

# Information systems for Nutrition

Burkina Faso | Vietnam  
Indonesia | Peru



## CASE STUDIES – INFORMATION SYSTEMS FOR NUTRITION

National information systems for nutrition involve the continuous collection, analysis and interpretation of nutrition-related data. They are essential for assessing current and changing nutritional status of populations, tracking the progress of actions, and prioritising efforts towards improving nutrition.<sup>1</sup>

These case studies highlight examples from four countries. Each provides an overview of the main characteristics of information systems for nutrition, use of data, and key recommendations to be considered by other countries:

- **Burkina Faso** – creating a reliable multisectoral information system for health and nutrition
- **Vietnam** – contributing to a National Action Programme on Zero Hunger with a multisectoral information system for food systems and nutrition
- **Indonesia** – an integrated monitoring dashboard for the Acceleration of Stunting Reduction Programme
- **Peru** – monitoring the budget and public investment for nutrition

### **Burkina Faso – Creating a Reliable Health and Nutrition Information System**

Digital technologies present an excellent opportunity to transform primary healthcare, supporting frontline health care workers (HCWs) in low- and middle-income countries. The broad availability of digital devices has increased the possibilities to develop information systems for health. Information systems provide surveillance data through dashboards at different levels to support decision making. At central level, the Ministry of Health (MoH) and national decision makers use the dashboards to access monitoring data, reporting on key indicators including early warning indicators to forecast health and nutrition crises. Regional/district level management teams visualise data, facilitating individual coaching, supervision, and performance monitoring of primary health centres (PHCs) and disease surveillance.

At the peripheral level, HCWs access to guided consultations and e-learning on disease surveillance, pharmacy management, better working conditions, improvement of patient care, and workers performance.

Burkina Faso adopted the Integrated Management of Childhood Illnesses (IMCI) strategy in 2003. An evaluation conducted in 2011 reported poor adherence of HCWs to IMCI guidelines, thus compromising the quality of care and affecting disease outcomes.<sup>2,3</sup> The Integrated eDiagnostic Approach (IeDA) (an electronic Clinical Decision Support System (eCDSS)) was developed to increase HCWs' adherence to the national IMCI guidelines, to reduce childhood morbidity and mortality.

1 Information systems for nutrition [Internet]. Scaling Up for Nutrition (SUN). [cited 2021 Sep 17]. Available from: <https://scalingupnutrition.org/fr/echange-et-apprentissage-mutuels/planification-et-mise-en-oeuvre/systemes-dinformation-pour-la-nutrition/>

2 Sarrassat S, Lewis JJ, Some AS, Somda S, Cousens S, Blanchet K. An Integrated eDiagnosis Approach (IeDA) versus standard IMCI for assessing and managing childhood illness in Burkina Faso: a stepped-wedge cluster randomised trial. *BMC Health Serv Res*. 2021 Apr 16;21(1):354.

3 Horwood C, Vermaak K, Rollins N, Haskins L, Nkosi P, Qazi S. An Evaluation of the Quality of IMCI Assessments among IMCI Trained Health Workers in South Africa. *PLOS ONE* [Internet]. 2009 Jun 17 [cited 2021 Aug 14];4(6):e5937. Available from: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0005937>

## A long-term partnership

Beginning in 2010 and then under leDA from 2014, the MoH, in partnership with the Terre des hommes Foundation (Tdh), progressively implemented the digitalisation of medical protocols, starting with IMCI in PHCs. leDA builds on Dimagi's CommCare platform, which helps HCWs to correctly follow complex consultation flow-charts.<sup>4</sup>

The leDA multisectoral approach is changing the working paradigm of HCWs through its four interdependent pillars: i. the Electronic Register of Consultations (REC); ii. data management; iii. improving the quality of care through various forms of coaching; and iv. e-learning. The leDA approach facilitates HCWs' work by guiding them through step-by-step decisions, ending with an automated diagnosis and treatment options for the patients according to availability of pharmaceuticals.

leDA has been gradually deployed in more than 84% of PHCs (1,755 structures and 4,500 caregivers). It is connected to the MoH's Health Information Systems (HIS), hosted by the National Agency for the Promotion of Information and Communication Technologies (ANPTIC). Sixty IMCI indicators are transmitted to DHIS2. The information system allows data visualisation in the form of web dashboards adapted to the specific needs of the three levels of the health pyramid: peripheral for HCWs; regional and district for management teams; and central for MoH needs (Figure 1).

