**Agricultural production survey at farm level in Tajikistan**

Respected respondents

Hello,

My name is Husniddin Sharofiddinov, a PhD student at Kochi University of Technology. As a part of my study, I am doing my research on the irrigation water availability in Tajikistan. For this purpose, I would like to request your kind co-operation and time to fill in the questionnaire. Also, I would like to assure you that your name will be kept confidential and all the information you provide will be used only for my research purposes. Thank you very much!

**General information of farm**

|  |  |  |  |
| --- | --- | --- | --- |
| Questionnaire number |  | Name of farm |  |

**Farm address**

|  |  |  |  |
| --- | --- | --- | --- |
| Irrigation Scheme |  | District |  |
| Jamoat |  | Village |  |
| Contact number |  |  |  |
| Time started |  |  |  |
| Time finished |  |  |  |
| Name of interviewer |  | Signature |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Geocoding** | **Latitude:** | **Longitude:** | **Altitude:** |
|  |  |  |  |

**Section A**

**A1: Household characteristics**

**1. Name of the farm head \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**2. Number of years as a farm decision maker \_\_\_\_\_\_\_\_\_\_\_**

**3. Age of the farm head \_\_\_\_\_\_\_\_\_\_**

**4. Gender**

**a.** male **b.** female

**5. Education**

**a.** primary  **b.** middle school **c.** high middle school **d.** university or above

**6. Family size (including you) \_\_\_\_\_\_\_\_\_\_\_**

The number of elder (>65 years old) \_\_\_\_\_\_\_\_; and children (<18 years old)\_\_\_\_\_\_\_\_

**7. What is the main source of your income?**

**a.** agriculture **b.** remittances **c.** salary from another job **d.** other business

**A2. Farm characteristic**

**8. Are you the owner of the land or are you renting the land?**

**a.** owner **b.** rented **c.** shareholder in cooperative **d.** shareholder in enterprise

**9. What is your farm type?**

**a.** dehkan farm (Individual entrepreneur) b. collective **c.** cooperative **e.** enterprise

**10. Farm size in hectares \_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**11. To how many plots are divided your land every season on average (in other words how many crops you are growing in same time)? \_\_\_\_\_\_\_\_\_**

**12. All your plots in the same area or in different places?**

**a.** in same area **b.** in different places

**13. The distance of your plots from your house in kilometers \_\_\_\_\_\_\_\_\_\_**

**14. Location of your land**

|  |  |  |
| --- | --- | --- |
| **Off- farm canal** | **On-farm canal** | **Pump cascades** |
| **a.** Beginning | **a.** Beginning | **a.** 1 – lifting stage |
| **b.** Middle | **b.** Middle | **b.** 2 – lifting stage |
| **c.** Tail | **c.** Tail | **c.** 3 or more – lifting stage |
| **d.** Not applicable (Individual pump/well) | **d.** Not applicable (Individual pump/well) | **d.** Not applicable (Gravity) |

*\*Based on the length of the canal approximately we can categorize it 33% - beginning, 34-67%- middle, and 68-100%-tail of the canals.*

**Section B**

**B1: Cultivated areas**

**1. What crops did you grow in the last vegetation season in each cultivation season (year)?**

***(Total cultivated area should be equal to the farm size in each growing season)***

|  |  |  |
| --- | --- | --- |
| Type of crop | Cultivation season  (1, 2 ,3) | Cultivated area (hectares) |
|  |  |  |
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**2. What kind of crops you are growing for the 1st season and planning to grow in 2nd and 3rd vegetation season in this year and based on your predictions how much can you produce?**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Type of crop | Cultivation season  (1, 2 ,3) | Cultivated area (hectares) | Total production (kg) | Production for own use (kg) |
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**4. Could you please provide information on your plans for this year on irrigation water demand and estimations on receiving irrigation water by type of crops?**

**(Please choose option a or b to fill this table)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Type of crop | Cultivation seasons  (1, 2 ,3) | **a.** in units | | **b.** in volume | |
| Number of required irrigations for each crop | How much you may receive this year (number) | Required volume of irrigation water\_m3 (000) | Your estimation on receiving the irrigation water\_ m3 (000) |
|  |  |  |  |  |  |
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**B2: Irrigation services**

