NATIONAL NUTRITION INFORMATION SYSTEM

The Fundamentals Series

Module 03

What is needed to build a useful national nutrition information system?

unicef

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PDF versions of these modules can be downloaded from the following website:
https://data.unicef.org/resources/nutrition-nnis-guides/
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Module 2: How does a national nutrition information system support a country's nutrition programmes?
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Module 03

What is needed to build a useful national nutrition information system?

Whether a country is building a new national nutrition information system (NNIS), or maintaining or strengthening an existing one, there are several key issues to keep in mind as the work progresses. Individually, these issues are critical checks and balances or reference points to ensure the viability and integrity of the NNIS as it evolves. Collectively, these issues create a guiding framework that can help keep the information system relevant, focused and energized.

PURPOSE

One of the most important *checks and balances* when building, maintaining or strengthening an NNIS is its main purpose: **Collect, analyse and make available critical data that can be used by stakeholders at national and subnational levels to support informed, evidence-based decision-making to help the country improve its nutrition programmes and outcomes.** While individual countries may have additional reasons for building and maintaining an NNIS — for example, it can be an effective way to aggregate data required for reporting to an external donor — the main purpose *(i.e., credible data for decision-making)* should remain the focus.

Thinking about the purpose can help guide various decisions about the development and evolution of the system. For example, it can be useful when: making decisions about what data are included in the NNIS *(e.g., how these data will affect decision-making);* assessing and improving the quality of the data included in the system *(e.g., data of poor or questionable quality can negatively influence the analysis);* and determining how data are made available to users *(e.g., data and analysis should be accessible and understandable).* Considering the purpose can even be useful when considering resource allocation for an NNIS *(e.g., if a single aspect of the system consumes an inordinate amount of the resources, will the overall system be able to provide the needed functionality for users?).*

In many ways, the purpose is the most significant benchmark when making decisions about an NNIS.

Questions to consider...
- **Is there general agreement on the main purpose of the NNIS among the key stakeholders?**
- **Are there other reasons or sub-purposes for the NNIS? If yes, how well do they harmonize with the main purpose and with each other?**

SCOPE

A well-defined and well-understood scope for the NNIS is another important *check and balance.* In most cases, the scope —defined primarily by the content and the associated analysis — should coincide with the country's nutrition priorities *(see 'Principles').* Discussions about the scope should carefully consider both multisectoral and cross-cutting issues that should be included in the final version. The multisectoral nature of nutrition responsibilities and programmes in a country *(e.g., agriculture, education, environment, finance, health, industry and social welfare)* should be captured in the scope. Similarly, relevant cross-cutting issues (e.g., gender, inequality, civic engagement and climate resilience) in a country should also be included.

A scope that is focused on collecting and analysing data to monitor the status of nutrition priorities and the performance of nutrition-related programmes and

projects linked to those priorities should be broadly useful for stakeholders who are positioned to contribute to better decision-making at national and subnational levels. If an information system becomes bloated with too much secondary or superfluous data, its value can easily get diluted. In addition, an extensive but underused system may not be worth the cost.

Questions to consider…

- **Are the country's nutrition priorities clearly defined? Do the priorities reflect the multisectoral nature of nutrition? Are there key cross-cutting issues that are linked to the priorities? How do these issues influence the scope of the NNIS?**
- **Are accurate data available to support decisions on the key issues included in the scope? If not, how can the NNIS address these issues?**

POLICIES, STRATEGIES AND PLANS

There is a bi-directional relationship between an NNIS and a country's nutrition policy, strategy and/or plans. On one hand, existing policies, strategies and plans influence what data are included in the NNIS *(e.g., data on national nutrition priorities should be at the core of the NNIS).* On the other hand, the data in an NNIS should influence the formulation and evolution of evidence-based nutrition policies, strategies and plans. This intrinsic and interconnected relationship is a major consideration when building, maintaining and strengthening an NNIS.

