

# Information needed for decision makers to take action on climate change adaptation for smallholder farmers—the case of Central America and Mexico

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## Introduction

Despite the urgent need to develop policies to help smallholder farmers adapt to climate change, few countries have adaptation plans that specifically target them. One potential reason for this lack of policy action is that scientific and technical information on issues related to the vulnerability of smallholder farmers to climate change and on the adaptation strategies that are appropriate for smallholder farmers may be missing. In order to examine if the lack of scientific and technical information is a key barrier to developing adaptation policies for smallholder farmers, we implemented an online survey with decision makers from Central America and Mexico. More specifically, we asked decision makers about the availability of relevant scientific information, identified what information they think would be useful for informing policy decisions and explored how frequently scientific information is consulted in decision-making on climate change adaptation for smallholder farmers.



Smallholder farmers provide over 80% of the food consumed in the developing world, but are extremely vulnerable to climate change



Decision makers are at the forefront of making decisions involving the climate change adaptation of smallholder farmers

## Results

We obtained complete surveys from 105 participants, a success rate of 23% (Table 1).

Table 1. Number of requests sent by country, the number of survey completed per country and the success rate on complete surveys received.

Country	Requests sent	Complete surveys received	% of success
Nicaragua	49	4	8%
Panama	49	7	14%
Mexico	218	38	17%
El Salvador	20	4	20%
Honduras	27	9	33%
Costa Rica	44	16	36%
Guatemala	54	27	50%
TOTAL	461	105	23%

### 1. Is the lack of information a barrier for decision makers to take action on climate change adaptation for smallholder farmers?

Our survey indicates that the lack of sufficient information on appropriate adaptation options for smallholder farmers and on projected changes and impacts of those changes are important barriers for policy making. In addition, there are multiple barriers related to the lack of financial support, institutional capacity and personnel working on climate change and agriculture issues (Figure 1).

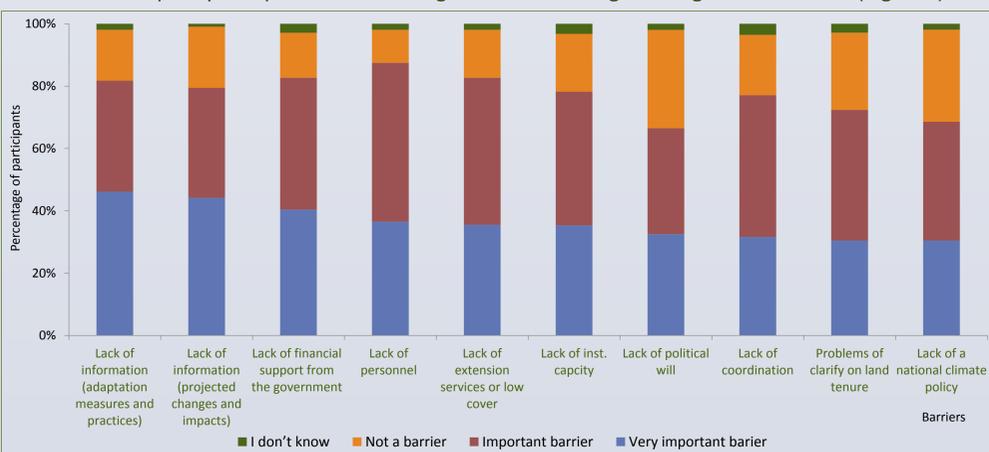


Figure 1. The percentage of participants (n=105) that identified potential barriers as "very important to overcome", "important to overcome" and "not a barrier" for decision makers to take actions on climate change adaptation for smallholder farmers.

### 2. How important are particular types of information to support decision makers to successfully implement adaptation plans for smallholder farmers?

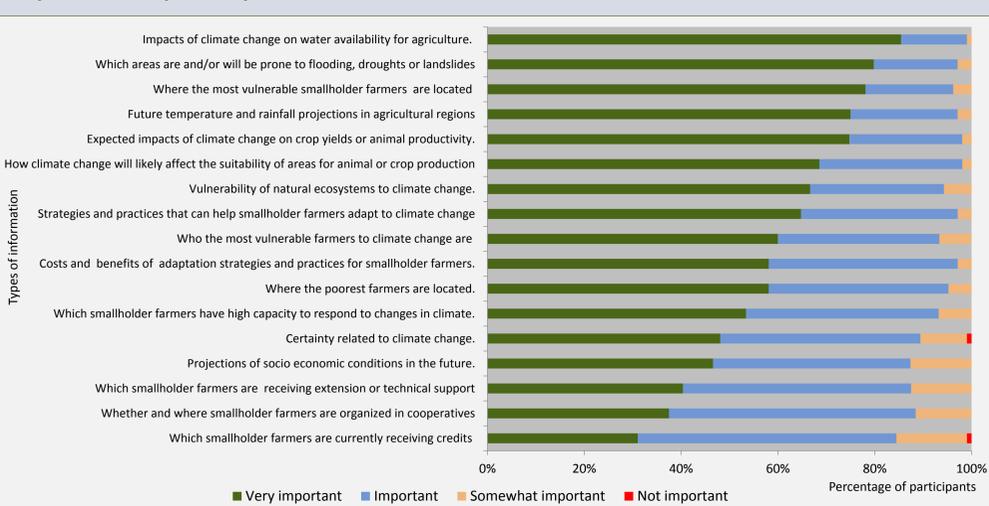


Figure 2. The percentage of participants (n=105) that identified each types of information as "very important", "important", "somewhat important" and "not important" to support decision makers to successfully implement climate change adaptation plans for smallholder farmers.