**1. Irrigation services and predictions for this season (year)**

*(Please choose answers)*

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | What is your source of irrigation water | | **a.** Surface water  **b.** Ground water  **c.** Drainage water  **d.** Rainfed  e. Other specify |
| 2 | How sufficient is the water for irrigation in your land? | | **a.** Water abundant  **b.** Sufficient water  **c.** Not sufficient water  **d.** Scarce/ insufficient  **e.** Does not reach my plot |
| 4 | Have you encountered any of the following water problems during the growing season?  What are they? | | **a.** not enough water  **b.** water comes at the wrong time  **c.** conflicts with other farmers over water  **d.** incorrect calculation of irrigation fees  **e.** others (specify)) |
| 5 | What kind of irrigation application do you use for your land? | | **a.** Furrow  **b.** Drip irrigation  **c.** Sprinkler  **d.** Flooding  **e.** Other (specify) |
| 6 | What is the main thing you do in a year when water is scarce? | | **a.** I switch to a different crop  **b.** I reduce the cultivated area  **c.** I don't grow anything  **d.** I use water from a well or other secondary source  **e.** other \_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 7 | How do you assess the quality of the off-farm irrigation system serving you? | | **a.** good  **b.** fair  **c.** poor  **d.** very poor  **e.** I don’t know |
| 8 | How do you assess the quality of the on-farm irrigation system serving you? | | **a.** good  **b.** fair  **c.** poor  **d.** very poor  **e.** I don’t know |
| 9 | How do you assess the quality of the off-farm drainage system serving you? | | **a.** good  **b.** fair  **c.** poor  **d.** very poor  **e.** I don’t know |
| 10 | How do you assess the quality of the on-farm drainage system serving you? | | **a.** good  **b.** fair  **c.** poor  **d.** very poor  **e.** I don’t know |
| 11 | With whom you have contract for irrigation services? | | **a.** ALRI department  **b.** WUA  **c.** Jamoat  **d.** I am using water from the source  **e.** Other specify\_\_\_\_\_\_\_\_\_\_\_ |
| 12 | Who mostly manages water supply to your land? | | **a.** ALRI department  **b.** WUA  **c.** Jamoat  **d.** Myself jointly with other farmers  **e.** Myself alone |
| 13 | Do you use on-farm pump for irrigation? | | **a.** yes  **b.** no |
| 14 | How much did you pay last year for irrigation service fee? | | **Answer\_\_\_\_\_\_** |
| 15 | Which tariff do you use to pay irrigation service fee? | | **a.** Volume based.  **b.** Crop type based |
| 16 | Are you a member of the WUA? | | **a.** Yes  **b.** No |
| 17 | How does irrigation service compare now with the time before the WUA began to operate? | | **a.** better  **b.** about the same  **c.** worse  **d.** I don't know |
| 18 | Do you or the WUA Mirob measure the water delivered to your farm? | | **a.** always  **b.** sometimes  **c.** never |
| 19 | Do you pay a membership fee to the WUA? | | **a.** Yes  **b.** No |
| 20 | Total percentage of membership payment for the last year | | **Answer\_\_\_\_\_\_\_\_\_\_** |
| 21 | How often do you participate in maintenance of on-farm irrigation and drainage system? | | **a.** never  **b.** seldom  **c.** sometimes  **d.** often  **e.** usually |
| 22 | How often do you participate in meetings related to irrigation? | | **a.** never  **b.** seldom  **c.** sometimes  **d.** often  **e.** usually |
| 15 | How do you deal with water distribution? | **a.** farmers come together before each cropping season and create a schedule for the whole season, and we follow that  **b.** farmers come together before each irrigation turn and then create schedule for that turn only  **c.** First come first serve: whoever comes to water gate, and starts to divert, he will be the starting point  **d.** We don’t have any rules of water use  **e.** We have other rules (Specify)  **f.** WUA or State department of irrigation decides on water distribution | |

