

Terms of Reference: Successful approaches for data-driven decision making by Asian farmers

IDH, The Sustainable Trade Initiative convenes companies, CSOs, governments, and others in public-private partnerships. IDH drives the joint design, co-funding, and prototyping of new economically viable approaches to realize green & inclusive growth at scale in commodity sectors and sourcing areas. Its approaches are designed to drive sustainability from niche to norm in mainstream markets, delivering impact on Sustainable Development Goals with a focus on creating a positive impact on deforestation, living incomes and living wages, working conditions, toxic loading, and gender. IDH is working together with over 500 companies, CSOs, financial institutions, producer organizations and governments in 11 sectors and 12 landscapes in over 40 countries worldwide. Focusing on developing countries, IDH supports companies to analyze, innovate, and scale their smallholder inclusive business models.

IDH, the sustainable trade initiative, recognizes the potential of data-driven decision making at the farm level to drive sustainability.

Farmers typically use four streams of data (GFAR, GODA, CTA, 2018):

- Localized data, data on the farm for use on the farm
- Imported data, data from outside of the farm for use on the farm
- Exported data, data from the farm for use outside of the farm;
- Ancillary data, data generated (on and) off the farm, for use off the farm

By a Farm Management Information System (FMIS), we mean that farmers make decisions based on data coming from their farm (localized data), and/or from outside of their farm (imported data). We do not focus on exported data or ancillary data for farm management information systems.

An example of an FMIS is farmers automatically tracking the water quality in shrimp ponds through sensors, which is directly translated into a dashboard in a smartphone, showing graphs of the different parameters. A farmer can then make better decisions on how to treat the water, and this reduces the risks of harvest failure.

It is assumed that farmers make better decisions if they have better access to localized data and imported data, and that this leads to more efficient natural resource use; thereby positively influencing profits. Potentially the same data can also create access to finance, as it can be used for building track records, or connect farmers to the market. However, many farmers do not use FMIS for various reasons, for example, because they lack access to outside data; or because the systems are not translating data into concrete management actions.

IDH aims to better understand what factors lead to successful FMIS, that benefit people, planet and profit.

Overall Objectives

The objective of the study is to identify factors and conditions that contribute to the adoption of FMIS by farmers for decision making.

The specific objectives are:

- Create a clear overview of different types of FMIS, including:
 - o Costs and benefits of each FMIS for the farmers;
 - o Role of other value chain players and ecosystem players in applying the FMIS;
 - o Role of technology in FMIS;
- Rank the factors and conditions that influence the adoption of FMIS by farmers
- Analyze and describe the scalability and replicability of the FMIS

Deliverables

The individual or firm contracted for this assignment will be expected to produce the following deliverables:

1. A visually rich slide deck including, but not limited to:
 - a. Short description of the interesting cases

- b. Description of the factors that contribute to the success and failure of FIMS in farmer decision making.
 - c. Strategies to replicate the success in other contexts.
2. Participation in a learning event on Data and Technology, presenting the learnings to a broader audience through a slide deck.

Approach of the study

IDH envisions that the work will be completed using the following approach:

- Step 1: Desk Research and Literature Review of FMISs that help data-driven decision making at the farm level by farmers, focusing on:
 - Successful and failed approaches to data-driven decision making at the farm level
 - Factors that contribute to this success or failure

This step is resulting in the identification of 20 -30 cases of FMIS, including cases from IDH.
- Step 2: Interviews with stakeholders involved in these cases, and with experts, focussing on:
 - Factors that contribute to this success or failure
 - The role and requirements of ecosystem players in this success and failure, especially value chain players who interact directly with farmers (e.g. middlemen and agrochemical retailers)
 - Role of Technology in data-driven decision making
 - Scalability of data-driven decision making
- Step 3: Analysis of the results, focusing on:
 - Ranking of the factors and conditions that influence the adoption of data-driven decision-making tools, including value chain players, ecosystem players, and technology
 - Economic, environmental and social costs and benefits of each FMIS, while considering scalability and replicability of the FMIS
- Step 4: Write up and presentation
 - Creation and presentation of the draft package to IDH
 - Presentation of the final report at IDH
 - Presentation at Data and Technology Event

Success and failure are herein defined in terms of sustainability, of which examples are provided below:

| | Economic | Environment | Social |
|----------------|---|--|--|
| Success | Farmer receives higher profits because of the farm efficiency | Less pesticides/antimicrobials are used | Young farmers start farming because of the new tools |
| Failure | The costs of the equipment are higher than the benefits | Natural resource use is still the same and more electricity is needed for the equipment, leading to higher CO2 emissions | Farmers lose their jobs, because machines do their work. Female farmers are excluded. |

Scope

- 20-30 Success stories and failures of FMIS (including FMIS that were part of IDH projects).
- The focus countries are India, Thailand, Vietnam, China and Indonesia. Examples from other countries can be included if they contribute to our understanding of what is possible and applicable to the countries specified above.

