First National Food Balance Sheet: Experience of The Dominican Republic[1]

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1. Summary

The Food Balance Sheet (FBS) is the main statistical instrument for assessing a country's food availability and supporting the formulation of public policies on food and nutrition security. In the Dominican Republic, its reconstruction represented a process of high technical and institutional complexity, given that the country had not had a formal update since 1971.

The process was developed between 2024 and 2026 under the leadership of the National Statistical Office (NSO), with the technical support of the Food and Agriculture Organization of the United Nations (FAO) and the participation of various public institutions. The implementation involved the revision of national statistical classifications, the harmonization between the Central Product Classifier (CPC) and the Harmonized Foreign Trade System (HS), the incorporation of estimates on informal trade, tourism, post-harvest losses and derived products, as well as the adaptation of international methodologies to the national context.

The results include the strengthening of technical capacities, the consolidation of a permanent inter-institutional technical table and the updating of food data in accordance with international standards. Experience shows that the development of an FBS goes beyond statistics and requires institutional coordination, political will, and sustained sectoral participation.

Keywords: Food Balance Sheet, food security, agri-food statistics, food availability, Dominican Republic.

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2. Background

Food balance sheets (FBS) are a structured accounting representation of the supply and use of food products in a country during a reference period, which articulates in a single matrix production, imports and exports, changes in stocks, use for seed, animal feed, industrial processing, losses and final availability for human consumption. More than an instrument oriented to a single indicator, FBSs constitute an integrated vision of the national agri-food system, whose data feed into analyses as diverse as agricultural and commercial planning, the calculation of the ratio of self-sufficiency and dependence on imports, the estimation of food and nutrition security indicators.

The first attempts to compile FBS date back to the First World War, but their international institutionalization occurred within the framework of the pioneering work of the League of Nations on nutrition. At the request of its Mixed Committee on the Problem of Nutrition, the first systematic international comparison of food availability data was prepared in 1936. With the creation of the Food and Agriculture Organization of the United Nations (FAO) in 1945, methodological responsibility for FBS was transferred to the new organization, which consolidated them as its reference statistical instrument. FBS were first published in a standardized format in 1984.[1] They rest on the prior preparation of supply utilization accounts (SUA), which disaggregate the balance on a product-by-product basis.

This multipurpose nature explains why international interest in FBSs has been sustained over time. In 1996, during the World Food Summit in Rome, member States reaffirmed the need to strengthen national food information systems as a basis for addressing hunger and malnutrition.[2] Since 2014, the FAO Statistics Division has been systematically reviewing and updating the methodological approaches, a process whose most recent outcome is the current reference manual.[3]

In the Dominican context, these international commitments were articulated with national normative instruments. The National Development Strategy 2030 (Law No. 1-12) recognizes the importance of strengthening national statistical systems for the design, monitoring, and evaluation of public policies. [4,5] For its part, Law No. 589-16 on Food and Nutrition Sovereignty and Security established the institutional framework to coordinate actions related to the production, access and availability of food.[6] Both instruments, articulated with the government's prioritization of the Zero Hunger initiative, generated favorable conditions for institutional mobilization and the development of statistical tools aimed at evaluating the national food system.

The last FBS formally developed in the Dominican Republic corresponded to the year 1971. Consequently, its reconstruction implied re-establishing a system of national food statistics from its bases, in a context of profound transformations in the productive, commercial and demographic structure of the country, as well as in consumption patterns and in insertion in international markets. This situation was identified early on as a risk to data quality, given that numerous parameters and statistical classifications had become outdated or incompatible with current methodological standards.

In June 2024, FAO launched project TCP/RLA/4002[2], aimed at strengthening agricultural and food statistics in Latin America and the Caribbean. In this framework, the Dominican Republic received specialized technical assistance for the development of the FBS in accordance with international standards. Technicians from the NSO participated in regional training on food balance methodology and in specific training for the use of the "Food Balance Sheet Compiler" which is a computational tool developed by the FAO statistics division team in the Shiny package of R software.

The initial diagnosis revealed significant limitations in the available statistical sources: inconsistencies in product classifications, underreporting of certain agricultural items, absence of data on production in protected environments, and weaknesses in the harmonization between production and foreign trade statistics. These starting conditions defined the need to undertake a comprehensive methodological review and constituted the starting point of a process that would combine technical strengthening, inter-institutional coordination and methodological adaptation.

