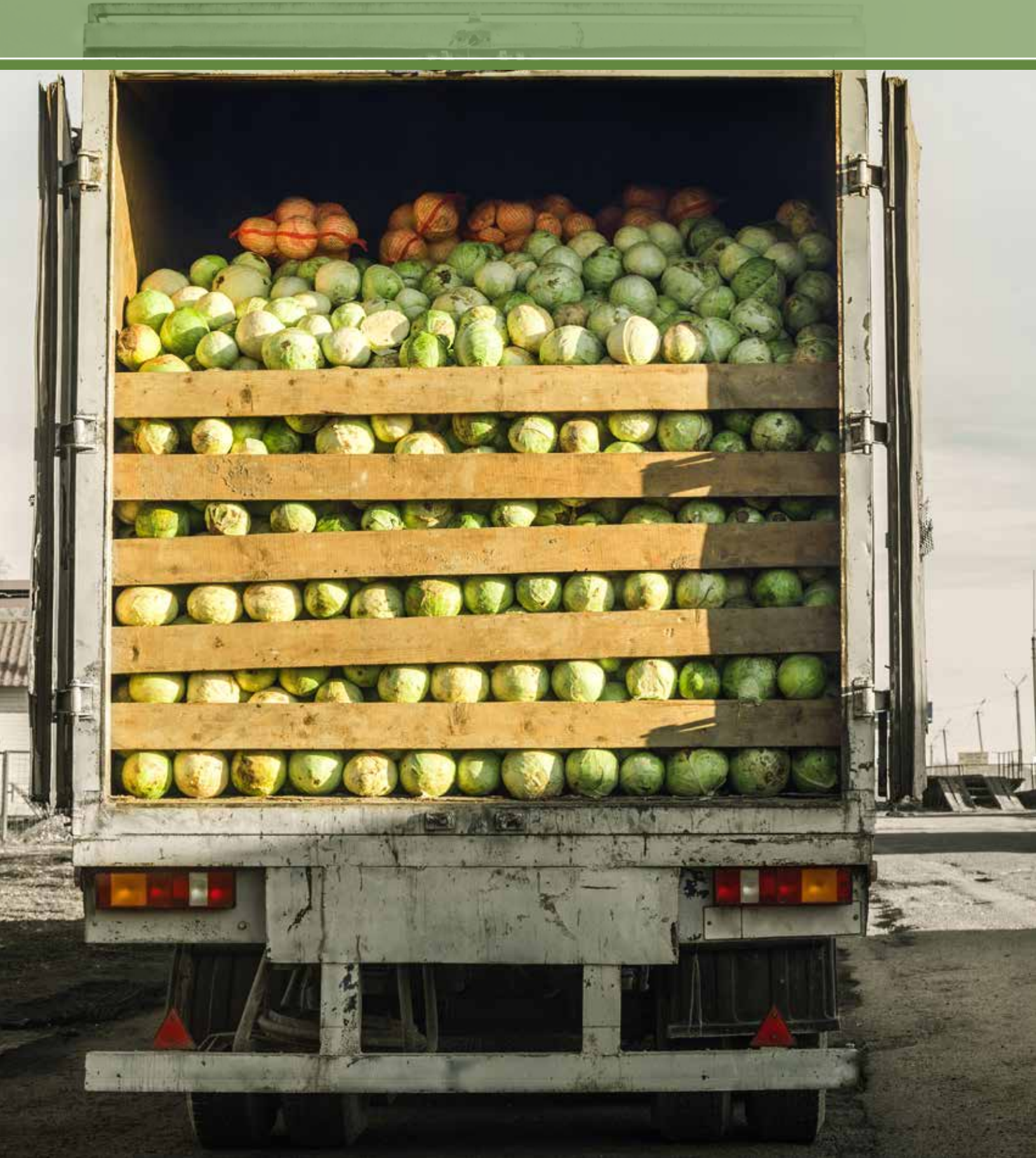


10. Proxy Data



10.1 Overview of the Method

This method enables an estimate of FLW to be made using proxy data (i.e., FLW data that are *outside* the scope of the FLW inventory but which can be used as part of a calculation to infer quantities of FLW within the scope of the entity's inventory).²¹ An entity may decide to use proxy data if measurement or approximation are not feasible (e.g., if it does not have direct access to the FLW, or if it has a limited budget). Using proxy data is one of three methods described in this standard that are based on “inference by calculation.” The others are undertaking a mass-balance approach and using models (see Chapters 8 and 9 in this document).