**B3. Do you have access to below provided information?**

|  |  |  |
| --- | --- | --- |
| Information | Yes or NO | Source |
| Statistic data on cultivated crops in your region  a. village level  b. district level  c. regional level  d. country level | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ |
| Data on plans for new season on crop planting  a. village level  b. district level  c. regional level  d. country level | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ |
| Insect and pest? |  |  |
| Availability of inputs (seeds, fertilizers, labor, etc) for your crops | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ |
| Price of inputs (seeds, fertilizers, labor, etc) for your crops | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ |
| Availability of product that you are growing | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ |
| Price of product that you are growing | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ | a. \_\_\_\_\_\_\_  b. \_\_\_\_\_\_\_  c. \_\_\_\_\_\_\_  d. \_\_\_\_\_\_\_ |
| Weather forecasting data (temperature, precipitation, wind, humidity) |  |  |

*\*Sources of information:* ***G****= Government,* ***NG****= Non-government,* ***R****=Radio,* ***T****=Television,* ***N****=Newspaper,* ***F****=Farmers,* ***B****=Businessman,* ***C****=Children*

**B4. Equipment and services**

*(You can circle more than one options that you have)*

**1. What is your main equipment?**

**a.** tractor **b.** truck **c.** car **d.** motorcycle **e.** bicycle. **f.** N/A

**2. What are your main facilities?**

**a.** summer storage (fridge). **b.** winter storage **c.** greenhouse  **d.** N/A.

**3. Where do you get extension services?**

**a.** government **b.** association **c.** cooperatives **d.** family **e.** other-explain

**4. Where do you get labor force?**

**a.** association **b.** cooperatives  **c.** family **d.** casual labor

**Section C**

**C2: Economic uncertainty**

**1. What are the sources of uncertainty that affect your production process?**

*Please rank the following sources of uncertainty in terms of their importance:*

climate variability \_\_\_\_\_\_\_

pests and diseases \_\_\_\_\_\_\_

market prices \_\_\_\_\_\_\_

input prices \_\_\_\_\_\_\_

policy changes \_\_\_\_\_\_\_

**2. Do you know for what kind of agricultural production price is stable? Y*es/No***

If yes, for which products? (list) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. Do you know for which agricultural products’ price is always fluctuating? Y*es/No***

If yes, for which products? (list) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. Price for the listed products fluctuating:**

**a.** yearly  **b.** seasonally **c.** monthly **d.** weekly  **e.** daily.

**5. When will you be able to predict the price of the product you are going to cultivate?**

**a.** before cultivating season. **b.** during vegetation. **c.** before harvesting **d.** On selling day

**6. How do you negotiate prices?**

**a.** before cultivating season **b.** during vegetation. **c**. before harvesting **d.** every selling time.

**7. Have you noticed any changes in market uncertainty in the past years?**

If yes, please choose the following answers?

**a.** market price becoming stable. **b.** market price becoming unstable. **c.** I don’t have idea

**8. Does anyone control the price of your product*?***

***(Does anyone fix the price that you cannot sell more than that?)***

**a.** market (bazar). **b.** village. **c.** district authority **d.** central government **e.** No

**9. Does anyone control the price of input (seed, fertilizer, labor, fuel etc.)*?***

**a.** market (bazar). **b.** village. **c.** district authority **d.** central government **e.** No

**10. How did you sell your last harvested products?**

|  |  |  |  |
| --- | --- | --- | --- |
| **a.** to individuals | - all harvest or some % of it? |  | |
|  | Crop | Price (TJS/kg) |
| - average price per crop |  |  |
|  |  |
|  |  |
|  |  |
| **b.** in village market | - how many kilometers from your plot to the market? |  | |
| - all harvest or some % of it? |  | |
| - average price per crop | Crop | Price (TJS/kg) |
|  |  |
|  |  |
|  |  |
|  |  |
| **c**. in district market | - how many kilometers from your plot to the market? |  |  |
| - all harvest or some % of it? |  |  |
| - average price per crop | Crop | Price (TJS/kg) |
|  |  |
|  |  |
|  |  |
|  |  |
| **d.** middlemen | - all harvest or some % of it? |  |  |
| - average price per crop | Crop | Price (TJS/kg) |
|  |  |
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|  |  |
|  |  |
| **e.** export to other countries | - all harvest or some % of it? |  |  |
| - average price per crop | Crop | Price (TJS/kg) |
|  |  |
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**C3: Measures to deal with economic uncertainty.**

**1. How long have you been farming?**

**a.** less than 5 years **b.** 5-10 years **c.** 11-20 years **d.** more than 20 years

**2. Have you experienced price uncertainty in the past? Yes/No**

**If “Yes”, how did you cope with it?**

**a.** I diversified my crops **b.** I used forward contracting **c.** I used crop insurance

**d.** I joined cooperatives **e.** I sold my products directly to consumers **f.** I invested in technology and reduced production costs.

