

ESF+ DATA SUPPORT CENTRE

NOTE ON INFORMED ESTIMATES

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Introduction

This note is intended to provide some suggestions on possible ways to use informed estimates as foreseen by the ESF+ Regulation and to launch a methodological discussion about them. It should not be used for any legal interpretation.

From the outset, it should be recalled that informed estimates are intended to **lower administrative costs and burden linked to data collection**. They should also help **reduce the pressure on participants and beneficiaries**, especially with regards to the collection of sensitive information and respect the dignity of those benefitting from support. They might contribute to lower underreporting. However, informed estimates are generally not mandatory, i.e. managing authorities are free to collect data based on more traditional “census-like” approaches. Indeed, before moving into the description of informed estimates, it is worth recalling where they lie in the broader framework of possible data collection methods, as well as in which cases the regulations give the possibility to use them for reporting purposes.

Background

Under the ESF+, data for indicators can be reported based on three different methods.¹

- **Census**, that is, based on individual track records for all participants. (This could be done either through administrative sources and/or self-declaration from participants).
- **Representative samples**, that is, based on a smaller number of individuals (sample) selected using statistical procedures which identify a group of participants who are representative in terms of

¹Within operations under specific objective (m), information on the programmes is also collected twice over the programming period by means of a structured survey on end recipients.

certain characteristics of the whole population of those receiving support (e.g. their gender, labour market status, etc.).

- **Informed estimates**, that is, based on either simplified sampling approaches or other methodologies.

Each of these methods apply to the reporting of different indicators and, importantly, none of them is error-free, although this is not to say they are all equally reliable.²

In the 2014-2020 programming period, it was required to collect individual data for most of the common indicators under the ESF/YEI (census). However, two common output indicators (on rural background and housing exclusion) as well as all the ESF longer-term result indicators, could be measured based on sampling procedures. Within the frame of the FEAD, the number of end recipients receiving food or material assistance could be based on informed estimates from partner organisations.

For the 2021-2027 programming period, the ESF+ regulation broadly confirms the possibility to use informed estimates for operations formerly falling within the FEAD programmes while extending this provision also for some of the former ESF operations. More specifically, informed estimates are provided for the following operations and indicators.

In detail, informed estimates *can* be provided for the following operations and indicators:

- Specific objectives (a) to (l) not targeting the most deprived (former ESF):** indicators under section 1.2 of Annex I. These are common output indicators which track the number of participants with disabilities, third country nationals, participants with a foreign background, minorities, homeless, and participants from rural areas.
- Specific objective (l) targeting the most deprived (former FEAD for social inclusion, OP II):** all indicators under Annex II. These are common output indicators which track the age group of the individuals (Section 1.1)), as well as number of participants with disabilities, third country nationals, participants with a foreign background, minorities, and homeless (Section 1.2)).

In addition, they *shall*³ be provided for the following operations and indicators:

- Specific objective (m) (former FEAD OP I):** the two common output indicators under Section 1.2 of Annex III (share of food donations and share of ESF+ support over total food distributed) and all common result indicators.

In any case, methods should be documented⁴ with a view to interpreting the data. It might be possible to also identify different sources of bias that could affect the data.

The broad underlying question with informed estimates remains, of course, how to strike a balance between the accuracy of the estimate and the need to respect the dignity of participants / end recipients as well as to

² For additional info on this point, please refer to the toolbox, section 4.2

³ This mandatory provision for informed estimates is limited to specific objective (m) only, for proportionality purposes and in order to respect the dignity of end-recipients. However if data is collected on the basis of a census approach due to specific requirements at the local level (e.g. eligibility/ auditing purposes), Managing Authorities are free to use it for reporting purposes too.

⁴ There is no specific requirement in the ESF+ regulation specifying contents and modalities to document methods used to produce informed estimates. In any event, this would be hardly possible on account of the great variety of methods which could potentially be used. From a data quality perspective, it is a good practice to describe the methods ex-ante, i.e. with respect to the techniques which will be used, actors involved in the data collection or estimation (if any), possible sources of bias and strategies implemented to address them. It may also be good practice to follow up ex-post once the estimation is produced, so as to provide additional contextual information on, e.g., concrete obstacles encountered, caveats and other relevant information which would allow a better interpretation of the estimates as well as their strengths or weaknesses.

keep the monitoring requirements proportionate to the aims of the support. These are ultimately elements for the managing authorities to decide upon.