### 3. To what extent have particular types of information been used to develop or implement adaptation policies or programs for smallholder farmers?

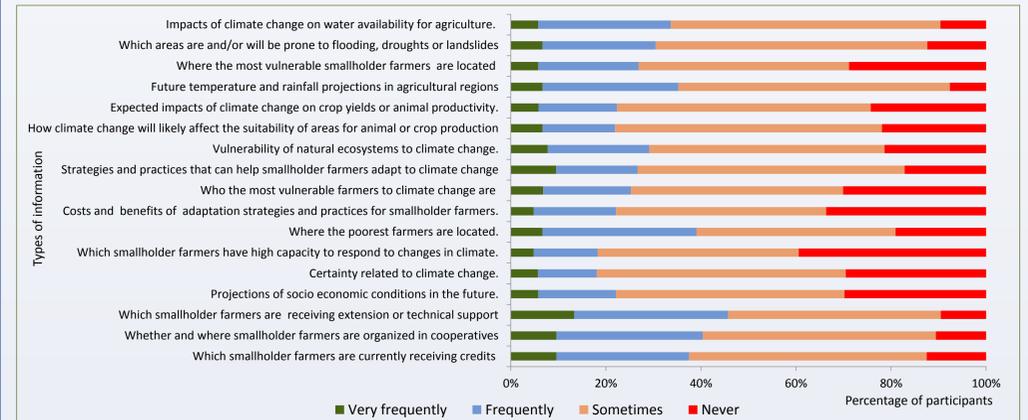


Figure 3. The percentage of participants (n=105) that identified each type of information as "very frequently", "frequently", "rarely" or "never" used by decision makers to inform adaptation plans and programs for smallholder farmers.

### 4. What is the availability of particular types of information?

Overall, the percentages of participants that identified that different types of information as sufficient for decision makers were low (Table 2).

Table 2. Percentage of participants from each country who agreed with the following statements about their country (CR=Costa Rica, ELS=El Salvador, GT=Guatemala, HN=Honduras, MX=Mexico, NI=Nicaragua, PA=Panama).

Statement related to the availability of information for policy makers	Percentages of participants from each country that answered "true"							
	CR (n=16)	ELS (n=4)	GT (n=27)	HN (n=9)	MX (n=38)	NI (n=4)	PA (n=7)	All (n=105)
Decision makers in my country have sufficient information on who the most vulnerable smallholder farmers are	50%	0%	48%	25%	45%	25%	57%	45%
Decision makers in my country have enough information on where the most vulnerable farmers are located.	78%	50%	62%	25%	63%	33%	50%	61%
Decision makers in my country have enough information about strategies and practices that can help smallholder farmers adapt to climate change or that have been used by smallholder farmers to adapt to climate change.	57%	50%	32%	33%	45%	50%	14%	40%
Decision makers in my country have enough information about the costs and benefits of strategies and practices used by smallholder farmers to adapt to climate change.	27%	0%	20%	0%	25%	0%	0%	18%
Decision makers in my country have information in relation to changes and impacts resultant from climate change to inform adaptation plans for smallholder farmers.	50%	50%	23%	0%	38%	25%	14%	30%
Decision makers in my country have enough information about socio economic conditions projected for the future	45%	0%	13%	13%	34%	50%	14%	34%

## Conclusions

- The lack of scientific and technical information is an important barrier for decision makers to take action on climate change adaptation of smallholder farmers. However, other key barriers (such as the lack of financial support, personnel and institutional capacity) are also important.
- Decision makers are keen to have specific information to guide the development of climate change adaptation plans for smallholder farmers. The most commonly cited information needs included:
  - maps on the impacts of climate change on water availability for agriculture
  - maps that show areas that are and/or will be prone to flooding, droughts or landslides;
  - maps that show where the most vulnerable smallholder farmers to climate change are located;
  - future temperature and rainfall projections in agricultural regions; and
  - maps on the expected impacts of climate change on crop yields or animal productivity.
- Although decision makers are interested in having additional scientific information on smallholder farmers and climate change, many participants of the survey also indicated that decision makers have rarely used this information to inform policy development.
- This could be because policy-relevant information is often missing, or because decision makers are not aware of the available information or are unable to understand it
- There is a critical need to not only fill the existing information gaps, but also to ensure that decision makers are aware of available scientific information that could guide decision-making and can understand the policy implications of scientific results.
- In order to improve the use of scientific information in decision-making, scientists should ensure their results are shared with decision makers and, whenever possible, translate their scientific findings into policy-relevant recommendations that can be easily incorporated in decision making processes.

## Acknowledgements

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