**3. How has price uncertainty impacted on your farm’s profitability?**

**a.** significant negative impact **b.** moderate negative impact **c.** minor negative impact **d.** no impact **e.** minor positive impact **f.** moderate positive impact **g.** significant positive impact

**4. Have you ever used risk management tools? Yes/No**

**a.** crop insurance **b.** futures contract **c.** technology investment. **d.** crop diversification  **e**. other specify\_\_\_\_\_

**5. Have you considered diversifying your crops to reduce risk? Yes/No**

**a.** Yes, I have diversified my crops **b**. No, I have not considered diversifying.

**6. Have you made any investments in technology or equipment to improve efficiency and reduce production costs? Yes/No**

**7. Have you ever practiced in any government-funded programs or initiatives designed to help farmers deal with market uncertainty?**

**a.** Yes **b.** No  **c.** Not available

**8. Do you believe that price uncertainty will continue to be a major challenge for your farm in the future?**

**a.** Yes, I believe that it will be a major problem **b.** No, I do not believe it will be a major challenge **c.** I am not sure

**9. Do you have any suggestions for how the government or other organizations could support farmers in dealing with market uncertainty? Yes/No**

**a.** provide more access to risk management tools.

**b**. increase funding for research and development.

**c.** provide more marketing and promotion support

**d.** provide better access to financing and loans.

**e.** other (specify)\_\_\_\_\_\_\_\_\_\_\_\_

**10. Your attitude towards the risk?**

**a.** risk neutral **b.** risk-taker **c.** risk-averse

**D1: Climate uncertainty**

***(Please circle only one choice for each question.)***

***Part A: Concern level for climate change***

**1. Your concern about general environmental problem in Tajikistan?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**2. Your concern about global warming?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**3. Your concern about temperature and precipitation in Tajikistan?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**4. Your concern about water formulation in Tajikistan?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**5. Your concern about energy problems in pump stations, Tajikistan?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**6. Your concern about the impact of climate change on water availability?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**7. Your concern about the harmful effect of climate change on agricultural production?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**8. Your concern about the daily weather forecast in Tajikistan?**

**a.** Not concerns at all **b.** Not quite concern  **c.** Neutral **d.** Somewhat concern **e.** Very concern

**9. Do you think the atmospheric temperature in vegetation season has been increasing in recent years?**

**a.** Yes. **b.** No. **c.** I have no idea.

**10. Do you think the precipitation in vegetation season has been decreasing in recent years?**

**a.** Yes. **b.** No. **c.** I have no idea.

**11. Do you think climate change has a negative effect on the agricultural production output?**

**a.** Yes. **b.** No. **c.** I have no idea.

**12. Have you ever lost agricultural production due to climate change?**

**a.** from draught. **b.** from heavy rainfall. **c.** from heavy snowfall. **d.** from wind. **e.** extreme hot. **f.** extreme cold **g.** No

**13. Did you change your agricultural crops in the last years due to climate change?**

**a.** from draught. **b.** from heavy rainfall. **c.** from heavy snowfall. **d.** from wind. **e.** extreme hot. **f.** extreme cold **g.** No

**13. Which part do you think mainly affects you for agricultural production?**

**a.** atmospheric temperature. **b.** precipitation. **c.** wind. **d.** water availability. **e.** other specify\_\_\_\_\_\_.