Possible alternative ways to produce informed estimates

The starting point for a reasoning on the possible alternatives to produce informed estimates is that the ESF+ regulation does not prescribe the choice. Thus, managing authorities are free to choose the means they find most appropriate, as long as these are duly documented. Yet, it is clear that the common objective is to gather sufficiently reliable information for the purposes of monitoring and evaluation.

In what follows, a few alternative approaches are described which can serve as an inspiration.

A first distinction can be made between

- **sampling approaches:** to only collect data on a smaller group of individuals, projects, beneficiaries and/or only at certain points in time and then extrapolate such data for the general population of those supported and for the whole period to be considered;
- **proxies:** no dedicated data collection from participants, but to rely on indirect measures of the characteristics of those receiving support; and
- **educated guess from informed actors involved:** an estimate which is not based on data collection nor indirect measures of the support offered, but on the direct observation of the service provision from actors with a privileged point of view on it.

The first two categories might be further broken down as indicated in the following sections. In addition, a combination of these techniques is also in principle feasible – and will most likely be the case in practice. The text that follows describes how informed estimates could be produced through the different approaches in practical terms.

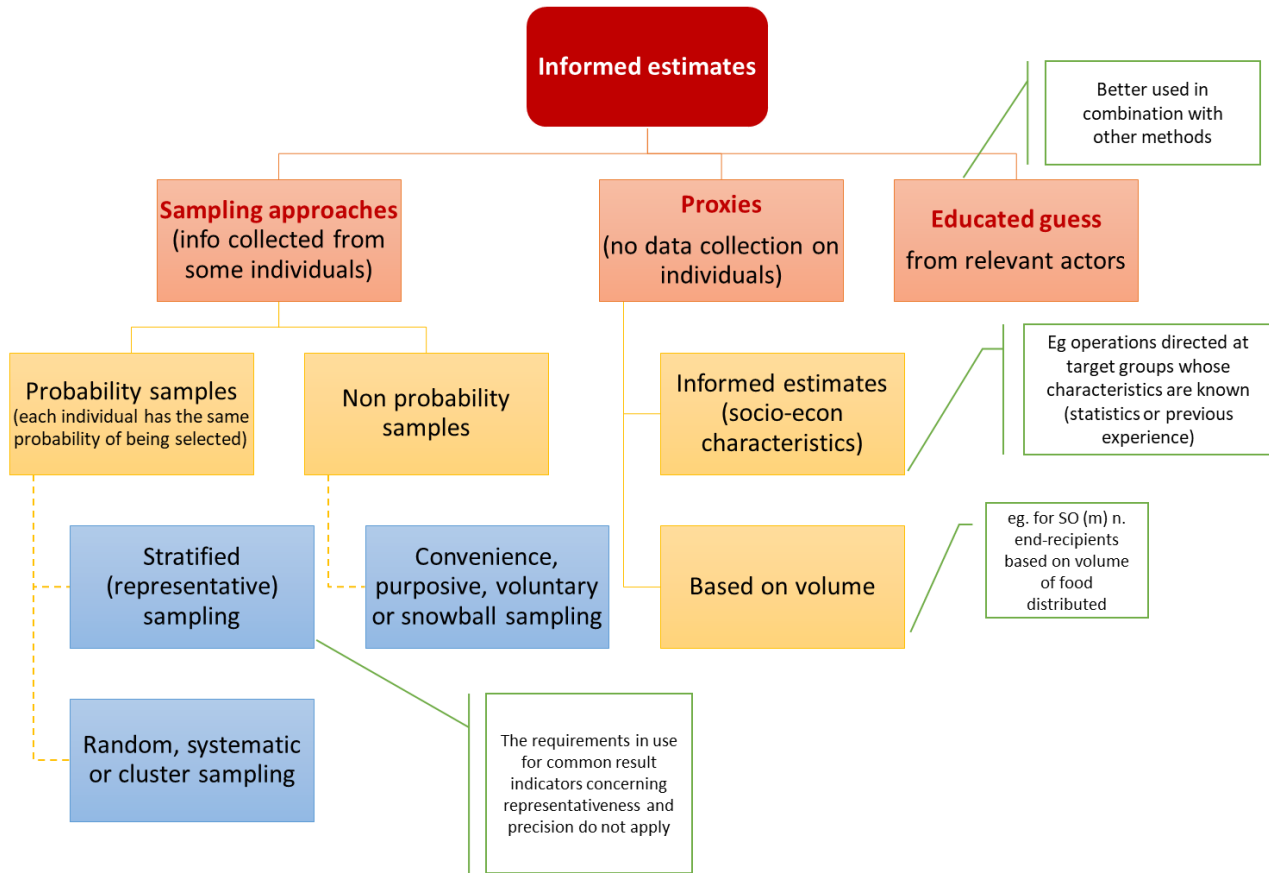
It is worth mentioning here that the ESF+ regulation sets out that, “*values of these indicators can be determined based on informed estimates by the beneficiary*”. Whilst acknowledging that the beneficiary will necessarily play a role in the data collection and even determination of the method, the underlying assumption for this note is that managing authorities will continue to bear the ultimate responsibility for data quality within their programmes. Therefore, methods could (or even should) be defined or at least harmonised by the managing authorities or in accordance with them. In the case of sampling approaches, it might as well be that it is for the managing authorities themselves to carry out the data collection (or third parties appointed to it). Managing authorities could also directly fill in the data based on available registries. In deciding which methods are best to be used, however, managing authorities are encouraged to make the most of the beneficiaries’ views, as they are well positioned to warn against possible issues with data collection on the ground.

