



AERTCvc – Resilience of the Tef Value Chain in Ethiopia

Stakeholder Workshop in Debre Zeit, Ethiopia | 29th – 30th March 2017

Workshop Report

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As part of the project on “Assessing and Enhancing the Resilience of the Tef and Cocoa value chains” (AERTCvc) in Ethiopia and Ghana, a first Ethiopian stakeholder workshop was conducted at EIAR from 29th – 30th March 2017. In total, 39 stakeholders participate in the workshop, among them 25 are involved directly in the Tef value chain system and 14 are researchers.

The purpose of this workshop was to gather key stakeholders of the tef value chain in Ethiopia to establish a transdisciplinary process. During this workshop, the participants shared the challenges, opportunities, needs and expectations of their ‘tef food system’ and they identified key effects of drought and heavy rainfall events on their activities and validated a draft survey. A field visit provided an opportunity to the workshop participants to see how tef is produced and processed at a big scale.

Key findings from this workshop include:

- Opportunities are seen in greater interaction between the value chain activities. For example, greater exchange of knowledge (communication) between farmers and researchers, with the help of cooperatives, may improve the management of farms to become more resilient to shocks.
- Needs are manifold and specific for each value chain activity. Overall, a greater diversification of all activities and improved communication and the exchange of reliable information between value chain actors is needed. This requires greater trust and a common vision on how to become more resilient to shocks.
- The stakeholders expect that the established transdisciplinary process allows, in a first step, to systematically assess the resilience of their activities. In a second step, they are keen to develop appropriate solutions on how to build resilience through a joint effort between science and practice. They hope that this project can help to protect their activities from shocks and also reveals ideas and interventions on how to increase their resilience.

The next stakeholder workshop is expected to take place from the 7th – 10th of November 2017. Stakeholders committed their support to this project and are keen to participate in those planned events. Between those events, phone calls and emails are used as tools to keep up the interaction between stakeholders and scientists.

Executive Summary

Overview

This research project on “Assessing and Enhancing the Resilience of the Tef and Cocoa value chains” (AERTCvc) in Ghana and Ethiopia is conducted in joint collaboration between the Kwame Nkrumah University of Science and Technology (KNUST), the Ethiopian Institute of Agricultural Research (EIAR) and ETH Zurich. The duration of this project is from June 2016 to May 2018.

The overall objectives of this project are:

- **Measurement of the resilience** of value chain activities (input supply, production, processing, retailing) of the tef and cocoa value chains:
 - Identify relationships between resilience attributes and value chain activities
 - Focus on key shocks: drought and heavy rainfall events

- **Build strategies for enhancing the resilience** of the tef and cocoa value chains – develop tailored action plans for resilience building
- **Compare resilience patterns** among the same value chain activities between a food security crop (tef) versus a cash crop (cocoa)
- **Contribute directly to the scientific understanding** of what determines resilience in food systems.

To achieve these goals, we establish a transdisciplinary process – a joint scientific activity of scientists and practitioners – for each value chain in Ethiopia and Ghana. Through a close collaboration between scientists and stakeholders of the values chains, we will jointly create new knowledge and contribute to build resilience.

From 29th to 30th March, a stakeholder workshop was held at EIAR in Debre Zeit. Participants represented the whole tef value chain in Ethiopia (detailed participants' information is available in Annex 1). This workshop marked the start of a transdisciplinary research project on the resilience of the tef value chain in Ethiopia.

The objectives of this first stakeholder workshop were the following:

- Establishing a transdisciplinary (TD) process with key stakeholders of the tef value chain;
- Identify the challenges and opportunities, needs and expectations of each value chain activity;
- learn about key shocks and scenarios;
- Validate the questionnaire for the survey on the value chain resilience;
- Enable the stakeholders to take ownership and participate actively throughout the project.