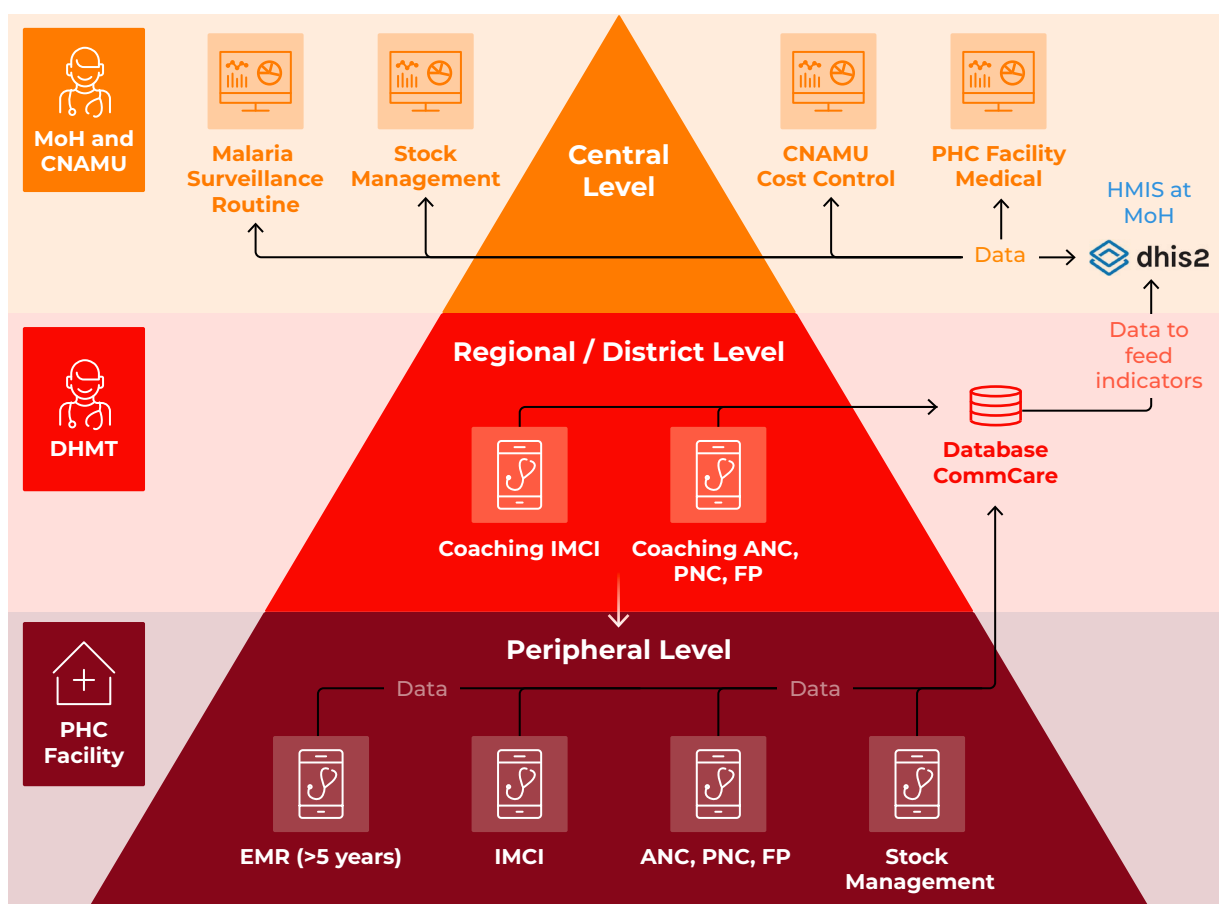


Figure 1: Commcare / leDa data flow and integration with Burkina Faso health information systems

4 Dimagi Inc. CommCare <https://www.dimagi.com/commcare/>

## Capacity to quickly connect to other information systems

While leDA with its REC IMCI is being deployed almost at scale, other features have been developed subsequently to complement it. These include counselling for caregivers using an e-IYCF (electronic Infant and Young Child Feeding) module, that has animated pages which are suggested by the application based on the needs of the child identified during the consultation. This is currently implemented in three regions with a view to full scale-up. Several new modules of the REC IMCI are in the pilot phase, such as the diagnosis and management of tuberculosis and Human Immunodeficiency Virus (HIV). Other modules are still being developed, such as the integration of Community Management of Acute Malnutrition (CMAM) (which will also be connected to the HIS), and the introduction of the pulse oximeter in IMCI consultations. In 2020, leDA was enhanced with the REC maternal health pilot, including prenatal, perinatal and postnatal consultations, and family planning.

leDA offers the possibility of connecting to many new information systems beyond maternal and child consultations, and quickly. In 2020, when the first COVID-19 cases were confirmed in Burkina Faso, the REC triage COVID-19 information system was developed and deployed within three weeks. It covered 67% of the PHCs and more than 6,300 caregivers nationwide, using CommCare.<sup>5</sup> In addition, the MoH has recently started a collaboration with LivingGood and Tdh to digitise the community approach (community REC) which will support community-based health workers around awareness, prevention, health promotion and e-referral of ailing persons to the PHC for specific care.

## Beyond information systems for health

Until 2018, in collaboration with the Ministry of Civil Service, Labour and Social Protection, a third-party payer function in leDA was trialled to provide free healthcare to all children under five.<sup>6</sup> The REM IMCI's 60 indicators provided data requested by the World Bank's results-based financing programme with a higher accuracy level than the aggregated information previously reported on the monthly DHIS2 by PHCs.

In early 2019, a new information system, the Surge, was introduced in leDA/CommCare. This issues alerts if a PHC exceeds its capacity threshold, and informs the district management team of the need to strengthen the PHC team.

In 2020, the connection of CommCare to artificial intelligence (AI) technologies increased the possibility of developing predictive epidemiological models based on data from the REC IMCI over the last five years.<sup>7</sup> The MoH is currently validating the first epidemiological surveillance model on malaria, and developing five other predictive models for dengue, wasting, measles, acute respiratory infection and diarrhoea. The aim is for the indicators from these models to be incorporated in the national early warning system.

Beyond epidemiology, links to AI allow individual monitoring of a CHW's performance during a consultation. This facilitates discussions between management teams and HCWs during supervisory visits, and ensures the quality of follow up IMCI consultations carried out with leDA's support. In a pilot conducted in one district in 2020, management of pharmacy stocks was enabled by connecting two information systems: G-stock applications dedicated to PHC pharmacy stock management, and the different RECs under CommCare. During 2021, leDA consultations began to register all patients over five years old on the REC electronic medical records (EMR), opening up to adult consultations too.

