**GENERAL OVERVIEW**

 The document describes a very comprehensive and commendable work. Some passages require clarifications and some choices need to be discussed by experts and countries.

 The document is a technical report rather than guidelines. We will need to develop Guidelines for countries for the application of the final method.

Can you clarify what is meant by "Guidelines"? The document contains many technical details, yet the example section contains several simple examples that should aid in explaining the approach to countries (beginning around page 90).

 The report is FAO oriented but should nevertheless be considered for the SAC for peer review because the FAO method will be implemented by countries through technical assistance.

FAO-orientation is a virtue not a weakness, so this comment comes as a surprise. First, FAO has been the standard setter for Food Balance Sheets, providing the most elaborate methodology and the greatest coverage globally. Second, it is a pivotal role of FAO to set such standards and the FAO orientation is therefore design rather than coincidence let alone a problem. Third, FAO orientation is necessary to ensure compatibility with FAO FBS results. A good example for problems that can arise from a lack of FAO orientation are the recent discussions and differenced with Senegal. FAO orientation in the methodology would have avoided these differences or at least minimized them. Fourth, going forward, FAO orientation is necessary if countries are asked to compile the FBS and FAO’s role becomes more one of a provider of QA/QC services.

**COMMENTS**

 References to the GS are on  cost-effective methods for data collection only. These passages should be revised.

We would appreciate guidance from the GS on how to revise these statements. Or, alternatively, should references to the GS be excluded?

 The report should already include some guidance to countries on how to cost-effectively compile SUA/FBS, for example by reducing the number of commodities in the SUA’s. Indications on how to made best use of secondary data at country level would also be useful.

We do not recommend countries to reduce the number of commodities in the SUAs. As the food balance sheet is the basis for indicators such as the DES, it is important that it includes all food commodities and all data available. Essentially all major other indicators require complete commodity coverage. If this comment is meant to address desires to use FBS for early warning purposes, this was never intended by the FBS work and indeed would require a rather different approach (less statistically formal). Such an approach is already implemented by AMIS and would therefore also amount to a duplication of efforts.

What type of data is meant in regards to "secondary data"? In the section "Data Sources and Collection" we discuss surveys and administrative data. Also, in the section "Data on food" we discuss data collection from flour millers, sugar refiners, etc. Are there additional data sources to consider? If so, which and why?

 If the Handbook is to describe an analytical accounting framework, considerations on page 22  too detailed. This handbook is not the place where to define how to measure agricultural production.

We agree that the FBS handbook is not the place to provide a general treatment of methods for data collection. And in fact it doesn’t. It focuses on data for FBS, which entail certain standards, definitions, classifications and coverage. Moreover, it provides countries and other FBS compilers a quick overview to the relevant data sources. Such a section has also been included in previous versions of the FBS handbook and we are surprised that the GS would not want to have such a section.

         A section on ‘future developments’ should be added on next methodological improvements (trade pre-standardization, commodity and TCF up-date, nutrient factor differentiation, etc.)

We are surprised to hear that trade pre-standardization would be considered a possible future development. If it denotes standardization to trade data only, it would be a step back rather than advancement relative to what is being presented. We also have region-specific nutrient factors and where available country-specific ones. Global factors are default values only and used when no other factors are available) . That all said, we would appreciate further guidance from the GS on these issues, notably trade pre-standardization.

**Balancing and standardization**

This section is the most important one of the report because it contains the major changes to the FBS methodology that was applied for decades by ESS.

 The basic SUA equation has been improved with the introduction of Tourism consumption and by changing the element “Other Utilization” into “Residual Other Use”

 The new SUA equation does not incorporate a major comment made by experts in several instances: Changes in stock (dST) should be replaced by Opening Stocks on one side of the equation and Closing Stocks on the other side. One problem with the SUA equation using dST is that it does not control cumulated stocks.

The introduction of such an item is a trivial exercise from a methodological perspective. However, this data is very sparse and even stock changes are hard enough to measure. Again, we would appreciate data from the GS. We have been working in close cooperation with the AMIS team on stock estimates but unfortunately never received a set of data on stock levels, not even for a handful of countries. That said, we encourage countries to collect data on stock levels and have underlined this at various stages in the document.

  In page 35, it should be immediately clear that Industrial Use (IU) does not include food processing and that Food (Fo) includes both primary and processed food products.

A comment has been added on this page to address this concern. That said, the distinction between food and food manufactured creates lots of problems with users and adds an unnecessary complication. It can of course be re-introduced into the basic equation if so desired.

The Objective function to balance the SUA’s

 The maximum likelihood approach to balance the equation seems a real progress in comparison with the previous manual calibration of the various estimated elements/unknown variables (in the best case scenario including only food, stocks, feed, industrial use and other uses). The comment is appreciated. It may be worth noting that the balance can be solved analytically if all distributions are of a normal nature. This would also address possible concerns regarding computational needs and resources.

 The approach needs thorough discussion with experts and stakeholders because official statistics (mainly production and trade) are replaced by Balanced estimates (end of page 37). This is not acceptable by countries and was a major cause for rejecting the FAOSTAT2 methodology ten years ago. The Objective function can be used to balance imputations and estimations of the least informed elements (feed, seed, stocks, industrial utilization) and to improve production and trade imputed values when official data are missing. The difference between balanced estimates and official data when available could be added up in the Residual element.