Stakeholder workshop in Kumasi



Figure 1
Workshop participants at EIAR, Ethiopia

Day 1:
29th March 2017

As this project adopts a TD research approach, knowledge, expectations and interests of the participating stakeholders were collected to clarify needs of both science and practice and in order to understand (frame) the specific ‘problem’. The participants (Figur 1) performed two tasks during this session (individually and in groups separated by value chain activities):

1. Opportunities and Challenges of “Tef food system”

→ Outlining the current situation, the opportunities and challenges for each value chain activity, through a ‘Rich picture approach’ (drawings)

2. Expectations and needs to enhance resilience of “Tef food system”

→ Identifying needs and expectations by ‘Outcome space technique’

Outcome

Input suppliers (IS): one of the main challenges for IS (Figure 2) is to adapt their supply to the demand. For example, IS from Debre Zeit are supplying farmers from the Ada’a region mostly with herbicides and pesticides. In Ada’a, rainfall is quite important and tend to increase the leaching of inputs, such as herbicides. As a result, farmers tend to use more of those herbicides on the fields to outweigh the run-off and prevent the growth of weeds. Consequently, the demand for these inputs is high allowing business development opportunities for IS. However, in other regions like Boset the ongoing drought tends to decrease the demand of inputs and causes economic losses for the IS. Furthermore, IS highlighted the need to improve the farmers’ capacity in terms of their resource management and use of inputs in order to prevent soil erosion and decreasing soil fertility. To this extent, one expectation for the future would be to develop more micro-finance support for

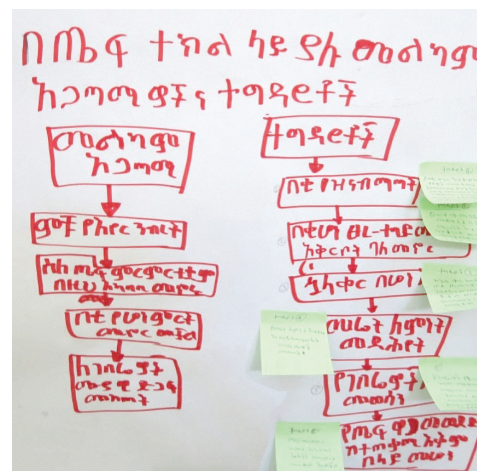


Figure 2
Input suppliers ‘scheme, Challenges and opportunities

farmers to have access to adequate inputs. IS considered Ada’a Region as a favourable environment for tef production especially since research centres guide farmers for the use of appropriate inputs. From IS perspective, this represents a development opportunity for their activities as long as they could adapt their supply to the scientists’ recommendations.

Cooperatives' challenges are the shortage of storage facilities, lack of adequate technologies and machines for land management and harvesting. In terms of trading activities, the lack of market information and fluctuating prices do cooperatives directly affect. Representatives of the cooperatives highlighted the high market potential due to strong demand which is generating opportunities for economic development of cooperatives. Furthermore, cooperatives benefit from research and development activities which support the production of more resistant varieties. As tef is tolerant to extreme environmental conditions and has higher adaptive capacity compared to other crops, there are some opportunities to support and enhance its production yield. Cooperatives take also advantage of the development of appropriate mechanisation along with drought tolerant species variation. On the other hand, cooperatives expect to be more encouraged by the state by receiving more subsidies and to have access to more reliable information on the market to develop their development strategies. Finally, cooperatives stressed the need to formulate more supportive policies towards them, and better guidance on the tef quality regulation. (Figure 3).

Farmers mentioned a lack of reliable information from weather forecast institutes that makes it hard for them to adopt appropriate farming practices in face of heavy rainfall and drought. As a result, farmers highlighted the need for more reliable forecasting information that would, for example, enable them to apply inputs

(e.g. herbicides or fertilisers) at the right time in order to avoid leaching after heavy rainfall. Farmers also pointed-out the untimely supply of inputs, such as herbicides and fertilizers. This has negative effects on the yield of production and generates losses during manual harvesting. Moreover, traders are usually putting pressure on the prices during the harvesting season. This weakens their relationship and alters trust between each other. Farmers expect to develop collaborative work with cooperative unions and other stakeholders to promote greater awareness on how to manage droughts. This would help in the process of building capacities to increase