5 How an existing app at scale was adapted for COVID-19 [Internet]. Exemplars Health. 2021 [cited 2021 Aug 15]. Available from: <https://www.exemplars.health/emerging-topics/epidemic-preparedness-and-response/digital-health-tools/commcare-in-burkina-faso>

6 Burkina Faso: Reducing child mortality [Internet]. Terre des hommes. 2014 [cited 2021 Aug 19]. Available from: <https://www.tdh-iraq.org/en/news/burkina-faso-reducing-child-mortality>

7 Artificial intelligence to save children's lives - Press releases - UNICEF [Internet]. 2018 [cited 2021 Aug 18]. Available from: <https://www.unicef.ch/communication/communiqués/en/2018/lintelligence-artificielle-pour-sauver-des-vies-denfants/>

## Governance

As early as 2018, the Ministry of Health and Tdh agreed on a roadmap setting out an official transfer of ownership of leDA to the Government of Burkina Faso. The Burkinabe authorities have chosen to host the CommCare server within ANPTIC. This ownership transfer process is expected to be completed during 2021. In addition, Tdh continues to work on new features of leDA as mentioned above, potentially generating new interconnected information systems.

## Financial sustainability

Over the period 2014-2017, the leDA project incurred US\$4.8 million of expenses. In 2018, an economic impact study suggested leDA could generate savings between US\$33 and US\$66 per PHC per month, or between US\$ 0.83 million and US\$1.7 million nationwide per year, in particular by reducing HCW training times and paper consumption.<sup>8</sup> Based on this, it was decided to gradually embed the use of leDA for IMCI consultations in PHCs of Burkina Faso. Since then, the project has received over US\$14.1 million in funding from many different donors. leDA has been financed mainly by donors, however the financial gains expected by the widespread use of CommCare/leDA suggest it should be less dependent on donors and more institutionalised by the Burkinabe authorities.

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As seen above, leDA/CommCare collects individual health data from children and adults' consultations which is aggregated and transmitted to DHIS2. DHIS2 relevant health and nutrition indicators will be linked to the National Information Platform for Nutrition (NiPN) in order to centralise information.

## Burkina Faso's National Information Platform for Nutrition (NiPN), a multisectoral approach to nutrition

Political and financial nutrition commitments at national and international levels have increased the need for timely availability of reliable and relevant information to guide decision makers. This led to the National Information Platforms for Nutrition (NiPN) initiative, technically and financially supported by a multi-donor fund,<sup>9</sup> and launched in 2018 for five years in eight beneficiary countries. The objective of the NiPN initiative is to strengthen capacities, governance, and accountability in responses and programming of evidence-based and inclusive nutrition policies in countries.<sup>10</sup> This funding has allowed Bangladesh, Côte d'Ivoire, Ethiopia, Guatemala, Laos, Niger, Uganda and Burkina Faso to each implement a platform centralising multisectoral data on nutrition, and to generate analyses and evidence to not only inform the implementation of multisectoral public policies but also improve accountability in nutrition.

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8 Pozo-Martin F, Blanchet K, Cousens S, Lewis J, Sarrassat S. Economic impact study of the Integrated eDiagnosis Approach (leDA) for the management of illness in under-five children at the primary health care level in Burkina Faso [Internet]. London School of Hygiene & Tropical Medicine; 2018 Oct [cited 2021 Aug 15] p. 18. Available at: [https://www.tdh.ch/sites/default/files/ieda\\_expenditures\\_report\\_eng.pdf](https://www.tdh.ch/sites/default/files/ieda_expenditures_report_eng.pdf)

9 The NiPN Multi-Donor Fund has been managed and supported by the European Union, and supported by the Office for Co-operation, Development and the Commonwealth of Great Britain as well as the Bill and Melinda Gates Foundation from 2018 to 2021.

10 Legal information and credits - NiPN [Internet]. National Information Platform for Nutrition. [cited 2021 Aug 25]. Available from: <https://www.nipn-nutrition-platforms.org/Legal-information-and-credits>

## The NiPN operational cycle

To achieve these objectives, an operational cycle common to all platforms was proposed. It consists of three stages:

1. Formulation of strategic questions responding to national nutrition priorities.
2. Analysis of existing data to answer the questions formulated.
3. Communication of results in the form of conclusions and recommendations (Figure 2).

In Burkina Faso, this cycle was implemented jointly between the National Institute of Statistics and Demographics (INSD), responsible for the data component, and the Technical Secretariat in charge of Food and Nutrition (STAN), within which the Scaling Up Nutrition (SUN) focal point is responsible for the political component.

- **Political component:** A Multisectoral Advisory Committee (MAC) ensures the strategic, political and multisectoral vision of the platform, in connection with national policies. The STAN, a body within the Ministry of Health, is responsible for the National Multisectoral Nutrition Policy (PNMN) coordination and, as such, drives the NiPN's strategic direction. It is in charge of coordinating with the National Council of Dialogue in Nutrition (CNCN). In addition, a Multidisciplinary Orientation and Prospecting Group (GPOP) supports the political component and serves as a relay between the platforms. GPOP is composed of members of five ministries involved in implementing the PNMN (health, education, social protection, food and water safety, hygiene and sanitation), the Academic and Research Network for Nutrition (RECANUT), and international technical and financial partners.
- **Data-driven component:** INSD has a unit in charge of managing and centralising multisectoral data from different ministries and information systems, analysing it, and sharing results relating to strategic issues.