[2] The countries trained on the incorporation of the updated methodology under project TCP/RLA/4002 were Panama, Guatemala, Cuba, and the Dominican Republic. Panama, Guatemala, and the Dominican Republic have completed their respective FBS updates; in the case of Cuba, the process has been temporarily delayed due to national factors. Building on the experience generated by this project, additional technical cooperation initiatives have emerged with Colombia and El Salvador, currently ongoing, as well as planned collaborations with Argentina and Trinidad and Tobago. This progressive coverage reflects the growing regional interest in updating food balance sheets and the relevance of this instrument for the design of food policies in Latin America and the Caribbean.

3. FBS Implementation

The implementation of the FBS was structured in two main phases: an initial stage of capacity building and preliminary preparation of the balance, followed by a phase of methodological adjustment, expansion of components and consolidation of results.

3.1 Capacity Building and Preview

The first phase was aimed at reviewing and refining the available statistical sources. The starting point was the evaluation of product classifications according to the CPC and their correspondence with the HS used in foreign trade statistics. This analysis evidenced classification inconsistencies, underreporting in agricultural productions and absence of information on production systems in protected environments. On this basis, an exhaustive cleanup of the foreign trade databases was carried out, through cross-validations between customs records, business profiles and national production structures. This technical work required specialized dedication for several months and constituted one of the central components of the statistical strengthening process.

At the same time, NSO technician participated in training activities held in Santo Domingo and in the regional workshop held in Panama, both within the framework of the TCP/RLA/4002 project, acquiring skills in food balance sheet methodology and in the use of the "compiler" tool developed in Shiny (R). From January 2025, inter-institutional validation began through periodic technical meetings with representatives of public institutions in the agri-food sector, in which data on production, imports, exports, post-harvest losses, seeds, feed and industrial transformation relationships were reviewed. This phase culminated in the preparation of a preliminary version of the FBS with consolidated information until 2023.

3.2 Methodological adjustments and strengthening of statistical components

The second phase involved the adaptation of multiple methodological components to the productive and commercial particularities of the country. The main adjustments made are described below.

Foreign trade. A detailed review of food imports and exports was conducted, identifying classification errors and verifying the end-use of key products. The analysis by importing company profile confirmed that soybean meal and corn constitute the largest proportion of inputs intended for animal feed, while other products previously classified as feed did not meet that destination significantly in the national context.

Estimates of informal trade with Haiti were also incorporated through coefficients derived from a study carried out in 2017 by the Central Bank of the Dominican Republic, the General Directorate of Customs and the NSO. These coefficients were updated and applied to recent data to complement the formal records of commercial exchange.

Food losses. The technical validation with sectoral specialists and agricultural experts made it possible to adjust the loss coefficients according to the characteristics of each item. As a result, estimates for vegetables and perishables increased, and coefficients for cereals and meats were reduced, correcting for both overestimates and previous underestimates.

Seeds. Consultations were carried out, in coordination with the Ministry of Agriculture, to identify agricultural products for planting and reproduction. This process made it possible to identify relevant technical particularities, such as the use of the pineapple crown as planting material and the use of avocado seeds in agro-industrial processes, situations that do not involve seed consumption, since the food is not used for that purpose. From this analysis, it was determined that few products are actually destined for planting. Subsequently, using the planting densities and imports destined for this purpose, the corresponding estimates were made for the products that did present this destination.

Tourism. In the absence of direct statistics on visitors' food consumption, an equivalent population methodology was implemented based on the number of passenger arrivals and the average length of stay. This approach made it possible to estimate the effect of tourism on national food availability, an aspect of particular relevance given the weight of the sector in the Dominican economy.

Derived and processed products. Technical visits were made to commercial establishments to collect information on nutritional labels, ingredients and industrial transformation relationships. This procedure allowed validating extraction rates and improving the estimation of derivatives. In the case of sugar, it was coordinated with the Dominican Sugar Institute to determine proportions for industrial and non-food uses. For dairy products, the National Council for the Regulation and Promotion of the Dairy Industry (CONALECHE) supported the identification of the distribution of milk destined for industrial processing.