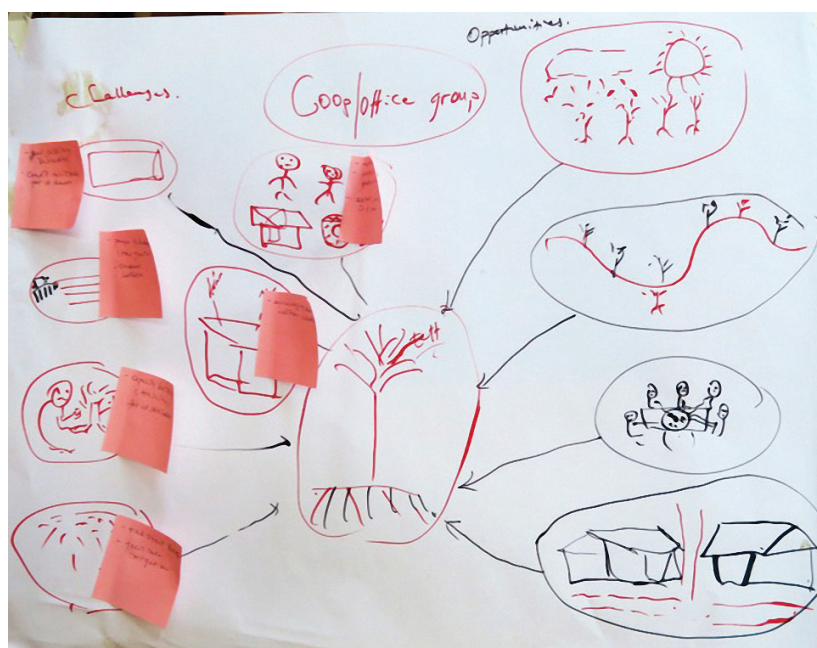


Figure 3
Cooperatives' 'rich picture', expectations and needs

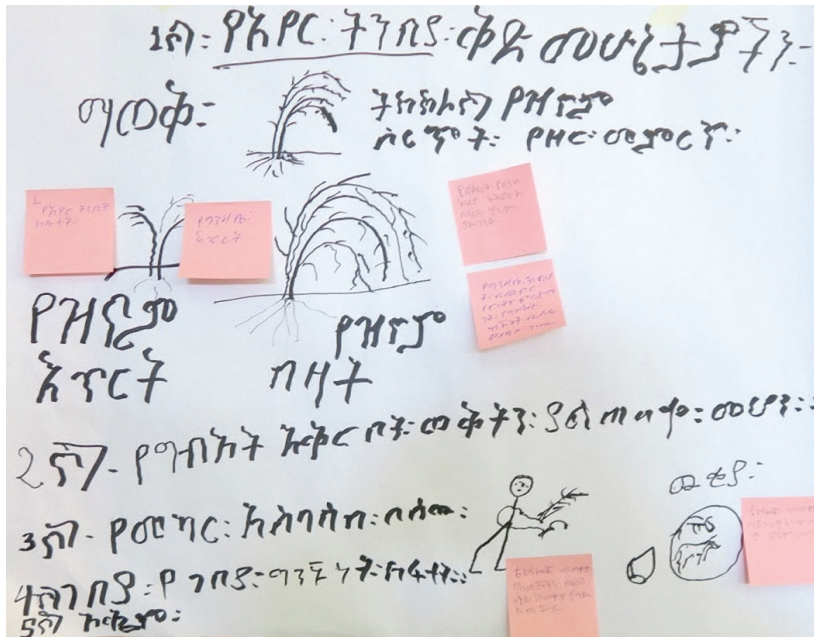


Figure 4
Farmers' 'rich picture', expectations and needs

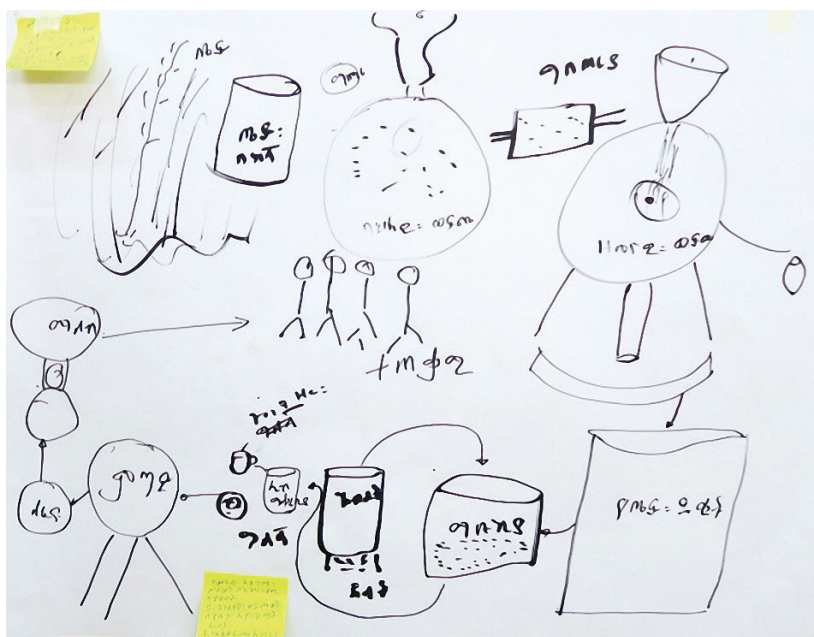


Figure 5
Millers and processors' 'rich picture', expectations and needs

their productivity and resilience to drought. They also expressed the need to get new technologies and develop knowledge and competencies on how to use them. This is already done to some extent through agro-advisory services, but should be extended through financial support for the introduction of new technologies (Figure 4).