## Multisectoral nutrition policy environment

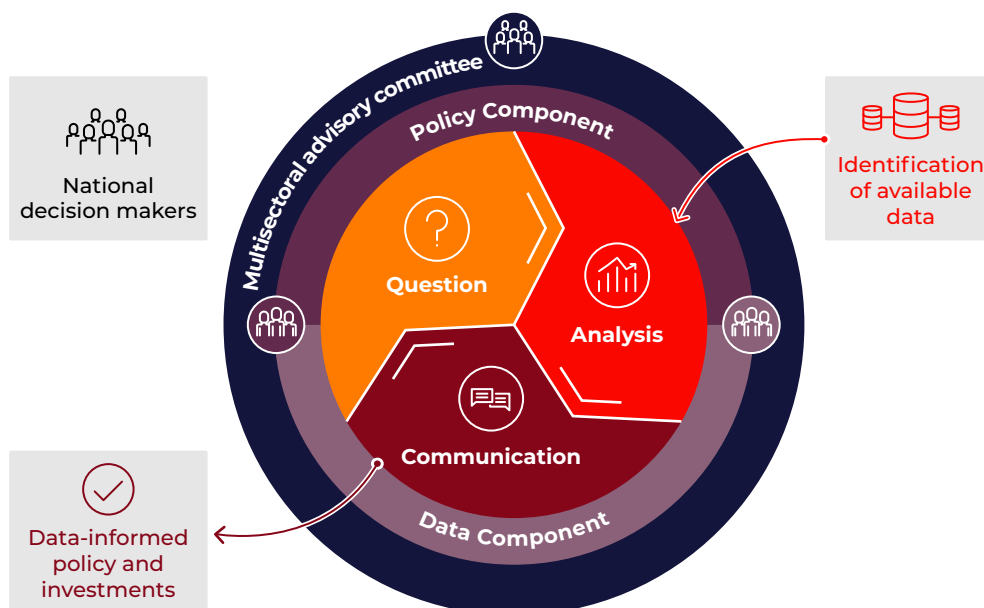


Figure 2: NiPN approach, source C4N-NiPN

### **Stage 1: Formulating questions on national nutrition priorities**

The NiPN provides a framework for formulating questions about nutrition policies, programmes and investments in line with national nutrition priorities and decision-making timeframes. The formulation of questions takes place within the co-ordination framework for the implementation of the PNMN and the Multisectoral Strategic Plan for Nutrition (PSMN). Burkina Faso has formulated seven priority questions including: the impact of the Strategic Plan according to the targets set; trends of chronic and acute malnutrition in both children and women of childbearing age; anaemia; and the development of indicators relating to access to both drinking water and sanitation. More recently, work to harmonise the various political frameworks was initiated under the Lives Saved Tool (LiST),<sup>11</sup> and work is underway across the various ministries to align targets and indicators between the PNMN and the PSMN, which should be completed by the end of 2021.

### **Stage 2: Mapping and analysis of existing data**

The NiPN platform identified information needs inspired by the conceptual framework of information systems for nutrition developed by the SUN Movement (Nutrition International, 2017).<sup>12</sup> Mapping of multisectoral data relevant to nutrition was carried out through a document review and interviews. This generated an inventory of the data available in the various ministries and national agencies comprising of 62 sources of existing statistical data from surveys, routine collection systems or mixed sources. These data are likely to provide information on the progress of specific and nutrition-sensitive activities implemented within the framework of the Strategic Plan. Analysis of the available data carried out to answer the priority questions revealed certain limitations in the interpretation of some of the results obtained. To clarify and contextualise this analysis, a qualitative study relating to chronic malnutrition is planned in certain regions of Burkina Faso.

### **Stage 3: Communication and dissemination of results**

The NiPN Burkina Faso website, which is connected to the information systems of the various participating ministries, will be launched in October 2021. As part of NiPN technical assistance, capacity building for stakeholders in the policy and data components of nutrition issues is scheduled for 2021. The dissemination of the results of the evidence-based analyses is planned by October 2021.

### **Prospects for NiPN Burkina Faso post-2021**

A second phase of funding from the EU and German Cooperation is planned, to support implementation of the NiPN between 2022 and 2024. This second phase of NiPN implementation will focus on strengthening nutritional governance in Burkina Faso and integration of the NiPN into existing consultation frameworks, as a tool to operationalise the PSMN Monitoring Framework.

11 Analysis method based on a modelling approach from Johns Hopkins University, The Lives Saved Tool [Internet]. The Lives Saved Tool. [cited 2021 Sep 20]. Available from: <https://www.livessavedtool.org>

12 NiPN. Nutrition data mapping: case study and lessons learned (...) - NiPN [Internet]. 2020 Mar [cited 2021 Aug 25] p. 13. Available from: <https://www.nipn-nutrition-platforms.org/Cartographie-des-donnees-en-nutrition-etude-de-cas-et-lecons-apprees-Burkina>



# Vietnam – Multisectoral Information Systems Contributing to the First National Action Programme on Zero Hunger in South-East Asia

In 2018, the government of Vietnam launched the National Action Plan on Zero Hunger in Vietnam by 2025. Targets include: developing sustainable food systems for households to have year-round access to sufficient nutrition; reducing stunting (20%) and acute malnutrition (5%) for children under two years; reducing food waste; and increasing productivity and income of smallholder farmers in the 1,000 poorest communes by 2025.<sup>13</sup>

