Annex 7: Delta Framework Pilots Report

Consolidated learnings from piloting the Delta Indicators

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1 The four Delta Project partners are: Better Cotton, the Global Coffee Platform (GCP), the International Coffee Organisation (ICO) and the International Cotton Advisory Committee (ICAC).

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1. Introduction

The Delta Framework provides **a set of 15 impact and outcome indicators** to measure sustainability improvements within and across the cotton and the coffee sectors.

In 2021, the indicators were piloted on small-scale cotton farms in India, Brazil, China, and Peru, on both small and large cotton farms in South Africa[1], on one cotton research field in USA, and on small coffee farms in Vietnam. The pilots generated important, practical lessons to strengthen the overall framework and they highlighted priorities for additional methodological research.

The learnings gathered in the field pilots was shared in a series of online workshops organised jointly by ISEAL Secretariat and the Delta Project team, on several one-to-one calls and in written reports submitted by the participating organisations. Based on the feedback received, the first version of the Delta Framework was revised.

This document is a high-level summary of the pilots' experience and learnings.

2. Pilot background information

The indicators were tested by seven organisations, namely Better Cotton, Cotton Connect, Cotton Incorporated, Fair Trade (FT), the Global Coffee Platform (GCP), Organic Cotton Accelerator (OCA), and Textile Exchange (TE).

2.1 Main objectives

The main objectives of the pilots were:

- to assess the suitability of the data collection tools developed in the context of the framework;
- to test and refine the methodologies proposed for the computation of the indicators; and
- to promote experience sharing among the participating sustainability initiatives.

2.2 Indicators tested

The pilots collectively provided a full coverage of the 15 indicators. Better Cotton and GCP in their capacity as Delta Project partners tested the full set of indicators (except for price in the case of Better Cotton) (Table 1).

[1] A full account of the pilots carried out on cotton by the Cotton 2040 Impact Metrics Alignment working group members can be found in the ISEAL Delta Pilots Learning Report (available for ISEAL Members only) on the ISEAL website.

Overall, organisations have shown a special interest in the environmental metrics, some of which are currently not part of their regular reporting systems but are high on the global sustainability agenda: climate change mitigation (GHG emissions), freshwater use for agriculture (irrigation water management), and soil health (soil organic carbon content).

Table 1. Indicators tested by the seven organisations conducting pilots of the Delta Framework Indicators

	INDICATORS	BC	GCP	OCA	FT	TE	C. Inc.	CC
1	USE OF HGHLY HAZARDOUS PESTICIDES (HHPs)	■	■	■		■	■	■
2	PESTICIDE RISK INDICATOR	■	■			■	■	■
3	WATER MANAGEMENT (IN IRRIGATED FARMS)	■	■		■	■	■	■
4	TOPSOIL CARBON CONTENT	■	■	■	■	■	■	
5	QUANTITY OF FERTILIZER USE BY TYPE AND NITROGEN USE EFFICIENCY	■	■	■	■	■	■	■
6	FOREST, WETLAND AND GRASSLAND CONVERTED FOR CROP PRODUCTION	■	■			■		
7	GREENHOUSE GAS EMISSIONS	■	■		■		■	
8	YIELD (AVERAGE)	■	■	■	■	■	■	■
9	GROSS MARGIN FROM CROP PRODUCTION (LIVING INCOME IN FUTURE)	■	■	■	■		■	■
10	PRICE (AT FARMGATE)		■	■	■	■	■	■
11	PROPORTION OF WORKERS EARNING A LEGAL MINIMUM WAGE (OR ABOVE) BY SEX AND BY AGE	■	■			■	■	■
12	INCIDENCE OF CHILD LABOUR	■	■	■	■	■		■
13	INCIDENCE OF FORCED LABOUR	■	■		■	■		■
14	WOMEN'S EMPOWERMENT	■	■					■
15	RATE OF FATALITIES AND NON-FATALITIES ON THE FARM BY SEX	■	■			■	■	

BC Better Cotton
GCP Global Coffee Standard
FT Fair Trade
OCA Organic Cotton Accelerator
TE Textile Exchange
C. Inc. Cotton Incorporated
C.C. Cotton Connect

2.3 Sample size and locations

The indicators were tested on a total of **1,110 farms** (out of which 910 cotton farms and 200 coffee farms), in **7 countries** with the following geographical distribution:

- India: 594 cotton farms (Better Cotton, Fair Trade, Textile Exchange, Cotton Connect)
- Brazil: 55 cotton farms (Textile Exchange)
- China: 150 cotton farms (Cotton Connect)