Millers and enjera processors are facing difficulties in providing and maintaining a good quality of tef to their customers. For example, if certain processing activities such as the cleaning of tef grains is not done properly, the quality of the flower and consequently the enjera is affected. As a result, this could alter the relationship between millers, enjera processors and their customers. Furthermore, millers are often challenged by a shortage of capital and limited storage capacities. This makes them vulnerable to fluctuating tef prices. However, since the demand of tef is usually greater than the supply, millers and enjera processors see in general a great economic potential of processing tef. Millers expect potential new developments to expand milling technologies at a small scale and make this process accessible for households (Figure 5).

Consumers are challenged by tef price fluctuations which directly influence their consumption of tef. Hence, price variations lead consumers to mix different types (often lower quality of tef) of tef, or even use less tef in their enjera production and replace it by less expensive cereals like wheat or sorghum. The problematics and

challenges regarding the supply of tef are different from a consumer to another. For example, Tef price and its availability could differ from a region to another. Indeed, there is a need to regulate the distribution and have a more homogenous circulation of tef in order to allow every consumer to have access to this staple food crop. Consumers raised the need to establish consumer cooperatives and unions which would offer direct links to farmers. Finally, the creation of networks helps to build knowledge and facilitates the sharing of reliable information on products and markets (Figure 6).

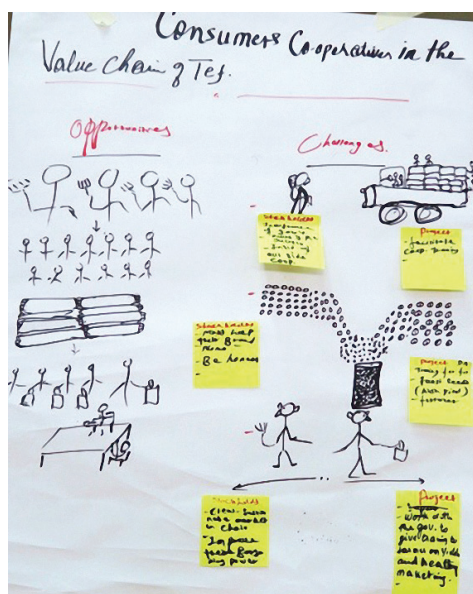


Figure 6
Consumers' rich picture, opportunities and challenges

From a **research** perspective, the main challenges are to support the tef production against threats from climate variability and pests. This is done, for example, with adapted seed breeding, like drought resistant varieties of tef. A key challenge of the tef production is to find ways to limit production losses. Improved mechanisation and the development of appropriate agricultural machineries and big scale processing equipment may help to reduce production losses. Researchers expressed the need to improve the capacities of extension service agents. These agents are crucial in correctly informing farmers about soil management practices and how to efficiently produce tef. Researchers also expect to improve the communication and knowledge sharing between scientists and farmers. Finally, researchers benefit from a global interest on tef which increasingly triggers research activities. Moreover, the government is supporting research activities related to tef (Figure 7).