There may be times when the data in the NNIS are ahead of the policy, strategy or plan. The multi-year cycle of these types of documents means they may not accurately reflect the current situation (e.g., the emergence of overweight and obesity in countries historically dealing only with undernutrition). Conversely, there may be times when a policy requires adding new types of data to the NNIS *(e.g., status of regulations on the marketing of ultra-processed foods).*

As countries continue to develop comprehensive and/or topic-specific nutrition policies, strategies and plans,[1] the data in the NNIS must be regularly assessed to ensure they are as aligned as much as possible.

Questions to consider…

- **Are the country's existing nutrition policies, strategies and plans relevant and up-to-date? If not, what is the timetable to review and revise them? Are there indications of how they might change?**
- **Are data available on the priorities outlined in the existing policies, strategies and plans? Are data available on emerging issues?**

INSTITUTIONAL HOME

An NNIS needs an institutional 'home' in an organization, that can take primary responsibility for its day-to-day operation. In multiple countries, the national Bureau of Statistics or its equivalent is a natural home for the NNIS. In other countries, the responsibility is given to specialized institutes or secretariats *(e.g., nutrition, public health)* with the capacity to manage the system. In all countries, the organization that houses the NNIS needs to have the ability to work across the various sectors involved with nutrition at national and subnational levels. It also needs to build and maintain productive relationships the different data sources (see below) as well as any multilateral or international partners *(e.g., United Nations organizations and bilateral donors).*

The organization that houses the NNIS should have a proven track record in working with data and information systems. The organization should also provide a stable and supportive environment for the core team working on the NNIS (see below). In addition, the organization should be equipped to work productively with external technical partners that can help build, maintain or improve aspects of the NNIS.

Questions to consider…

- **What organizations have the mandate and the ability to serve as the institutional home for the NNIS? Are there one or more organizations well suited to provide this home?**
- **Do the potential institutional homes for the NNIS have the ability to coordinate and collaborate with the multiple stakeholders in nutrition programmes, ranging from sectoral ministries to data sources to international partners?**

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1   According to the WHO Global Nutrition Policy Review 2016–2017, 149 countries have comprehensive or topic-specific national nutrition policies, strategies and/or plans.

CORE TEAM

A core team should be assigned to the development and operation of the NNIS; this team should work under the auspices of the organization serving as the institutional home. The core team should include members who collectively have the essential knowledge and skills needed to build and maintain the information system. It should be a focused, hands-on team, with each member bringing something meaningful to its work. It is also possible that core team members will be staff members at the institutional home.

While existing capacity to work with data and information systems should be a key consideration when selecting the host organization, it is likely that additional people will still be needed – either as members of the core team or as affiliated partners – particularly those with specialized knowledge and skills. The time commitment required from members of the core team will depend on the scope of the NNIS and their specific role on the team; for example, smaller, more limited systems will not require the same level of effort as larger, more comprehensive systems.

When thinking about the make-up of the core team, it is important to consider the *system requirements* to help identify what expertise will be needed (see below). In addition, it can be worthwhile to balance the membership of the core team against broader *technical support* needs (see below). The core team must also coordinate closely with the members of the NNIS *governance* structure to ensure the system is delivering on its purpose (see below). And the team should have strong working relationships with the various data sources involved in the NNIS.

Questions to consider...

- **What are the primary roles and responsibilities of the members of the core team? Are there capable people to fill those roles?**
- **How can the core team be supported to ensure they have productive relationships with other key stakeholders in the NNIS, including the steering committee, advisers, data sources, consultants and outside vendors?**

DATA AND DATA SOURCES

Without credible data on nutrition, there is no basis for an NNIS. Consequently, when building, maintaining or improving the information system, it is essential to know what data are available and whether they are relevant, accurate, understandable, usable and timely. And while countries are continuously generating data related to their various national and subnational nutrition programmes, not all data that are available may be appropriate for an NNIS. Consequently, it important to consider what value the available data will bring to the overall information system.