Managing Authorities and their interaction with the beneficiaries is crucial also to ensuring that there is a widespread and common understanding of the definitions to be used for indicators when producing informed estimates (referring to both common definitions and – where relevant – national definitions⁵). This is important given that new and different actors might be involved in the process of estimating values that are not necessarily familiar with the definitions to be applied under the ESF+.

⁵ National definitions shall be used in the case of measuring ‘Participants with disabilities’, ‘participants with a foreign background’, ‘minorities (including marginalised communities such as the Roma)’, and ‘homeless or affected by housing exclusion’.

The Figure below provides a synthetic overview of the different methods presented and discussed in the following sections.

Figure 1. Possible alternative ways to produce informed estimates.



Sampling approaches

Within this type of data collection methods, information is collected on some individuals.

Importantly, although samples are typically discussed within the ESF with reference to “representative sampling” which should be reflective of the population based on certain parameters, any other data collection on certain beneficiaries/individuals is de facto a sampling approach. Thus, sampling approaches can range from the sophisticated “representative (stratified, random) sampling” to other, simpler approaches.

A first distinction in this respect should be made between:

- probability samples
- non-probability samples.

What is unique in the former, is that each individual has the same probability of being selected, which ensures that there is no systematic error (bias) in the selection of those surveyed, hence a certain representativeness. This makes it easier to generalise the results and increases accuracy.

It is also possible to consider non-representative (non-probability) samples, despite some trade-offs.

Below, a more detailed classification and some practical examples are provided.

Probability samples

Every individual has the same probability of being surveyed, which makes inference easier and increases representativeness. Within this “branch”, several alternatives exist. We are listing them in decreasing order of complexity to highlight the increased flexibility that informed estimates based on simplified sampling approaches provide.

a. Stratified sampling (or representative sampling in the sense of the toolbox)

- **Main features:** one way of ensuring that samples are reflective of certain relevant characteristics of the population under observation, is to use **auxiliary information**⁶ on the population to make sure that all groups within them are covered proportionally. *For instance, if the gender balance of certain population is 40/60, the same proportion should be in the sample of those who are surveyed. Within each stratum (i.e. group of people with the same characteristics), individuals can be selected in different ways. Generally, the goal is to avoid bias in this selection.*⁷
- **Methodological considerations:** whilst it is always possible to use representative samples as a methodology to produce an informed estimate, there are some specific difficulties to be considered. First and foremost, auxiliary information on the population might not be fully relevant, or it simply does not exist. For instance, it may (or may not) be that certain disadvantages or background characteristics are correlated with certain employment statuses, educational attainment levels or even age cohorts – this is data for common indicators that must be collected for all individuals under SO (a) to (k) (former ESF operations), thus available. It would be possible to create a sample that is representative of the overall population in terms of these three elements and then run a survey to measure how many of those surveyed possess the characteristics under observation for indicators under Section 1.2 of Annex I. This procedure has the merit of reducing bias in the – not unlikely – scenario that certain groups systematically avoid responding to the survey. However, (i) indicators on employment condition, educational attainment or age do not necessarily determine the distribution of indicators in Section 1.2; (ii) it is rather resource intensive and not so effective in lifting the burden on participants or end beneficiaries who end up being surveyed; and (iii) it can only be used in presence of auxiliary information.
- **Room for simplification:** the requirements in use for common result indicators concerning representativeness and precision do not apply when using representative “stratified” samples as informed estimates. One could, for instance, reduce the number of strata (e.g. seeking representativeness only in terms of education level) and/or use higher margin of errors than those typically considered for longer term result indicators in SO (a) to (l) not targeting the most deprived (i.e. beyond the 3 p.p. or 5 p.p. thresholds). This would still ensure a certain degree of representativeness and, at the same time, allow reducing the sample size and thereby the costs and burden of data collection.