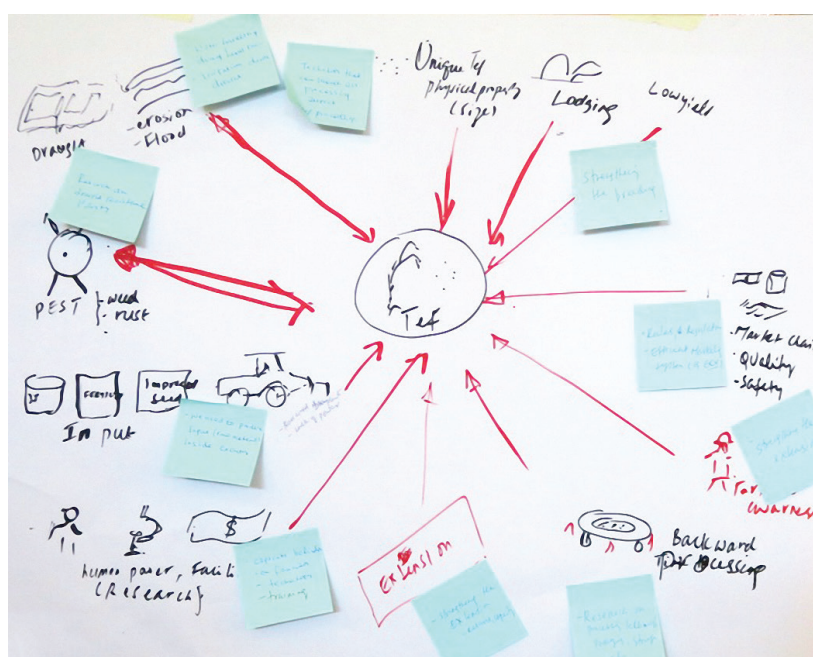


Figure 7
Researchers' 'rich picture', expectations and needs



Figure 8
Visit of Tef experimental fields of EIAR in Debre Zeit

Field excursion

In the afternoon, a field visit (Figur 8) took place to the experimental fields and laboratories for seeds breeding of the EIAR in Debre Zeit and Mama Fresh, a tef processing company that produces enjera for markets outside of Ethiopia. Dr. Kebebew presented the field experiment conducted at the EIAR center on tef breeding and improved seed varieties. Miraf Hailu from Mama Fresh presented the different stages for enjera production, from the fermentation of tef to the production of enjera and packaging.

The activities of the second day focused on identifying key shock scenarios, validating the resilience measurement tool (questionnaire) and discussing the next steps of the project, and included the following activities:

3. Stakeholder input III: Resilience attributes identification, shock identification exercise and survey validation. Key shocks included heavy rainfall events and drought

→ Based on the stakeholders' feedback (validation) the questionnaires were revised. The survey team has then conducted the survey among more than 800 stakeholders in the Boset-Adama and Ada'a-Debre Zeit regions.

4. Stakeholder Input IV: Prioritization of challenges, outlook on the next meetings and activities in order to build and maintain the transdisciplinary platform, launch through this first workshop

**Day 2:
30th March 2017**

Outcome

The first exercise included the identification of effects caused by drought and heavy rainfall events. The below paragraphs summarise the findings from posters for each value chain activity and group discussions (more detailed information is available in Annex 2).

Drought has an impact on the entire value chain. For input suppliers, the demand for pesticides and fungicides declines drastically. In terms of production, the effects are particularly adverse, especially if a drought lasts for several years, like in the Boset region. Farmers are experiencing severe yield decreases when the shortage of rainfall is prolonged. This leads to the increase of food scarcity, poverty and population migration towards less affected regions. Drought also has direct impacts on the market price of tef which affects traders, millers and enjera

processors. The supply of tef becomes insufficient which requires traders to bring tef from other regions to meet the demand of the consumers in the affected regions. Another issue is that despite rising prices of tef, enjera processors still have to sell their products (enjera) at a fix price, leading them to substitute tef with other grains. Among consumers, tef price increase lead to changes in the eating habits of particularly less wealthy people. In general, they tend to replace tef with other less expensive cereals, like maize, sorghum or wheat.

In case of **heavy rainfall events**, stakeholders of the workshop have identified two situations that could be associated to this shock, and that have direct negative effects on the tef production and yield: **waterlogging** and **untimeliness of rainfall**. If one of these events occurs, input suppliers and cooperatives have to respond to an

increasing demand for pesticides and herbicides. The impacts on the field are on the germination, flowering phase, deterioration of soil and tef quality. Thus, tef quality issues have direct consequences along all other activities of the tef value chain.

Following this exercise, a draft questionnaire for a resilience assessment among organisations of various activities of the tef value chain was discussed and validated in groups.