Nutrition and nutrition-related data come from a range of sources that generate and collect raw data that can be used in an NNIS. These data can come from many different organizations *(e.g., government agencies, civil society organizations, universities, research institutes and community programmes)* working in many different sectors *(e.g., agriculture, education, environment, finance, health, industry and social welfare).*

A comprehensive data mapping or landscaping exercise can be a valuable way to identify and assess the capacity, quality and reliability of various data sources in the country. It is also an opportunity to identify and assess the data produced to determine if they should be included in the NNIS. Regularly updating the data mapping is an effective way to confirm the ongoing availability and quality of data and an opportunity to assess new types and new sources of data. For example, if a country's nutrition priorities change, additional and/or different data may be required to monitor and assess the situation.

An appropriate *data use agreement* will likely be needed with each source whose data are included in the NNIS. Typically, this type of agreement covers issues of data privacy and security, as well as addressing how data can be used.

When thinking about nutrition data and the sources of these data, it is important to think creatively and expansively about which data could be used for understanding and improving nutrition programmes and outcomes and what could be a source for these data. Further, if critical data are not available, a creative and expansive approach can help identify ways to work with existing or new sources to generate and collect these data.

Questions to consider...

- **What nutrition data are generated and collected in the country? What is the quality and availability of data? How credible and reliable are the data sources?**
- **Are there useful data from the different sectors involved with nutrition? Are there useful data for both national and subnational levels?**

SYSTEM REQUIREMENTS

Multiple factors, including purpose, priorities, data and budget, are critical reference points when **defining what an NNIS is expected to do and what systems are required for that to happen**. The challenge is to determine how the various factors influence the practical issues and decisions involved in building and maintaining an NNIS. For example, if the initial goal is to have an NNIS that gives key national and subnational stakeholders data for decision-making on the top five nutrition priorities in the country, it is essential to plot out what is needed *(e.g., expertise, technology and resources),* what exists, what can be leveraged, what needs to be procured, who can handle what task *(e.g., core team, consultants, outside vendors),* what it will cost, how long it will take and how the process and the outcomes will be monitored.

These types of issues and decisions will be familiar to experienced project managers, particularly those who have worked on information systems previously. However, the multisectoral nature of nutrition, the number and diversity of stakeholders, the wide range of data sources, the various types of data and the limitations of these data complicate the process of laying out the system requirements.

In the context of an electronic NNIS, system requirements also have very specific connotations related to decisions about hardware, software and functionality, including compatibility with other information systems in the country.

Questions to consider...
- **Will different stakeholders collaborate to decide what the NNIS will do and what systems are required? Is it possible to build a consensus among these stakeholders?**
- **Is the intention to build an electronic NNIS? If an electronic system already exists, is it doing what was expected of it? How could it be improved?**

GOVERNANCE

Good governance is essential to build, maintain and strengthen an NNIS. While the specific structures and practices will vary by country, good governance is typically seen as **participatory, consensus-oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive.** Good governance is also careful to follow the rule of law.

Typically, the core of the governance structure is a steering committee or board of directors, which works closely with the management and implementation structure responsible for the day-to-day operation of the NNIS *(i.e., the institutional home and the core team).* The committee or board has primary responsibility for the overarching oversight and decision-making related to the information system (e.g., strategic planning, finance and coordination). The structure and operation of the committee or board *(e.g., the number of members, affiliation of members, roles and responsibilities of members)* will need to be determined based on the allowable options in a country. But a commitment to the key characteristics of good governance should guide these decisions.

The diverse nature of an NNIS, with multiple stakeholders from multiple sectors, places a premium on an **inclusive and participatory** approach to governance. This does not mean every stakeholder or group of stakeholders must be a member of the governance structure. However, it does mean the committee or board respects and values the range of stakeholders who contribute to the successful operation of the NNIS; it actively encourages input from stakeholders; and it seeks out relevant advice and counsel from multiple sources.

The governance of an NNIS should also place a high value on **transparency**. For example, information about the governance, management and implementation of the NNIS, including financial information, should be readily available and easily understandable. Stakeholders should know how and why decisions were made, and transparency should be used to build trust in the NNIS and its data.