The proxy data might be specific (e.g., amounts of the FLW generated by individual sites or households) or meta-level (e.g., total agricultural FLW in a country). The level of detail in the proxy data will affect the nature of the calculations performed to obtain an estimate of FLW, as described in Section 10.2, Step 4.

Proxy data could include data that are older than the temporal scope of the inventory, that come from a different geographical area, or that are drawn from a sector other than the one defined in the scope. For example, if data on FLW exist for 2009 but the inventory scope is 2013, the 2009 data could be used and scaled up to account for population (or other) changes since 2009. In this case, the 2009 data are the proxy data. As another example, if an entity wishes to prepare an inventory for its country but has no data, FLW data from a neighboring country could be used based on the assumption that the two countries are very similar. In this case, the data from the neighboring country are the proxy data.

ADVANTAGES AND DISADVANTAGES

The overriding advantage of using other FLW data as proxy data to generate estimates of FLW is that it is less expensive than methods that measure or approximate the amount of FLW.

The primary disadvantage is that the results are less accurate because assumptions have to be applied. The proxy data are outside the scope of an entity's FLW inventory, and the degree of uncertainty in the FLW estimate may be relatively high. As a result, it is usually not recommended to monitor FLW reduction targets using FLW estimates derived using proxy data because the data relate to a different scope from that of the target; for example, using data from one country as a proxy for another country makes it very difficult to monitor a target in the country in which the data are being applied. Any change over time is likely to reflect changes emanating in the country from which the proxy data came.

LEVEL OF EXPERTISE REQUIRED

For very simple calculations using proxy data, a basic ability to understand and work with numbers is required. For more complex applications, an entity will need more advanced skills to undertake various calculations.

It is also essential that an entity using this method be familiar with both the proxy data and the scope of the FLW inventory for which data are being estimated. It needs to understand the limitations of the data in order to identify appropriate approaches to working with the data and performing calculations. This is important because of the potential for major errors to creep in as a result of uncertainties or assumptions in the original data. Understanding where the data come from and how they were collected can help prevent the introduction of errors. Furthermore, a familiarity with the way in which the sector generates FLW is advantageous and helps avoid errors of inference or the application of incorrect assumptions. Familiarity with the sector also helps with “back of the envelope” cross-checking of the FLW estimate once it has been produced.

COSTS

The cost to use proxy data are principally associated with the time spent by the analyst in sourcing the data, performing the calculations, and writing up the results. Where the data are available and relatively straightforward to use, the process can be very quick and inexpensive.

10.2 Guidance on Implementing the Method

This section describes the steps that an entity should undertake when estimating FLW using proxy data.

1. SCOPE THE CALCULATION

As Chapter 6 of the *FLW Standard* explains, a well-defined scope, aligned with the five accounting principles and an entity's goals, is important for ensuring that an FLW inventory meets an entity's needs. The scope of an entity's inventory—defined by the timeframe, material type, destination, and boundary—will dictate to a large extent the proxy data that may be appropriate and the way in which they should be used to generate data for the inventory. Chapter 6 also describes how the scope chosen by an entity for its FLW inventory should be aligned with its underlying goals for addressing FLW.

2. DETERMINE AVAILABLE PROXY DATA

The next step is to identify data that have the potential to be used for proxy-based calculations. Searches can be performed in the academic literature and on the worldwide web to establish relevant information that could be used.

As the data are being collected and combined, it is also important to create a “meta-data file,” which contains background information about the data (e.g., how the data were generated, the timeframe and geographical scope they represent, and associated uncertainties). This information will help with deciding which data to use, which is the next step of this process.