- Peru: 10 cotton farms (Textile Exchange)
- South Africa: 100 cotton farms (Better Cotton)
- USA: 1 research field (Cotton Incorporated)
- Vietnam: 200 coffee farms (Global Coffee Platform)

3. Key learnings on indicators' methodologies and data collection tools

The pilots highlighted two broad areas for improvement in the implementation of the Delta Framework:

- Complexities or gaps in the methodologies proposed for the indicators had to be resolved. **In the current version (v.1) of the framework, these gaps have been either addressed or flagged as "Limitations".**
- Adjustments and improvements are needed in the data collection tools annexed to the framework. **Most of the current tools attached to the framework were adjusted.**

3.1 Complexities or gaps in the indicators´ methodologies

PESTICIDE INDICATORS (#1 & #2)

- The methodologies proposed for the two pesticide indicators have been in use for several years by Better Cotton and other organisations, they are well tested. No methodological adjustments of these indicators were necessary after the pilots. Organisations/ Standards that are new to monitoring pesticide data might require training field enumerators on what data to record (e.g., reading of pesticides labels, pesticide formulations, toxicity classes, etc.).

IRRIGATION WATER MANAGEMENT (#3)

- The water management indicators theoretically apply to all types of irrigated farms. The pilots have, however, highlighted limited feasibility of these indicators in the context of small-scale farming, where accurate water use data and soil moisture measuring devices are rarely available. In response, a simplified methodology for the collection of rainfall and soil moisture data has been developed and integrated into the Delta Framework.
- The formula provided to calculate two of the water sub-indicators, Irrigation Efficiency and Water Productivity, has shown to perform well in continental weather, but not equally well in monsoon climates. An adaptation of the formula for tropical, monsoon climatic zones has now been included in the framework.
- The need for other water metrics, such as water infiltration, was pointed out during the pilots. These additional indicators, which are of significance to specific local contexts, can be measured as a complement to the main Delta Indicators set.

- Finally, the framework does not at this stage include any water metrics for rainfed agriculture.

TOPSOIL CARBON CONTENT (#4)

- Soil organic carbon content (SOC) was unanimously recognised as an important dimension of soil health and it is of great interest to farmers, especially when combining the SOC assessment with an NPK analysis at the soil lab.
- Some logistical challenges were met in performing professional soil testing, such as the limited availability of accredited soil laboratories and the high cost of soil testing in some countries.
- Overall, it was noted that the visual determination of soil colour with the Munsell charts requires extensive field experience that needs to be built over time and repetitions. In addition, the Munsell charts are rather expensive, and they are not available in all countries.

QUANTITY OF FERTILIZER USED BY TYPE (#5)

- One limitation of this indicator is that it does not account for organic fertilizers. This is because standardised coefficients to estimate the amount of nutrients in organic fertilizers (e.g., manure, home-made compost) are not available.

FOREST, WETLAND AND GRASSLAND CONVERTED FOR CROP PRODUCTION (#6)

- The overall conclusion from the pilots' experience was that deforestation and land use changes, in general, are better monitored using a geo-spatial approach and at a landscape level, rather than farm-level. The Delta Framework recommends the use of the Global Forest Watch (GWF) Pro for coffee; however, a publicly available tool suitable to assess land use changes in areas where cotton is grown has not yet been identified.
- The current version of GWF Pro covers only primary forests and tropical forests Future developments under the Land & Carbon lab project may see an expansion of the GWF pro to other regions and ecosystems, including grasslands and wetlands.
- On the data requirements, the geolocation of fields/plots interested by the monitoring needs to be obtained every year (especially for annual crops). This requires proper planning prior to the start of the production data collection.
- In some countries, where disputes on land ownership are frequent, this information may be sensitive to collect.
- In some regions, land is not owned by individuals but rather by the community. In these cases it is difficult to obtain historical data as the person or family cultivating a parcel of land may change seasonally or yearly.

GREENHOUSE GAS EMISSIONS (#7)

- GHG emissions calculations are data intensive. The Cool Farm Tool (CFT), proposed as a cross-commodity calculation tool in the Delta Framework, currently requires over 60 data points. Where a thorough data collection is not feasible (small farms), fertiliser and pesticide inputs and energy use information should be prioritised over other variables.
- Cotton and coffee are very often grown in mixed farming systems (e.g., intercropped fields). Inputs and energy use data from the field/ plots need to be disaggregated based on the actual land under coffee or cotton to avoid a misestimation of the emissions.
- The current version of the CFT needs some adjustments to estimate emissions associated with organically grown crops (e.g., inclusion of a specific module on organic fertilizers and biopesticides).