Questions to consider...
- **Who has the knowledge and skill to actively participate in the governance of the NNIS?**
- **What is the best way to balance the various stakeholders and interests in nutrition (e.g., involvement of multiple sectors) while ensuring the governance is fair and representative? How does the composition of the board effect decisions made about the NNIS?**

PRINCIPLES

The five core principles listed in Module 1 are constructive benchmarks when building, maintaining and strengthening an NNIS. As key decisions about an NNIS are made, the possible implications of each of the core principles should be considered:

1. Pay attention to priorities. The data included in the NNIS should align with the priorities in the national, subnational and sectoral nutrition plans that are being implemented, analysed and monitored.

2. Use well-defined indicators. A set of well-defined indicators that correspond to the priorities in the nutrition plans will help guide the selection and analysis of data used in the NNIS.

3. Focus on practical, high-quality data. Data in the information system must be accurate, relevant, understandable and timely if they are going to be useful (see 'Data', above).

4. Design and build a flexible system. The nutrition information system should be sufficiently flexible to adapt to changing circumstances and requirements, including new priorities, new indicators, new data sources, new technologies for collecting data and new ways to analyse and present the data.

5. Ensure the system is cost-effective. The level of investment in the NNIS must correspond to its value; the system is a tool to strengthen nutrition programmes, not an end unto itself.

Questions to consider...
- **Is there a consensus among the key stakeholders, including those involved with governance and those on the core team, on the purpose and value of the principles? Will they use them when making decisions about the NNIS?**
- **Are there certain principles that may be challenging to follow? If so, why and how can these challenges be addressed?**

USERS

As mentioned above, the main purpose of an NNIS should be to collect, analyse and make available critical data that can be **used by stakeholders at national and subnational levels** to support informed, evidence-based decision-making. Decisions about the NNIS should **carefully consider users and their needs**, including who they are, how they work with the system, how they use the data and what opportunities there are to improve both the system and its contents.

If an NNIS is not meeting the needs of its users, it raises serious questions about the value of the system.

Understanding users and their needs requires active and sustained engagement with them. Consequently, formal and informal consultations *(e.g., surveys, workshops and interviews)* should be an integral part of building, maintaining and strengthening an NNIS. These consultations are also a good tool for helping users identify gaps or misunderstandings in their perspectives and perceived needs; they can also be used to identify unforeseen opportunities to strengthen or expand the NNIS.

Questions to consider...
- **What steps can be taken to ensure the NNIS remains focused on users and their needs? Should users be included in the governance structure of the NNIS?**
- **Will the parties responsible for the NNIS (e.g., governance members, the institutional home and core team) be willing to listen to and act on input from users?**

CHAMPIONS

Within the larger group of stakeholders in an NNIS, there will be champions in government and civil society who can and should play an active role in launching and sustaining the system. In most cases, they will be people who value nutrition and its contributions to the health and wellbeing of individuals, families and communities in the country.

The exact role that different champions play will vary based on who they are, but every champion is an indispensable resource for building support for an NNIS. Champions are strong, well-informed supporters, who can help make the case for a robust information system. For example, well-placed champions can be particularly effective in conducting advocacy with decision makers about developing and maintaining an NNIS; establishing and/or leveraging relationships with key stakeholders, including data sources; and mobilizing resources for the NNIS.

Questions to consider...
- **Who are the effective champions for nutrition in the country? Why are they effective? Do they recognize the value of a robust NNIS? Are they willing to get involved?**
- **What issues facing an NNIS would benefit most from the involvement of champions?**

⚙ TECHNICAL ASSISTANCE

The steps required to build and operate an NNIS are influenced by multiple factors, ranging from its scope to its specific system requirements to the capacity of its core team. The diversity and potential complexity of the different factors are likely to require technical assistance at various points in the initial and ongoing processes. For example, an NNIS that includes data from a greater number of sectors *(e.g., agriculture, education, health and social welfare)* may need additional technical assistance to process and analyse the various types of data.