Fishing sector. Classification models based on version 2.1 of the CPC and methodological experiences from other countries in the region were used, incorporating aquaculture and marine and inland fisheries data through the relationship between CPC and HS codes. However, technical limitations persisted in the integration of kilocalories from this sector into the overall calculation of dietary energy supply.

4. Institutional commitments

One of the determining factors of the process was the formation, in December 2024, of an inter-institutional technical committee (Working Group) initially made up of the NSO, the Ministry of Agriculture, the Ministry of the Presidency and FAO. Subsequently, the Ministry of Public Health was incorporated on a permanent basis to support the validation of nutritional factors and dietary parameters. This governance structure initially operated through technical meetings held twice a week, generating a systematic space for validation, review and decision-making that was essential for the progress of the process.

Institutional articulation made it possible to overcome historical limitations in the availability and quality of information. Among the main advances derived from this coordination are the comprehensive review of product classifications under the CPC; the purification of foreign trade bases in accordance with the HS; and the incorporation of historically under-registered sectors, such as agricultural production in protected environments and part of fishing activity. The General Directorate of Livestock (DIGEGA) contributed to redefining the real structure of the feed used in the country, while technical consultations with agricultural specialists and producers made it possible to adjust parameters of losses, seeds and industrial extraction rates.

The political support linked to the presidential goal of Zero Hunger was a catalyst for the consolidation of the project. The articulation of the FBS with a high-profile national priority facilitated institutional mobilization, accelerated access to strategic information, and strengthened the commitment of the participating agencies. This experience shows that the positioning of food statistics as an instrument of public policy significantly amplifies the capacity for coordination between technical agencies and government decision-makers.

The process also included socialization and institutional strengthening activities: high-level meetings with ministerial representatives, technical conferences with sectoral specialists and agricultural producers, and spaces for collective validation of results. These initiatives made it possible to consolidate collaboration networks, identify key informants, and promote national ownership of the process.

From the point of view of sustainability, the Dominican experience highlighted the need to build permanent national technical capacities that ensure the annual updating of the FBS beyond the cycles of international cooperation. In line with FAO's technical cooperation approach, aimed at strengthening national statistical capacities and facilitating local ownership of the methodology, the country team was able to develop specific adaptations that adjusted the procedures to the particularities of the country's statistical and production system. This process illustrates how international technical support and national institutional knowledge enhance each other to produce sustainable results.

5. Main technical adjustments and adaptations

The reconstruction of the Dominican FBS, as developed in section 3.2, followed the FAO methodology of food balance sheets and supply and utilization accounts,[7,8] applying it to the sources, classifications and productive particularities of the country.

Among the main adjustments developed are:

1. Harmonization of CPC-HA classifications,
2. Verification of the final destination of imports by company profile,
3. Incorporation of estimates of informal trade with Haiti,
4. Refinement of loss coefficients with sectoral specialists,
5. Estimation of tourist consumption by equivalent population and
6. Validation of extraction rates for derivative products.

A cross-cutting operational decision that deserves to be highlighted is the prioritization of review and validation efforts based on the caloric contribution of each product to the dietary energy supply. This strategy, adopted in view of the limitation of technical resources, made it possible to concentrate the work on the items with the greatest impact on the results of the FBS, maintaining the quality of the estimates in the most relevant components from the nutritional point of view and leaving the refinement of lighter weight products for later stages.

Experience confirms that the FAO methodology is sufficiently robust and flexible to accommodate the particularities of each country without compromising the international comparability of the results. [3]

6. FBS Compilation Challenges

6.1 Institutional and coordination challenges

The FBS compilation showed that the main constraint does not always lie in the lack of data, but in the difficulty of identifying the institutional actors responsible for producing or validating them. Formal mechanisms for requesting information were often insufficient to obtain agile responses, especially in sectors with limited statistical systematization. In contrast, direct consultations with sectoral technicians and agricultural producers generated more accurate and timely information, evidencing the importance of informal channels of technical communication in contexts where administrative information systems have limited capacities.

This situation poses a structural challenge: the sustainability of the statistical process cannot depend exclusively on personal networks or informal links built during the implementation of the project. The institutionalization of permanent coordination mechanisms, with clearly established roles, responsibilities and protocols for the exchange of information, is a necessary condition to guarantee the continuity and reproducibility of the process.