To increase representativeness of the estimates in presence of small sample sizes it is also possible to use a post-stratification method, that is, to give more weight to answers from respondents from a certain sub-group which ended up being underrepresented in the sample of respondent at the time of the survey, including due to non-response. In other words, if in the overall population the share

⁶ Auxiliary information means some knowledge on certain features of the population which can help us refine our sample. For instance, for Annex I indicators (former ESF operations), the labour market status or educational attainment which is collected mandatorily for each participant is auxiliary information on the population for which we would like to know also certain other background characteristics (through sampling).

⁷ Margin of error can only be estimated if a ‘probability based method’ is used within each stratum to identify individuals (e.g. random sampling, systematic sampling, cluster sampling). All the methods described under “probability sampling” can be used also to select the population within each stratum.

of women was 20% but in the sample 40%, their responses could be weighted less. To use post-stratification, auxiliary information on the population must be available, e.g. under SO (a) to (l) = not targeting the most deprived.

b. Simple random sampling:

- **Main features:** random sampling is a simpler method which de facto overlooks at the sampling stage any possible distribution of characteristics of the individuals and simply selects randomly from the whole population those to be surveyed.
- **Methodological considerations:** this implies smaller sample sizes than stratified sampling and a simpler identification strategy. This method continues to give each individual the same probability of being surveyed thus aiding representativeness. Some risks to representativeness might exist due to the random selection especially when sample sizes become very small and/or in presence of systematic non-response from certain groups. In order for the model to be classified as “random sampling” the selection ought to be random, which implies that one cannot interview e.g. only individuals volunteering for that or being easier to reach. Ensuring that the sample is effectively randomly selected might be for instance complex under SO(m) in case no information on the individuals is available and the only way to get their feedback is through assisted interviews at the distribution centres - unless the survey is sent to a randomly selected group of individuals for which individual data exists.
- **Room for simplification:** as per the above, random sampling already reduces the complexity of the approach with respect to representative sampling and particularly reduces the number of people to be surveyed (sample sizes). A further reduction in sample sizes can be achieved by widening the acceptable margin of error beyond e.g. the +/- 3 p.p. currently foreseen for the structured survey on end beneficiaries.

c. Systematic sampling:

- **Main features:** another way of drawing a simplified sample of participants/end recipients to be surveyed is by identifying individuals based on a systematic approach. For instance, information is collected for all participants but only:
 - *at certain points in time* (especially for support that is offered several times during the year, e.g. for the provision of meals in SO(m)): for instance, to produce an informed estimate on recipients of food support, beneficiaries could be asked to count end recipients every 20 days. This could also include checking, if it were the first time in that the year for the end recipient to receive food support or not, to reduce the risk of double counting. It might be possible to identify and avoid possible sources of bias. For instance, if there is a risk that certain categories of individuals would strategically avoid showing up that day to avoid the process, the date might also be changed (e.g. selected randomly).
 - *for certain individuals/beneficiaries:* e.g. data can be collected by asking only the first 5% of participants in alphabetical order in each operation/beneficiary, or every tenth participant (in alphabetical order). Individuals could also be sorted by age, and then information could be asked only to every tenth participant (by age). A similar approach could be applied to the list of beneficiaries having to collect the data.
- **Methodological considerations:** this method essentially ensures that the selection is still random. Hence, similar considerations to random sampling apply. It might be easier to put in practice though, given in some cases it is possible to avoid the need for information on the participants/end beneficiaries.