3. SELECT PROXY DATA TO USE

An entity should compare the scope of the potential proxy data with the scope of its inventory. It is important to review the scope across all the components outlined in Chapter 6.

In some situations, there may be a large number of differences between the scope of the potential proxy data and the scope of the inventory. For example, if proxy data being considered are from a different country, a different time period, and a different crop, then an entity will need to make a number of assumptions and calculations to convert these data so that they align with the scope of its inventory. The more differences that exist between the scopes, the more inaccurate the estimate of FLW is likely to be.

Before selecting which proxy data to use, an entity should find out how they were generated. It is important to understand the quantification method used and the related level of uncertainty, along with any other biases (e.g., how the “sample” was drawn, which conversion factors were used). In addition, it is good practice to talk to the parties (e.g., consultants, researchers) who generated the data being evaluated.

In summary, the decision about which data are suitable for use as a proxy should be based on the quality of the data and the clarity of the associated documentation, the extent to which they can be converted for use with the inventory scope, and the number of assumptions that will need to be made to derive an estimate of FLW. If the level of uncertainty is higher than the level considered acceptable for an entity's particular quantification goals, then the entity should rule out using those potential proxy data. This decision will depend on why the FLW quantification is being undertaken. For instance, if two countries are very similar with respect to household food consumption habits, it may be possible to use household FLW data from one country as a proxy for the other. This may be acceptable for a general understanding of FLW levels. However, if an entity is seeking to establish FLW reduction targets and monitor changes over time, using data from another country could be very misleading.

...it is usually not recommended to monitor FLW reduction targets using FLW estimates derived using proxy data because the data relate to a different scope from that of the target...

Changes in FLW in one country may not be representative of changes in the other, due to FLW reduction activities being implemented in one country but not the other.

4. CARRY OUT THE CALCULATIONS

Most calculations involving proxy data are performed in the following stages:

- ▶ **Calculate FLW expressed in a normalized form** (e.g., FLW per capita, per employee, per metric ton of food processed). In simple calculations, there may be one normalized FLW figure applied to a whole sector (e.g., FLW per metric ton of food processed for the whole food processing sector). However, there are also benefits to producing multiple FLW figures for different parts of a sector (e.g., FLW per metric ton of food processed per different type of food processing). This is important if normalized FLW estimates differ between distinct parts of a sector. In addition, if an entity has access to detailed data sources (e.g., those containing information from a number of FLW-producing units, such as households), then it could combine this information in a number of ways to create proxy factors. For example, an entity could exclude any FLW-producing units that fail to meet certain data quality criteria.
- ▶ **Scale the normalized data.** In a simple calculation, this involves multiplying the normalized data (e.g., FLW per capita) by the appropriate value for the inventory scope (e.g., the number of people in the relevant population). In more complex calculations, scaling may be carried out for each distinct sub-sector, and the results combined to create the FLW estimate.

The data required for scaling may be obtained from national statistical sources. It is important that these “scaling data” match the inventory scope as precisely as possible to increase the accuracy of the resulting FLW estimate.

The process described above is likely to be iterative based on the availability of suitable proxy FLW data and data for scaling. Additional guidance on scaling and normalizing data is provided in Appendix A and C, respectively, of the *FLW Standard*.

The following are two examples of how proxy data may be used:

- ▶ *Northern Ireland Commercial and Industrial (C&I) Waste Estimates.*²² This study applied FLW factors (FLW per company) from England to the number of companies in Northern Ireland based on the type of company.
- ▶ *Waste in the UK Hospitality and Food Service Sector: Full Technical Report.*²³ This study used a variety of different proxy data to scale up data collected from a program of direct measurement across different types of establishment. Direct measurements included FLW per student (schools, other educational institutions), per acute bed (hospitals), per employee (restaurants, pubs, hotels, quick-serve restaurants), and per prisoner (prisons).

Endnotes

21. This approach differs from scaling up data (see Appendix A of the *FLW Standard*) where data are taken from *inside* the scope of the FLW inventory (i.e., data from inside the geographical, temporal, and material scope of the inventory).
22. WRAP Northern Ireland (2011).
23. WRAP (2013c).