLE COMMUNICATIONS

Following the COVID-19 outbreak in Indonesia, the IDDS team had to significantly adapt communications strategies to meet program goals, shifting to phone and online peer-to-peer conversations for sensitive topics.