***Part B: Information on farmer’s perception on climacteric variability***

|  |  |
| --- | --- |
| Have you ever noticed the unusual change in pattern of temperature, rainfall, hot waves, and cold waves in last 10 years? If yes, what may be the cause? | If yes, ………… |
| Change of summer temperature | (a)No change (b) Increase (c) Decrease(d)Don’t know |
| Change of summer temperature | (a)No change (b) Increase (c) Decrease(d)Don’t know |
| Change in rainfall | (a)No change (b) Increase (c) Decrease(d)Don’t know |
| Rainfall intensity | (a)No change (b) Increase (c) Decrease(d)Don’t know |
| Rainfall frequency | (a)No change (b) Increase (c) Decrease(d)Don’t know |
| Drought | (a)No change (b) Increase (c) Decrease(d)Don’t know |
| Cold waves | (a)No change (b) Increase (c) Decrease(d)Don’t know |
| Hot waves | (a)No change (b) Increase (c) Decrease(d)Don’t know |

**Section E**

**E1: Land fragmentation**

**1. What factors do you think affected you to diverse your crops?**

**a.** economic uncertainty **b.** climate uncertainty **c.** production for own consumption **d.** crop rotation

**E2. Behavioral beliefs**:

Please consider the following pairs of statements carefully. Indicate for the first statement whether you agree or disagree to it. For the second statement please indicate how important or unimportant it is for you

As advice for the interviewer(s) to consider that each of the following questions has two statements that should be measured on two different scales.

We take Question (1) as an example: The first statement: If you diversify your crops by splitting your plots you will increase farm income: should be measured on five-point scale Agree/Disagree

And the second statement: **Increasing farm income is:** (should be measured on five-point scale Important/Unimportant)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Behavioral beliefs** | **Strongly disagree** | **Disagree** | **Neither agree nor disagree** | **Agree** | **Strongly agree** |
| Very unimportant | Unimportant | Neither important nor unimportant | Important | Very important |
| If you plant several types of crops by splitting your plots you will increase farm income  **Increasing farm income is:** |  |  |  |  |  |
|  |  |  |  |  |
| If you plant several types of crops in same season by splitting your plots you will increase production (yield)  **Increasing yield is:** |  |  |  |  |  |
|  |  |  |  |  |
| If you plant several types of crops in same season by splitting your plots you will have better access to irrigation water  **Better access to irrigation water is:** |  |  |  |  |  |
|  |  |  |  |  |
| If you plant several types of crops in same season by splitting your plots you will increase soil fertility  **Increasing soil fertility is:** |  |  |  |  |  |
|  |  |  |  |  |
| If you plant several types of crops in same season by splitting your plots you will reduce input costs  **Reducing input costs is:** |  |  |  |  |  |
|  |  |  |  |  |

**E3. Control beliefs:**

Please consider the following statements carefully and then express your opinion whether you agree or disagree with the statement by ticking one box in each line

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Control beliefs** | **Strongly disagree** | **Disagree** | **Neither agree nor disagree** | **Agree** | **Strongly agree** |
| You have the possibility to get access to information sources about market prices before cultivation season.  ***Having access to information resources about market prices for the coming season would make it easier for you to grow one type of crop*** |  |  |  |  |  |
|  |  |  |  |  |
| You have the possibility to get access to information sources about weather forecasting before cultivation season.  ***Having access to information resources about weather forecasting for the coming season would make it easier for you to decide what crop to grow*** |  |  |  |  |  |
|  |  |  |  |  |
| Soil fertility on your farm is suitable for crop and fruit cultivation.  ***Having good soil fertility would make it easier for you to produce crops and fruits*** |  |  |  |  |  |
|  |  |  |  |  |
| The size of your farm is big enough for making the cultivation economically viable  ***Having sufficient farm size for an economic cultivation would make it easier for you to produce crop with less cost*** |  |  |  |  |  |
|  |  |  |  |  |
| You have access to credits for agricultural production  ***Being able to have access to credits would make it easier for you to adopt new technologies and equipment*** |  |  |  |  |  |
|  |  |  |  |  |
| You work collectively with other farmers to solve farming problems (production and marketing problems)  ***Being able to work collectively with other farmers would make it easier for you to produce agricultural production for long period*** |  |  |  |  |  |
|  |  |  |  |  |
| You work collectively with other farmers to solve irrigation water problems (planning and sharing)  ***Being able to work collectively with other farmers would make it easier for you to have better access to irrigation water*** |  |  |  |  |  |
|  |  |  |  |  |