## **Characterisation of national datasets and release of web-based spatial analysis story maps**

In 2018, the Ministry of Agriculture and Rural Development (MARD), in collaboration with the Agriculture for Nutrition and Health (A4NH) research programme, developed a partial food systems baseline assessment for a systematic comparison between urban, peri-urban and urban spaces.<sup>14,15</sup> A4NH is managed by the Consultative Group on International Agricultural Research (CGIAR) research centres, led by International Food Policy Research Institute (IFPRI) and coordinated by the International Center for Tropical Agriculture (CIAT). In 2019, to support the government of Vietnam to better understand how to strengthen the sustainability of food systems, the CIAT launched Entry points to Advance Transitions towards Sustainable diets (EATS), which included 54 national datasets mapping eight food system domains. Three of the 54 datasets were used to design a spatial analysis, 'Tracking Progress Toward Zero Hunger [of the 1,000 poorest communes] in Vietnam', a series of interactive maps providing visuals of the food system, agricultural census and nutrition indicators at commune and province level.<sup>16</sup>

## **Piloting nutrition-sensitive models and testing indicators for a future framework**

A4NH and national partners identified food systems research and action priorities around four areas: Food systems for healthier diets; food safety; Supporting Policies and Programme Enabling Research through Action (SPEAR); and improving human health. The MARD approved the guidelines for applying a nutrition-sensitive approach to the National Action Program on Zero Hunger, and three nutrition-sensitive pilots were launched in some North, Central and South communes, extending to more villages in 2021. Due to multiple languages and the extensive range of information to be collected, indicators were tested using paper-based questionnaires rather than an online system.

The information system of the National Action Program on Zero Hunger is currently being defined; a web-based information system will likely be the preferred option. The information systems and their tools will then have to be designed, and the governance (policies and regulations for data sharing) will be defined.

13 Vietnam commits to achieve #ZeroHunger in Viet Nam by 2025 [Internet]. United Nations in Viet Nam. 2018 [cited 2021 Sep 6]. Available from: <https://vietnam.un.org/index.php/en/4056-viet-nam-commits-achieve-zerohunger-vietnam-2025>,

14 CGIAR. Research program on Agriculture for Nutrition and Health (A4NH) - Vietnam [Internet]. [cited 2021 Sep 4]. Available from: <https://a4nh.cgiar.org/vietnam/>

15 Pham L. Partial food systems baseline assessment at the Vietnam benchmark sites | CIAT Blog [Internet]. CIAT website. 2018 [cited 2021 Sep 4]. Available from: <https://blog.ciat.cgiar.org/partial-food-systems-baseline-assessment-at-the-vietnam-benchmark-sites/>

16 Tracking Progress Toward Zero Hunger in Vietnam [Internet]. ArcGIS. 2019 [cited 2021 Sep 6]. Available from: <https://cal.maps.arcgis.com/apps/MapJournal/index.html?appid=0e8779ab24514fc3aaf6398ba8e6a063#>



# Indonesia – a National Integrated Monitoring and Evaluation Platform for Acceleration of Stunting Reduction Programme

Building on its experience of reducing childhood stunting, Indonesia launched a National Strategy to Accelerate Stunting Prevention 2018-2024 (Stranas Stunting) in 2018. This involves 23 ministries to ensure that every '1,000-day household' in every village across 514 selected districts – those with pregnant women, breastfeeding mothers, and children under two years of age – gets access to a core package of services essential to prevent stunting.<sup>17</sup> The Integrated Nutrition Intervention (INI) has five pillars: i. commitment and vision of the political leaders; ii. a national campaign on behaviour change; iii. programme convergence, coordination, and consolidation; iv. nutrition and food security; and v. monitoring and evaluation (Integrated MONEV for Stunting).

On 5 August 2021, the President signed the Presidential Decree Number 72 on the Acceleration of Stunting Reduction, which elaborates outputs for each of the five pillars. The Ministry of National Development Planning (Bappenas), the Ministry of Finance, the Ministry of Home Affairs, the Ministry of Village, the Ministry of Health, National Population and Family Planning Board, and local governments are appointed as the accountable stakeholders.<sup>18</sup>

## **Monitoring and evaluation: a crucial fifth pillar**

Under the fifth pillar, data from existing information systems are optimised, enabling results to inform planning, budgeting, and implementation. The overall objectives are to monitor progress, increase accountability, and provide learning. However, the challenge is coordinating and linking the different information system designs into an integrated information system for nutrition-related interventions across many ministries.

Bappenas is currently developing a partially open access platform to integrate multisector stakeholder data in accordance with the Presidential Decree Number 72. The objective is to track outputs in terms of activities and budget allocated. In addition, the information system aims to identify all activities and outputs at the district level. Some features, not all, will be accessible for the public, allowing beneficiaries and non-government stakeholders to monitor the progress of each output.

## **The current budget tagging and tracking system**

Budget tagging has been implemented in Indonesia since 2019. Using this tagging and tracking system, Bappenas can present budget allocation, its realisation, and the achievement of each output from the Ministry. Bappenas can classify the outputs into three types of interventions – nutrition-specific, nutrition-sensitive, and coordination – and assess whether the interventions targeted '1000-day households,' in the prioritised locations, and whether they involved multiple stakeholders.

In 2020, Indonesia allocated US\$3.5 billion to Accelerate Stunting Prevention. The budget allocation for nutrition-specific interventions, nutrition-sensitive interventions, and coordination were US\$0.16 billion, US\$3.3 billion, and US\$0.04 billion respectively. In 2020, the compliance rate for ministries to tag nutrition-related outputs was 79.1% (68 of 86 outputs).

17 Indonesia: Making the Resources Work to Reduce Child Stunting [Internet]. World Bank. 2018 [cited 2021 Aug 31]. Available from: <https://www.worldbank.org/en/news/feature/2018/12/20/indonesia-making-the-money-work-to-reduce-child-stunting>

18 Integrated Monitoring Dashboard for Accelerate Stunting Prevention [Internet]. Ministry of State Secretariat of Secretariat of Vice President (Indonesia). [cited 2021 Aug 31]. Available from: <https://dashboard.stunting.go.id/>

Although Bappenas is aiming for the information systems that it is currently developing to automate this budget tagging and tracking system, this is limited to the ministerial budget. At this stage, Bappenas is unable to incorporate data from the regional transfers, district funds, and village funds.