There seems to be a fundamental misunderstanding. The current draft states in no unclear terms that official estimates have no measurement error and will therefore remain unchanged. They will therefore not be replaced by the balancing algorithm. Estimates with higher levels of uncertainty are adjusted more, but official figures are all assigned zero uncertainty.

On pros and cons

 *No residual necessary*:  on the contrary. Residual amounts (called errors and omissions in other statistical domains) are very useful (see above comment). Eliminating this element only means that errors were spread across all SUA elements.

Again, there is a fundamental misunderstanding. It is indeed so that every element of the balance is identified with an explicit measurement error/residual. But contrary to the past approach, there is no single balancing item that would need to absorb the measurement errors of all other elements. Including such a residual element would undermine the entire approach, as this residual element accumulates all errors of all other variables. If, as officially stated in the existing FBS documentation, food is the balancing item this means that food becomes not only the least reliable variable but also would fluctuate widely from year to year. Neither result is desired. If the GS advises otherwise, the FBS team would be happy to engage in a discussion.

The proposed approach therefore works by adjusting an unbalanced food equation into balance by tweaking several variables. The amount of adjustment a variable receives is proportional to its uncertainty, and this approach is based on the widely accepted Maximum Likelihood Estimation procedure.

 The formalization of a priori knowledge may be very cumbersome for developing countries. There should be a paragraph on “Formalizing a priori information” for every section in “Imputation method” and “Compilation step-by-step”.

"Formalization of a priori knowledge" means that information such as the capacity and quality of a statistical system are measured and quantified. The GS has done exactly this with CAQs, in depth assessments and more recently the ASCI approach. Josh, please check ASCI etc.

 It is true that the high IT content and the model approach will weaken country ownership of the results. Providing a tool kit for compiling FBS at country level will partly solve this issue.

We have recognized this challenge early on. A portable tool that allows countries to develop their own is already in preparation. This tool is conceptualized in such a way that it could offer a greater array of options to countries, potentially even form the basis for a Statistical Working System.

Standardization.

 This section needs to be expanded.

We could certainly expand the section, but would need guidance as to what is missing and how the section should be expanded.

 It seems that standardization will be carried roughly along the same lines as currently done. A numerical example on page 45 (wheat) would be useful.

Several numerical examples (on the entire process) are provided later in the document. A comment has been added to reference those sections. Explicitly, wheat, sugar and palm oil are covered. More commodities can be included, but this may expand the document in an unnecessary manner. The choice of commodities was guided by the need to rise to different challenges in the standardization process. If challenges have been overlooked, guidance from the GS would be appreciated.

 The report makes little reference to previous ESS research efforts to improve standardization. A paragraph should be added summarizing these efforts. An explanation of why this route was abandoned would be useful to save future work in a direction that is known to be fruitless.

We have reviewed these reports. Alas there is little to nothing usable in them In fact, it looks as though the authors tried to sell the existing approach under a different guise (Van T’Riet) or did not address the actual problems of the current approach (Mahjoubi). That said, we are open as to what could or should be used from these reports.

We can of course make reference to the studies prepared for alternative FBS methods (Mernies, or others), in case that is meant by the comment.

 *Trade pre-standardization*seems to have been postponed because of “aspects” that deserve attention. These aspects should be mentioned in the report because they pave the way for future developments. Also, much research was already done in this direction.

See comments above. Dismissed as a partial concept not fully addressing the needs.

 The report implicitly states that commodity trees and TCF will not be up-dated. Some indications are needed on future plans improve these parameters.

The document states that the commodities remain in tact as such, but the underlying logic has been reviewed, ditto for the parameters. Both have been adjusted. Importantly, the standardization process has been overhauled completely, thousands of cases of negative utilization have been addressed and many more thousands of cases where the underlying logic was wrong too, only that the numerical applications did not render negative utilization.

 More explanations should be given on “shares for different uses”, page 43. Are industrial uses being modeled in the FBS (for example use of palm oil in cosmetics) for all commodities? This will be probably explained in the chapter on Compilation step-by-step but the general principle should be stated here.

Shares are only being used for allocating processed primary product to multiple potential children. All elements of the food balance sheet are calculated by external modules. A comment has been added on page 43. Industrial use data will need to be collected. Various ways of imputing data have been tested, none produced satisfactory results.

 The proposed solution to build separate accounts for beer and other alcoholic beverages is very clever. Does it apply to other complex commodities like cheese? What is the approach for the 300 processed commodities identified in the *SUA and processed products* paragraph?

This approach was in the old standardization: beer and other processed products do not get standardized into their parent commodities. A comment has been added on page 44. It is what is known as food manufacture in the cereals balance. For this reason, cereals are defined w/o beer and beer needs to be introduced as a separate line in the FBS. Ditto for alcohol, etc. The same logic cannot be applied to cheese, unless we have exact and reliable data on how much milk and of what composition is used for a great variety of cheeses. Indeed, the chosen approach for beer and alcohol necessitates a certain homogeneity of the FBS entry.

**** *Product specificity*. This paragraph should be moved under ‘nutrient conversion factors’ or included in a new section on future improvements. Current FBS are based on one single nutrient factor by commodity for the whole world. ESS/the GS/countries should strive to improve them in collaboration with FAO Nutrition Division.

A single nutrient factor is not used, but rather country or region specific nutrient factors. The paragraph on product specificity was moved.

Appendix 1 is extremely useful. It clarifies to all users FBS commodities’ composition and their differences from primary products.