- **Room for simplification:** like the case of random sampling, and, in addition, it might be possible to do without any information on the participants/end beneficiaries.

d. Cluster sampling:

- **Main features:** the representativeness of the sample could also be seen from the perspective of the operations being observed, the beneficiaries involved or the types of regions. In fact, cluster sampling means that the population is divided into potentially similar groups (e.g. local units offering support, which could be PES, food providers – but it might also be geographical entities such as cities or towns) which can be seen as reflective of the entire population. Only in a few of them data on participants is collected. The statistical properties of cluster sampling are valid when sufficiently similar (homogeneous, representative) units are defined and the selection among them is done randomly. Then, data within each unit can be collected for all individuals (one-stage approach) or for randomly selected individuals within each unit (two-stages approach).
- **Methodological considerations:** this is a key resource especially when it comes to SO(m) – Annex III indicators, where the entire set of personal information might be based on informed estimates, so there is no auxiliary information on the population under review that can help identify a representative sample. But it can be used for SO(a-l) operations as well. In general, it might be possible to check that the units considered are sufficiently homogeneous and reflective of the entire population⁸.
- **Room for simplification:** with respect to representative and random sampling, this method is simpler as it potentially requires no information on the population. For instance, one could randomly identify a few units offering the service (e.g. PES centres) and collect the relevant information on every fifth participant.

Non-probability samples:

These methods do not ensure that participants/end recipients have the same probability of being sampled. Such sampling approaches are more easily affected by bias making generalisation subject to caveats and assumption. Within this category too, it is possible to identify different methods.

a. Convenience sampling

- **Main features:** those surveyed are only those who are closer to the interviewee or easier to reach.
- **Methodological considerations:** easy and relatively unexpensive – no need for registries or auxiliary information on individuals. However, generalisation is subject to caveats and assumptions: there can be bias due to the self-selection of respondents, difficulties in representing adequately in the sample harder-to-reach individuals, etc.

b. Purposive/judgement sampling

- **Main features:** this is the case when individuals are selected on purpose, e.g. because they are considered to be representative of the overall population.
- **Methodological considerations:** in qualitative research, this might be useful e.g. if the goal is to confront views of certain stakeholders. However, when it comes to collection of data on background characteristics, judgement sampling might be complex, given that the goal is, of course, to select a balanced sample, not focusing on those who are likely to possess certain features. The rationale of this approach could however be applied in combination to the convenience method above. For instance, if in engaging individuals the interviewer perceives

⁸ For instance, certain small local units in specific contexts might not be very reflective of the features of the overall population.

that some target groups are systematically avoiding to be surveyed, it might dedicate further attention to such group, and/or report about this source of bias.

c. Voluntary response sampling

- **Main features:** that is the case when for instance a survey is open to all potential participants/end recipients and only responses of individuals who have volunteered to answer are recorded.
- **Methodological considerations:** such technique certainly aids in respecting the dignity of participants and end recipients as it is fully based on a voluntary disclosure of information. However, for the same reason, it is affected by significant self-selection. As only certain people might volunteer to disclose sensitive information, this can lead to significant underreporting of certain categories.

d. Snowball sampling

- **Main features:** it is an approach that involves recruiting respondents via other respondents (eg asking respondents if they can identify/point to other persons that could participate in the sampling).
- **Methodological considerations:** does not seem particularly suitable to the data collection at stake, but, in general, it is a way to increase sample sizes at a low cost. In general, it tends to reinforce bias as information comes from within “chains” that are more likely to share relevant features and thus systematically overrepresent them.

Although non-probability methods are in principle less reliable and make generalisation subject to caveats and assumptions, it might be relevant to consider them for two main reasons.

- a. At the beneficiary level, some form of e.g. convenience or purposive sampling might often occur in practice, especially where auxiliary information on the end recipients does not exist. An understanding of the weaknesses of these methods is important for instance to spell out in a clearer manner the limitations of the data collection.
- b. There can be ways to improve their reliability, or at least to ease the interpretation of data. If, e.g., auxiliary information on participants exists, through expert judgement it might be possible to adjust the data. For instance, if it is known that 50% of the population is of people aged 54 or above, inactive and low skilled and in the sample of those surveyed through convenience sampling their share is as low as 10%:
 - the limitation can be clearly spelled out;
 - it might be possible to better weigh the characteristics of those 10% to increase representativeness (i.e. apply post-stratification).