## The big plan

The four stages of the MONEV platform development start with connecting the information systems within Bappenas (Figure 3). The second stage involves integration with information systems for budget allocation and implementation at the Ministry of Finance. Next, Bappenas plans to connect information systems across ministries. Lastly, the platform will integrate with planning and budgeting systems at a sub-national level. When this stage is complete, information from non-government entities, such as the SUN Movement networks, will also be incorporated into the system.

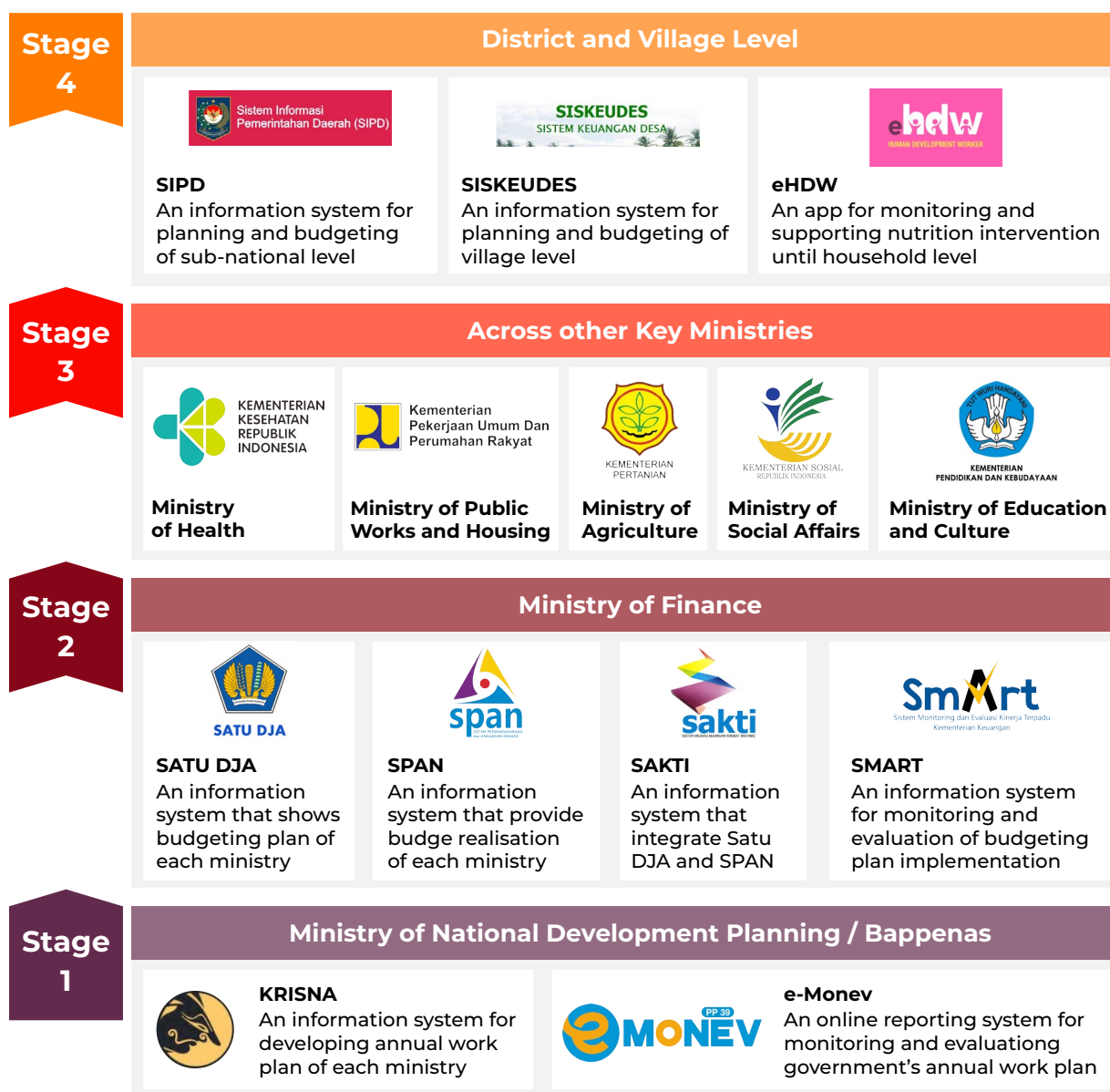


Figure 3: Road map to data integration for stunting monitoring and evaluation

## **Planning the second stage: integrating information systems for budget allocation, budget realisation, and output achievement**

Starting in late 2021, the second stage aims to develop an Executive Dashboard, access for which will be restricted to Bappenas and ministries involved in the accelerating stunting reduction programme. The purpose is to create a web dashboard enhanced with operational and financial monitoring indicators to allow precise monitoring of the implementation of activities. In addition, the monitoring functionalities will be upgraded with indicators of results and analyses. This will enable decision makers during the annual strategic review to perceive the progress level of the different programme components and to decide on continuity, improvement of technical orientations taken and budget allocations made so far, or whether new orientations/allocations need to be defined.

To facilitate the identification of the information systems that will be connected to the upcoming Dashboard, the Ministry of Finance and Bappenas have identified the budgets allocated to each ministry or department linked to a stunting reduction activity. Finally, the various national programmes contributing to the reduction of stunting were listed according to which indicators would be shared and, therefore, the information systems linked to them.