The individual or firm contracted for this assignment will be expected to:

- Participate in a kick-off meeting with the Utrecht-based IDH team to gain a comprehensive understanding of the expectations of the assignment;
- Present the results periodically to IDH (possible through calling in);
- Work independently, conducting desk research and interviews, utilizing both your network and IDH's to create the deliverables;
- Produce deliverables that are:
 - capturing the key learnings or insights in a dynamic and visually strong way
 - written in clear, accessible English
 - formatted into IDH templates and formats
 - referenced explicitly where necessary

- submitted in final draft ready for proof-reading and minor editing by IDH internal editor within an agreed upon timeline.

Assignment timelines

The slide deck should be finalized by September 1, 2019.

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|---|---------|--|---------------------|
| 1 | 14 days | Kick-off session (Utrecht, NL) Desk Research and Literature Review Identification of 20-30 cases of data-driven FMIS | June 3 – June 23 |
| 2 | 20 days | Preliminary presentation of cases (Utrecht, NL/Remote) Interviews with stakeholders involved in these cases | June 24 – July 21 |
| 3 | 10 days | Analysis of the results Working session (Utrecht, NL) | July 22 – Aug 4 |
| 4 | 10 days | Preparing the final report | Aug 5 – Aug 17 |
| 5 | 1 day | Presentation at IDH | September (Day TBD) |
| | 1 day | Presentation at Data and Technology event | October (Day TBD) |

Proposals

Individual or firm applicants are expected to submit a complete proposal for this assignment meeting the following requirements:

- Description of the organization/team/individuals
- Explicit examples of the experience, knowledge, skills, and characteristics required for this assignment (see table below)
- Methodology to be used in undertaking the assignment
- Curriculum Vitae for consultant/consultants and at least two work references per consultant
- Proposed budget in Euros: including a breakdown indicating daily rates for each of the proposed experts, time input and all applicable expenses (international and/or local transport, accommodation as applicable), including VAT.
- Proposed detailed planning timeline
- Eight pages maximum (excluding consultant CVs)

| Requirements | |
|----------------------------------|---|
| Content experience and knowledge | <ul style="list-style-type: none"> Expertise in farmers decision making process Expertise in agri-food supply chains Expertise and network in FMIS Familiarity with the relevant commodity sectors (spices and aquaculture) and countries Ability to analyse, structure and communicate findings in an executive manner Track record of similar studies and previous working experience |
| Skills | <ul style="list-style-type: none"> Well-developed analytical skills Well-developed interviewing skills Well-developed communication skills to contact different type of stakeholders Well-developed writing and visualization skills |
| Characteristics | <ul style="list-style-type: none"> Adaptability to different stakeholders (e.g. farmers and data companies) Punctual Result-oriented Critical on quality of information Dedicated adherence to deadlines Sensitivity to treat confidential information |

Assessment

The proposals will be assessed on (80%):

- Specific experience of the Consultant relevant to the assignment
- Methodology
- Understanding of farming in Asia
- Expertise and Network in Farm Management Information Systems
- Ability to critically analyze
- Ability to report in a clear and visually rich manner

And on the budget (20%)

Selection Procedure and Timeline

The procedure and timeline for selecting the winning individual or firm to be contracted for this assignment will be as follows:

| Activity | Timeline |
|---|-----------|
| Terms of Reference published | April 26 |
| Deadline for Proposal Submission | May 19 |
| Review and assessment of applications by IDH assessment committee | May 20-21 |
| Discussion with shortlisted candidates | May 22-23 |
| Selection of consultancy and notification to applicants | May 24 |
| Inception meeting | June 3 |

Contact Information

If interested, please send in a proposal before May 19 to vanWageningen@idhtrade.org