In countries with an existing electronic NNIS or plans to develop one, information technology is likely to be an area that will benefit from technical assistance. The improving capacity and increasing sophistication of information technology, including data harvesting, automated data quality checks, geographic location mapping, data visualizations and report generation, can require specialized knowledge, skills and training to set up and maintain the system.

The core team — in coordination with key stakeholders — should regularly assess where and how technical assistance can improve NNIS processes and performance. The findings from these assessments should be the basis for updating plans and budgets to procure technical assistance from qualified consultants and organizations.

Questions to consider...
- **Are there areas where technical assistance will likely be needed to build, maintain and/or strengthen the NNIS?**
- **What resources for technical assistance are available in the country? Will there be a need to secure assistance from international sources?**

💲 FINANCIAL RESOURCES

As mentioned above, without credible data on nutrition, there is no basis for a national nutrition information system. Similarly, without a realistic and funded budget, it is not feasible to build or sustain an NNIS that will provide valuable decision-making support to users. The budget should include a multi-year funding envelope to ensure the stability of the NNIS and allow it to demonstrate its value over a longer term.

One of the most efficient ways to develop a budget for an NNIS is to use one from another information system in the country as a template *(e.g., management information systems in health, education and agriculture).* Although the content of an NNIS will be different, the basic structure and budget categories will be similar; for example, governance, general administration, staff *(recruitment, training, compensation),* external/contract services, surveys, technology *(hardware, software)* and reviews/compliance. One advantage of having an institutional home for an NNIS in an organization accustomed to working with data is that they should have a good sense of how to develop a budget and manage the financial resources for an information system.

The budget should be aligned with the purpose, scope and principles of the NNIS, which are, in turn, aligned with the nutrition priorities in the country. This alignment should position the NNIS as an essential component in the country's larger commitment to improve nutrition and nutrition outcomes. For countries with an investment framework for nutrition, resources for the NNIS should be reflected in the national plan to mobilize and allocate financial resources for nutrition programmes.

Questions to consider...
- **Are decision makers prepared to provide the financial resources for an NNIS? If they have reservations, what role can a budget play in convincing them to approve the funding?**
- **Are there other information systems in the country that may have a budget template for the NNIS?**

A well-designed and well-implemented NNIS has the potential to make a significant contribution to a country's nutrition efforts. It can be a reliable and respected source of sound and compelling evidence that can help raise the profile of nutrition at a time when it is consistently undervalued. It can help all stakeholders, from politicians and policymakers to practitioners and people in the community, to better understand the critical issues and be more willing to support — and participate in —effective nutrition programmes.

KEY TERMINOLOGY

Data	Facts and/or figures; pieces of quantitative or qualitative information
Database	An organized collection of data stored electronically for rapid search and retrieval
Data provider	An organization that produces data; may be referred to as a data generator; see also data source
Data source	Type of data and/or modality of data collection (e.g., routine data, survey data); can also be synonymous with data provider
Data value chain	A framework used to guide the transformation of raw data into a valuable resource to better understand situations and improve decision-making
Disaggregated data	Data that have been broken down into detailed sub-categories (e.g., by age, gender)
Indicator	Indicators make collected data understandable and useful for monitoring performance, assessing achievement and determining accountability. They can be used to determine a proportion (e.g., prevalence) and are often designed to track inputs, outputs, outcomes and impact.
National data	Data that are common to or characteristic of a whole nation; see also subnational data
Qualitative data	Data collected using qualitative methods, such as interviews, focus groups, observation and key informant interviews; generally expressed in narrative form, pictures or objects (i.e., not numerically)
Quantitative data	Data that are measured on a numerical scale, can be analysed using statistical methods and can be displayed using tables, charts, histograms and graphs
Routine data	Data continuously collected as part of a regular activity/procedure
Sentinel site	A dedicated location (e.g., facility, community) where surveillance data are collected
Subnational data	Data disaggregated by administrative units below the national level (e.g., provinces, districts, counties); may also include other breakdowns below the national level (e.g., urban, peri-urban, rural)
Surveillance data	Data collected on a recurring basis from designated locations (see sentinel sites) to provide insights on trends into a broader area and/or larger population