Proxies

Through proxies data are reported in absence of any data collection on individuals (unless this method is used in combination with sampling approaches).

- a. **Informed estimates based on the socio-economic characteristics of the target group.** This is essentially for operations under SO (a) to (l) (former ESF) and could be the case of an operation that is directed at a certain target group for which the average background characteristics can be reconstructed, either based on information from available statistics, or because they can be assumed to be similar to a previous intervention for the same target group.
 - **Information from available statistics**
 - **Main features:** let us assume that in a certain region, based on regional statistics, it is known that in secondary education there are on average ‘x’ % of pupils with disabilities. This percentage could be used as a coefficient to multiply the total

packages). In case of deliveries which are based on administrative data, also the profile of the end beneficiaries could be reconstructed (to calculate the shares of end recipients by target group)

- Second scenario: food support is distributed in the form of hot meals (only, or in combination with food packages). The quantity of food that is distributed in the form of hot meals could/should be known to the partner organisations/Intermediate Bodies/MA. It should be then feasible to estimate the total number of meals per day per person. For instance, a full meal might weight on average 150-350 Grams, assuming one meal per day and an average of one full meal every fifth day per each individual, it would mean between 12 and 26 Kgs of food per person per year. Of course, the informed opinions of actors involved in the process and/ or the joint use of surveys might help formulate appropriate assumptions and identify more accurate coefficients. In particular, it might be impossible to estimate a breakdown in absence of additional sources of information (e.g. educated guess from actors involved).
- **SO (a) to (l):** To measure the incidence of certain background characteristics over the total population of supported individuals, it might be possible to leverage on additional proxies which tend to be proportional to their appearance. For instance, the number of interpreters might be proportional to the number of third country nationals supported; the number of personal assistants for disability support to the number of people with disabilities. As above, such proxies can only be used in combination with assumptions that are based on the type of support provided, how many individuals could be supported by each professional catering for them, how widespread is the need for dedicated support vis-à-vis the entirety of, say, the third country nationals (many might not need interpretation) etc.
- **Methodological considerations:** this method might be particularly effective in lifting the burden of data collection, respect the dignity of participants and end recipients. However, it is sensitive to the assumptions used, especially if the goal is to compare over time and space (e.g. different programmes/countries) . In SO(m), for instance, if the intensity of food support changes from one year to the next and it is not duly taken into account, this might result into a higher number of end-recipients being reported, while that is not the case. Estimates might also be problematic in practice, as relevant data might be very much operation- or beneficiary-specific. The combined use of expert views or survey approaches (including surveys on implementing actors instead of participants/beneficiaries) might be necessary, whilst introducing some additional subjectivity.

Educated guess from actors involved

- **Main features/examples:** this could be for instance the case of a survey addressed to PES operators, trainers in VET, social assistants, etc. asking them to formulate assumptions as to the share of individuals with certain background characteristics they have supported. Questions could for instance be posed in terms of ranges. In this case, the data is not collected at the level of the participants / end recipients, but based on assumptions formulated by those in direct contact with them. More generally, expert advice could be used in selecting proxies or even the right clusters for a cluster sampling.
- **Methodological considerations:** this method, especially if used in isolation, is very sensitive to bias and makes generalisation subject to assumptions and caveats. Such method is also subject to manipulation and attention should be paid in cases where there are benefits to beneficiaries linked

to certain data being reported (e.g. organisations receiving additional payment if they support a certain number of disadvantaged participants). Nevertheless, it can and potentially needs to be used in combination with other methods, for instance to select or adjust proxies. It also requires no data collection on individuals and might be a “last resort” measure in case other methods are not applicable or deemed proportionate.

Conclusions

As it can be seen from the above, the ESF+ regulation opens the field for different avenues which can be followed to report certain data without resorting to continuous, systematic collection from the participants / end recipients. Despite some inevitable trade-offs, there seems to be room for significant simplification of the data collection methods used compared to the previous programming period. Most often it will be a combination of different techniques aiming to simplify collection, increase reporting and reduce bias, which can maximise the cost-effectiveness of the data collection process.

Regardless, in order to ensure that informed estimates continue to depict a comparatively faithful representation of the actual population, it is important that these are well documented, so that all the actors involved in the monitoring and evaluation process can correctly interpret the data at hand.