It is expected this integration will provide Bappenas and other line ministries a real-time information system capturing the flow of inputs from the planning phase to the evaluation process. Moreover, it will allow those ministries increase the effectiveness and efficiency of policies and interventions across all stunting reduction programmes.

Indonesia is still working towards tackling high stunting prevalence. However, it has high level commitments and is now moving on to implementation. Parallel to implementation, Indonesia would like to have an integrated information system for monitoring and evaluation. The government is aware that the development of the integrated information system will be a long journey, but it is not the impossible one. Therefore, Indonesia hopes other countries will want to hop on the bandwagon and start a similar information system to monitor and evaluate their nutrition interventions.

# Peru – Monitoring the Budget and Public Investment for Nutrition

At the time of becoming a SUN member country in 2010, the public budget for nutrition programmes in Peru had doubled and nutrition had reached a central position in development and social inclusion strategies. Information management has played a central role in these advances. The national information system is not specific to nutrition, but provides access to key indicators through the REDInforma platform of the Ministry of Development and Social Inclusion (MIDIS) and the Consulta Amigable portal of the Integrated Financial Management Information System (Sistema Integrado de Información de Gestión Financiera, SIAF), Ministry of Economy and Finance.<sup>19,20,21</sup> However, the use of information is weak due to a lack of management skills or the precariousness of the Internet connection in remote parts of the country. When used, information has been focused at national level. The sub-national nutrition budget surveillance initiative described in this study closes these gaps.<sup>22</sup>

The initiative was part of the project ‘Uniting Forces for Nutrition in Peru,’ managed by CARE Peru on behalf of the Civil Society Initiative Against Child Malnutrition (PERUSAN), in seven of the country’s 24 regions. It was started for youth organisations to monitor public spending allocated to the reduction of chronic malnutrition and anaemia at sub-national level, in order to use this information for advocacy, to promote greater public investment in nutrition, and to promote transparency and accountability by local governments. Preparatory activities began in 2018 and the framework project was completed in June 2021. The initiative continues to operate ad hoc and mobilises its own resources. Although the COVID-19 pandemic made face-to-face activities difficult, it created an opportunity to use digital tools, meaning the participation of various geographical areas was not limited only to those that could be covered in person. This also ensured that responses to COVID-19 were integrated into nutrition planning.

## How information on public budgets for nutrition is used

The youth organisations systematically collect data on public spending in their geographical area and complement this with sub-national data on child malnutrition and anaemia data from the REDInforma portal. The Consulta Amigable portal gives access to reports on the budgetary implementation of social programmes (including nutrition), detailing the institutional opening budget (Presupuesto Institucional de Apertura, PIA) of each programme, the investment balance, and the Implementing Units (Unidades Ejecutoras). Based on this information, youth organisations coordinate with sub-national governments to identify delays in budget implementation, highlighting problems around investments into nutrition and giving visibility on these issues through social media, the press and public gatherings.



Figure 4: Consulta Amigable Portal

- 19 REDinforma – Repositorio Digital de Información – Inicio [Internet]. Ministerio de Desarrollo e Inclusión Social. [cited 2021 Sep 29]. Available from: <http://sdv.midis.gob.pe/redinforma/>
- 20 Ministerio de Economía y Finanzas. Portal de Transparencia Económica. Seguimiento de la Ejecución Presupuestal (Consulta Amigable). [https://www.mef.gob.pe/es/?option=com\\_content&language=es-ES & Itemid=100944 & lang=es-ES & view=article & id=504](https://www.mef.gob.pe/es/?option=com_content&language=es-ES & Itemid=100944 & lang=es-ES & view=article & id=504)
- 21 Scaling Up Nutrition. SUN. Information Systems for Nutrition. Peru Case Study. Available from: <http://scalingupnutrition.org/wp-content/uploads/2017/11/PERU-Info-Systems-Case-Study.pdf>
- 22 CARE Peru. 2021. Dna and Peruvian drive of public policies for zero hunger in Peru. Report on the actions of the Project Uniting Forces for Nutrition in Peru.

## Progress and achievements

This advocacy by youth organisations has facilitated the inclusion of nutrition commitments into Regional Governance Agreements, prompted local authorities to evaluate the effectiveness of public spending on nutrition, enabled nutrition to be included in the media agenda, and allowed other institutions to become active in the dissemination of nutrition messages.

Sub-national budget monitoring was scaled up to national level. Youth organisations consolidated their own platform (Youth DNA, ADN Juvenil), with which they gained representation in more strategic areas and more management autonomy.<sup>23</sup> The platform also included the monitoring of overweight and obesity, and government contracts and public policies were included as additional indicators to be monitored. Training on the use of information systems for nutrition was extended to university level, and the training of interested public officials began.

The processes catalysed transformations beyond the use of information. Young people better understood the determinants of malnutrition and its implications for the country; they assumed a role of co-responsibility with local authorities; they emerged as benchmarks in collaborative social surveillance, communication and information management; and some of them managed to occupy formal positions in local governments, which would be a powerful possibility of influencing nutrition from within the public administration.

## Learning and innovation

This innovative initiative has demonstrated that it is possible to scale up the effective use of information systems for nutrition from the sub-national level to the national level. More importantly, it demonstrates that young people are actors with great potential in information systems for nutrition advocacy. With support from civil society, nutrition budget commitments can be maintained in times of political instability and emerging situations, and together with the support of the SUN Movement, youth participation and representation keep youth motivation high.