Outlook and Timeline

In a final session, workshop participants were asked about their feedback on the workshop and the way forward was discussed. The workshop was seen as an excellent opportunity to have intensive exchanges, sharing of ideas, and visions for a more resilient tef value chain in Ethiopia. This project launch was a success, as it allowed the following achievements:

- Initiated a transdisciplinary process and made its idea and benefits clear to all participants
- Built trust among all participants
- Identified opportunities, challenges, needs and expectations for each value chain activity
- Delivered a better understanding of the whole tef value chain in Ethiopia
- Validated measurement tools – resilience survey
- Found a way to organize the project and to keep momentum; regular meetings of local partners in addition to workshops are planned

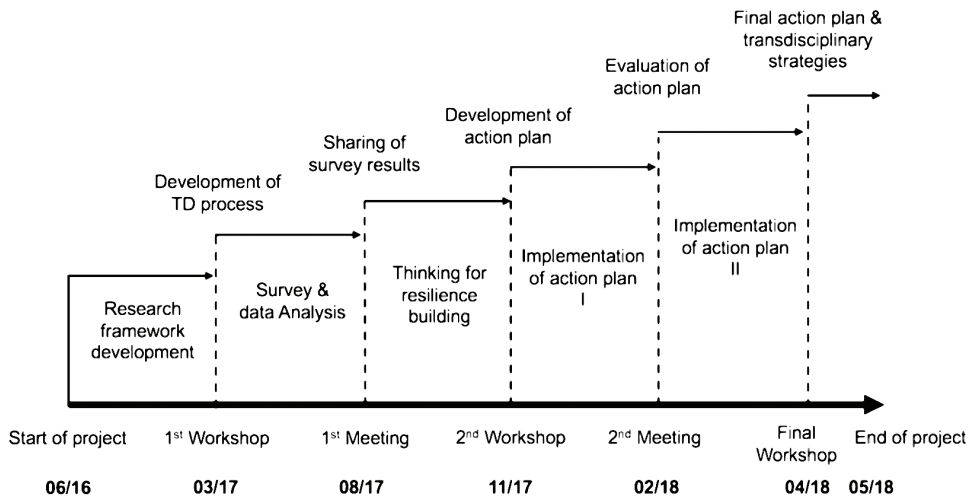


Figure 9
Time schedule of the project

Next meeting is planned in early November 2017; the research team will share the first survey results to the participants for validation. This will be the next occasion to interact with all the participants and develop ideas for building (more) resilience.

The succession of regular interactions in form of joint workshops and meetings is meant to serve the exchange of knowledge/ experience and to intensify the collaboration. This should create and strengthen the ‘ownership’ of the participating stakeholders and support the process of building resilience in the cocoa value chain.

Annex 1 – List of workshop participants

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Eshete Yigzaw	Investor – Tef Prod.	—	—

Annex 2 – Effects of shocks

Examples of the effects of 2 Climate Change events: Drought and Heavy rainfall

	Drought	Heavy rainfall
Input Suppliers	<ul style="list-style-type: none"> Less demand for pesticides because farmers only need it during the rainy season 	<ul style="list-style-type: none"> Infrastructure deterioration Positive effects on their business profit, by selling more products
Cooperatives	<ul style="list-style-type: none"> Less demand for inputs Inputs accumulate in stores, affecting the quality of the inputs Generates additional management costs and increase of prices of tef for next season Economic losses, especially for credits providers 	<ul style="list-style-type: none"> Infrastructure deterioration Untimeliness of input supply and seeds, causing negative effects on production yield Linkage disequilibrium in the long-term between cooperative union and farmers More inputs demand to fulfil the needs
Farmers	<ul style="list-style-type: none"> Reduces the yield – generates low production or almost no production in some regions like Boset for the last 3 years Shortage of tef straw, limits the availability of fodder for animals affecting consequently all farming activities Population migration to other less affected regions Soil depletion and deforestation Severe impacts on animal resources Leads to poverty and health issues 	<ul style="list-style-type: none"> Decreasing quality of tef seeds and straw – Effects on germination Generates the need to mix different tef seeds to sell it to traders Disease outbreak Fertilisers are leached Effects on tillage practices and pest management Soil erosion Water logging
Millers and processors	<ul style="list-style-type: none"> Insufficient supply Enjera processors are unable to increase the price of enjeras, even though the price of Tef has increased these last years 	<ul style="list-style-type: none"> Low quality of tef Increase the mixing of different tef varieties, leading to a decrease quality of product (flower and enjera)
Consumers	<ul style="list-style-type: none"> Generates Food scarcity and consequently hunger and starvation in the most affected areas Drought and heavy rainfall events are generating sudden tef price increases Changing in tef price implies changing in daily habits regarding the amount of Tef used to produce the enjera 	