6.2 Methodological challenges

From the methodological point of view, the residual estimation of the availability for human consumption represented a structural vulnerability of the balance. Since this component is obtained by difference between the total supply and the set of non-food uses (exports, feed, seeds, losses and industry), any accumulated imprecision in the intermediate variables directly translates into distortions in the final results. This characteristic requires particularly high quality standards for each of the components of the FBS.

The "FBS Compiler" application used for FBS processing, designed to operate on the FAO generic commodity tree, naturally presents challenges when the relationships between primary products and derivatives at the national level differ from the default settings. In the Dominican case, some automatic imputations required manual reviews and complementary validations to adequately reflect the local productive structure. This experience suggests the usefulness of continuing to move towards tools that allow the incorporation of the particularities of each country in a more agile way, a line of work that FAO itself has been developing in its methodological updates.

The limited availability of up-to-date national studies on structural technical coefficients (post-harvest losses, industrial extraction rates, seed utilization, feed composition) made it necessary to combine international parameters with validations carried out together with national specialists. This situation was especially evident in processed products and agro-industrial derivatives, where the absence of systematized administrative records led to the use of indirect estimation methods.

6.3 Informal trade and sectors with limited information

The incorporation of informal trade with Haiti was possible thanks to previous studies, but the outdated coefficients available introduces a source of uncertainty that cannot be

ignored. Post-pandemic economic and social transformations have significantly modified the patterns of border exchange, making it imperative to carry out new measurements to update these estimates.

The fishing sector presented additional constraints. Despite advances in the CPC-HS classification and in the incorporation of marine, inland and aquaculture fisheries data, technical difficulties remain in fully integrating dietary energy estimates from this sector into the overall calculation of the FBS. In this regard, we must continue to collaborate with FAO to be able to develop and integrate data from the sector into the final results.

6.4 Outlook and next steps

Based on the challenges identified, the priorities for consolidating the national food balance system are oriented in several directions: the annual updating of the FBS as a regular statistical practice; the conduct of a new national study of informal border trade reflecting the current dynamics of trade with Haiti; the integration of studies on food consumption in hotels; the full integration of the fisheries sector in the calculation of food energy supply; the periodic review of technical coefficients of losses, seeds, feed and extraction rates; and the improvement of computer tools for the treatment of derived products and complex industrial transformation relationships.

It is also a priority to institutionalize permanent mechanisms of inter-institutional validation and methodological documentation that guarantee the traceability, reproducibility and sustainability of the statistical process in the long term. The Dominican experience shows that the consolidation of an FBS depends both on technical capacities and on the continuous articulation between information-producing institutions and on the integration of food statistics into national public policy priorities.

7. Conclusions

The preparation of the Food Balance Sheet of the Dominican Republic constituted a process of statistical reconstruction of high technical and institutional complexity. The absence of formal updates for more than five decades implied developing methodologies from the ground up, strengthening administrative records, and articulating multiple public institutions and sectoral actors to generate a consistent estimate of national food availability.

The process made it possible to advance in three complementary dimensions. Statistically, it improved the coherence between productive and commercial classifications and incorporated historically underestimated or absent components, such as informal trade, derived products and part of the fishing sector. On the methodological level, it demonstrated the need and feasibility of combining international frameworks with specific technical adaptations to the national context, especially in areas such as seeds, post-harvest losses, tourism consumption and estimation of agro-industrial derivatives. At the institutional level, it laid the foundations for an architecture of inter-agency coordination that, if consolidated, can ensure the sustainability of the statistical process beyond the cycles of international cooperation.

The project's link to the presidential goal of Zero Hunger was a determining factor for its political and operational viability. This experience reinforces the thesis that agri-food statistical systems are most effective when they are explicitly integrated into public policy priorities, thus generating the conditions of institutional support necessary to sustain processes of high technical complexity.

In summary, the implementation of the FBS represents not only an advance in the statistical capacity of the Dominican State, but also a demonstration that the production of quality technical evidence requires the confluence of methodological competencies, inter-institutional coordination, and political will. The consolidation of this system will contribute to the monitoring of food availability, the reduction of information gaps and the design of more effective policies for the country's food and nutrition security.

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