<sup>23</sup> CARE Peru. 2020. Youth DNA: Action that leaves an impact. The work of the Project "Uniting Forces for Nutrition in Peru" of CARE in 7 regions.

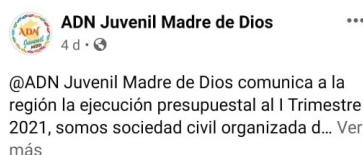


Figure 5: Youth DNA platform

## Challenges and drivers for replicability

When replicating an initiative like this there are several challenges to overcome. These include the digital inequality gap between the national and sub-national management levels, and between the users of the information; the time needed for digital surveillance, communication and mobilisation, which can be difficult for students and young people with high workloads to manage; and the need to decode information that is in simpler colloquial languages. This initiative is unlikely to succeed in contexts where there are no open government platforms, or where public information is not handled transparently or is out of date; where social activists face censorship and criminalisation; or where services do not allow minimal access to electricity and the internet. However, this initiative is essential for ensuring transparency and accountability at state level.

To enhance communication, communication experts need to be engaged for the development of strategies and messages, and traditional methods and more contemporary approaches, such as social media, can be used in combination. Advocacy messages also have more impact if they supported by verifiable evidence. However, more evidence is needed on the impact of such information systems on public management and the nutritional status of the population.

# Comparison of Information Systems for Nutrition

	Burkina Faso		Indonesia	Vietnam	Peru
	IeDa	NiPN			
Technology and architecture	<b>Type</b>				
	● Health diagnostic and health structure management application	● Multisectoral information systems for nutrition	● Multisectoral information systems for stunting prevention	● Multisectoral information systems for nutrition	● Multisectoral information systems for nutrition and social protection
Technology and architecture	<b>Adaptability</b>				
	● Versatile application, open source, user-friendly and iterative	● New information systems can be added	● Design allows flexibility to add new information systems	● Design in progress	● Open access, user-friendly and iterative
Groundwork	<b>Context</b>				
	● Improve quality of care and adherence to IMCI guidelines and data management	● Multisectoral activity analysis. Links 5 ministries' existing information systems	● Enhanced operational and financial monitoring of 20 implementing ministries	● Better understanding on how to strengthen the sustainability of country food systems	● Monitoring public budget allocations in nutrition by youth organisations (YO)
Level of progress	<b>Stage</b>				
	● Initiated by MoH & Tdh in 2010. Up to scale in 2020. Handed over to government in 2021	● Design level. Initiated 2018, implementation late 2021	● Public open access dashboard operational. Executive dashboard operational in 2022	● Design level. Planned implementation in the coming years	● Up to scale, used by youth organisations. Initiated in 2018, ending in 2021
Level of progress	<b>Scalability</b>				
	● 84% of the Primary Health Centres (PHC)	● Planned to be at national level	● National level	● Planned to be at national level	● 7 of the 24 regions of Peru
Partnerships	<b>Strategic engagement</b>				
	● Technological platform with Dimagi, funding from various donors	● Coordination with eight NiPN countries, international technical experts support	● Unified information system – 20 ministries – monitoring programme cycle and value for money	● Data analysis, action research, food system policies with CGIAR and EATS	● CARE and Civil Society involved YO in monitoring budget allocations
Partnerships	<b>Sustainability</b>				
	● MoH endorse digital approach and prioritise it in the national digital health strategy	● National stakeholders part of decision process, benefit from capacity strengthening	● National commitment from the President, 20 ministries, provinces and village leaders	● MARD approved nutrition sensitive approach, deployed action research pilots	● 34 Regional Youth Councils involved in this process. Rely on donor funds availability
Financial health	<b>Financial management</b>				
	● Potential cost reduction of US\$66/month/PHC	● Programme design efficiency	● Initiated Improving tracking budget flow and expenditure efficiency	● Programme design efficiency	● Improving planning and budget execution, and visibility
Financial health	<b>Funding arrangements</b>				
	● Mix funds	● Donor-driven funds	● Governmental funds	● Governmental funds	● Donor pool funds
Operational	<b>Training &amp; support</b>				
	● Targeted coaching and supervision, tailored training and e-learning modules/ refreshers	● Guidance, webinars, trainings, forum and technical assistance provided to MoH	● Information not available	● National and regional dialogue, consultations and symposiums on food system drivers	● Virtual learning, face-to-face workshops and alternative real-time coaching
Operational	<b>Empowerment</b>				
	● Dimagi strengthened MoH and Tdh's team's technological capacity to maintain and modify the application	● NiPN strengthens national capacity and facilitates regional dynamics	● Information not available	● A4NH facilitate the comprehension of the country food systems at national and sub-national level	● Youth understand malnutrition implications, are now counterparts of local authorities
Evidence	● Scientifically based	● Not yet available	● Not yet available	● Not yet available	● Positive experience with limited evidence

● Strength      ● Challenge      ● Limited info / neither strength nor challenge



## Conclusion

The comparative table above provides an overview of the specifics of each of these information systems. All countries have the same drive towards merging or enhancing National Information Systems. In most cases, the government has initiated the programme and built strong partnerships with universities, research institutes, high-tech companies, and non-governmental organisations. Most programmes have national coverage. Half of them are publicly accessible, showing a solid commitment to transparency and accountability to different stakeholders and, most importantly, the population. Vietnam's information system aims to inform on activity progress and performance, generating evidence used by policy and decision makers. Burkina Faso, Indonesia and Peru extend their level of analysis to budget monitoring and cost-effectiveness. As these programmes become fully operational, key success factors are strong commitments from national leaders, a multisectoral vision, long-term funding arrangements, and capacity building of national stakeholders for sustainable information systems.

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