ECONOMIC INDICATORS (GROSS MARGIN #9 AND PRICE AT FARMGATE #10)

- The computation of gross margin requires tracking of basic financial transactions which is usually recorded in large commercial farms, but rarely in small scale farming. If farm records are not available, returns can be estimated based on farmer declaration of outputs and inputs quantity and value.
- Secondary data sources are often required to obtain accurate data on prices. Furthermore, farmgate prices should be analysed in the overall economic local context.

SOCIAL INDICATORS (MINIMUM LEGAL WAGES #11, CHILD LABOUR #12, FORCED LABOUR #13, AND WOMEN'S EMPOWERMENT #14)

- Comparability among wage statistics present a number of challenges, most of which arise from the variety of possible sources of data and conversion rates.
- Issues with the accuracy of information on earnings was frequently raised as respondent may over-declare or under-declare their earnings for various reasons, or they may declare gross wages including bonuses and benefits.
- Numerous challenges are associated with the collection of reliable information on child and forced labour. These include confidentiality issues and compliance with personal data protection law in the verification of children's age, reconciling possible differences between national labour laws and the ILO definitions and guidance.
- Gender issues and realities are highly sensitive and context specific. The use of a complementary qualitative assessment to contextualise results was highlighted as essential.

While most of the indicators methodologies have been revised, simplified, or improved based on the feedback received, a few inherently complex challenges remain that need to be considered in the implementation of the framework.

3.2 Feedback on data collection

The Delta Project team developed a survey tool (a questionnaire) to collect data in the context of the Delta Framework pilots.

- The survey tool developed was seen as a good resource to preserve comparability among the data collected by the various organisations.
- Organisations that used the survey tool in the pilots recommended a contextualisation of the questionnaire to specific farming conditions prior to its administration (e.g., Focus Group Discussion and pre-testing to be carried out to fine-tune the questions). They also suggested streamlining the questionnaire (e.g., reordering of questions, eliminating redundancies).
- Data collection was carried out as a one-off exercise during the growing season for both cotton and coffee. The interviews were long and led to fatigue on both the sides of the enumerators and the respondents. In a regular monitoring context, data collection will need to be broken down and planned according to the crop calendar to reduce the length of each single interview and to increase the accuracy of the data collected (e.g., avoid recall biases).
- The use of secondary data sources, where possible, and strategic sampling (rotational sampling) can significantly reduce the data collection load.
- In countries with high agricultural land fragmentations, land areas are often expressed with local units. Areas units would need to be standardised to hectare (ha) of harvested land.
- Finally, an important issue to consider is the equity in data ownership. There is guidance available under the Resources tab of the Delta Framework website, titled "Basic guidance for obtaining informed consent for the Delta Framework indicators data collection".

4. Overall considerations

- The pilots broadly confirmed the relevance and suitability of the methodologies proposed to monitor the indicators, but they also brought to light some methodological gaps and resource demands that need to be considered while planning for the implementation of the Delta Framework.
- A common challenge faced by the organisations piloting new indicators not currently part of their monitoring and evaluation system was the absence of institutional capacity in specific areas of expertise, e.g., water management or gender. Building this capacity at various levels from experts to field enumerators would be a steppingstone towards the full integration of new sustainable goals and related metrics into their programmes.
- Key factors that contributed to a good data collection included the expertise of the enumerators but even more a long-standing relationship with farmers, which granted for more engagement and willingness to share information. Data collection becomes extractive and pointless on the side of farmers if it is not carried out with a participatory approach and as part of an overall farm improvement programme.

- Even so, the monitoring of some environmental metrics like GHG emissions or deforestation is not always self-evident to farmers. Environmental gains need to be linked to incentives like carbon credits and other payments for ecosystem services or access to loans to be attractive to producers.
- While the Delta Sustainability Indicators set needs to be seen as a whole, the relative priority of each indicator varies from country to country, from region to region. In a resource-constrained scenario, sustainability priorities can be assessed to inform a progressive adoption of the indicator set.
- The Delta Framework was conceived as a farm-level framework. The need to shift towards a landscape level has, however, emerged quite strongly for some of the environmental indicators such as water management, deforestation, and GHG emissions.

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