

# Agriculture insurance development in Tajikistan

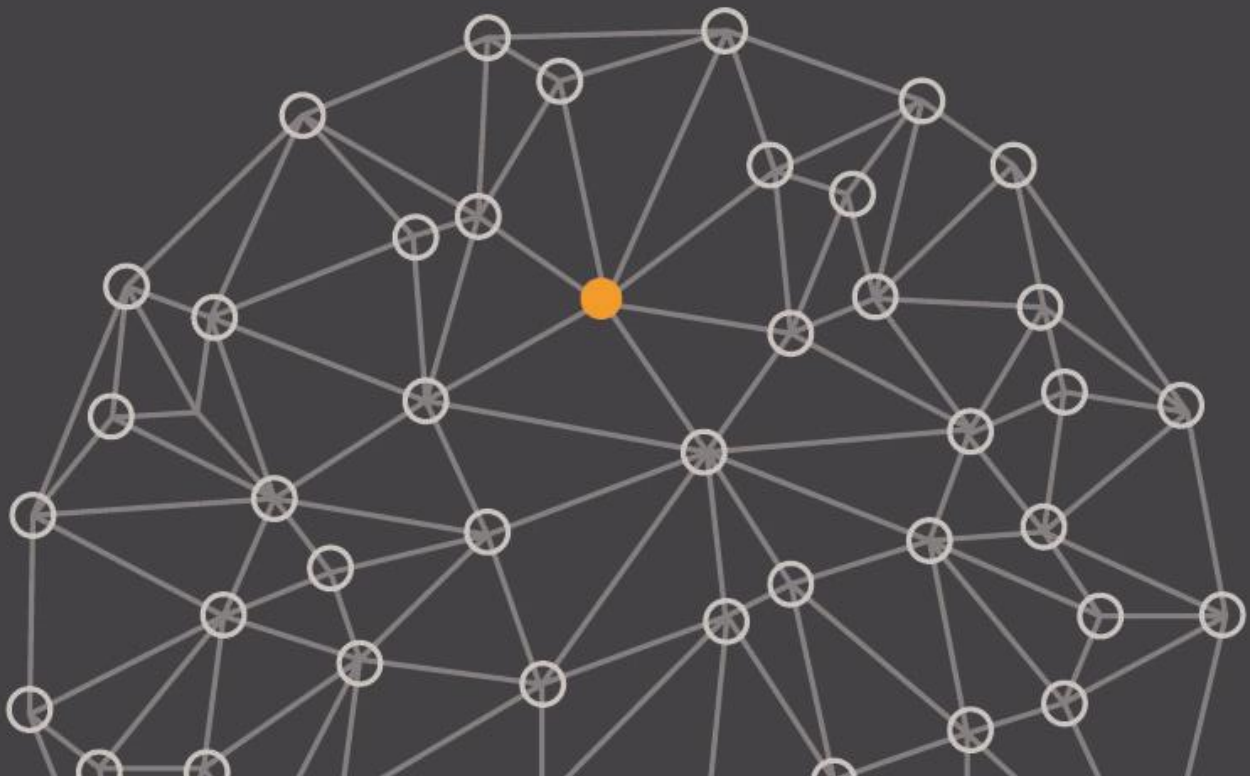
Final report to IIF and ESKhata

October 2019 (v.2.0)

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## Abbreviations

Ag insurance	Agriculture insurance
BE	Bank Eskhata
CHIRPS	Climate Hazards Group Infrared Precipitation with Station data
ES	Eskhata Sugurta
EMS	(CelsiusPro's) Environmental Monitoring System
FGD	Focus Group Discussion
HydroMet	State Agency for Hydrometeorology of Tajikistan
IIF-TAF	InsuResilience Investment Fund Technical Assistance Facility
KPI	Key Performance Indicators
MFI	Microfinance Institution
MI	Microinsurance
MIC@M	MicroInsurance Centre at Milliman
MoA	Ministry of Agriculture
NBT	National Bank of Tajikistan
NDVI	Normalized Difference Vegetation Index
RFE	Rainfall estimate
SUAVE	Simple Understood Accessible Valuable Efficient
TJS	Tajikistan Somoni
USD	United States Dollar

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This report was prepared for the InsuResilience Investment Fund and Eskhata Bank for the purposes of summarizing the key findings and work conducted under the scope of work “Agriculture Insurance Development in Tajikistan.” In performing the underlying analyses, we relied on data and other information from external sources. We have not audited or verified this data and other information. If the underlying data or information is inaccurate or incomplete, the results of our analysis may likewise be inaccurate or incomplete.

This report and the results, opinions and conclusions herein are presented as at September 2019 and may be rendered inaccurate by developments after this date. Milliman does not intend to benefit and assumes no duty or liability to other parties who receive this work. Milliman recommends any third party recipient be aided by its own actuary or other qualified professional when reviewing this work product.

# 1. Project report

## PROJECT OVERVIEW

### Objectives

Working towards the InsuResilience Investment Fund's objective of improving the resilience of micro, small and medium enterprises as well as low-income households to extreme weather events, the MicroInsurance Centre at Milliman (MIC@M, or the Consultant) was engaged to provide technical assistance services to Bank Eskhata (BE, or the Investee) in Tajikistan. **The specific objective of this intervention was to introduce private agriculture insurance at Eskhata, targeted at small-scale farmers, cooperatives, and similar groups (micro & meso level insurance).**

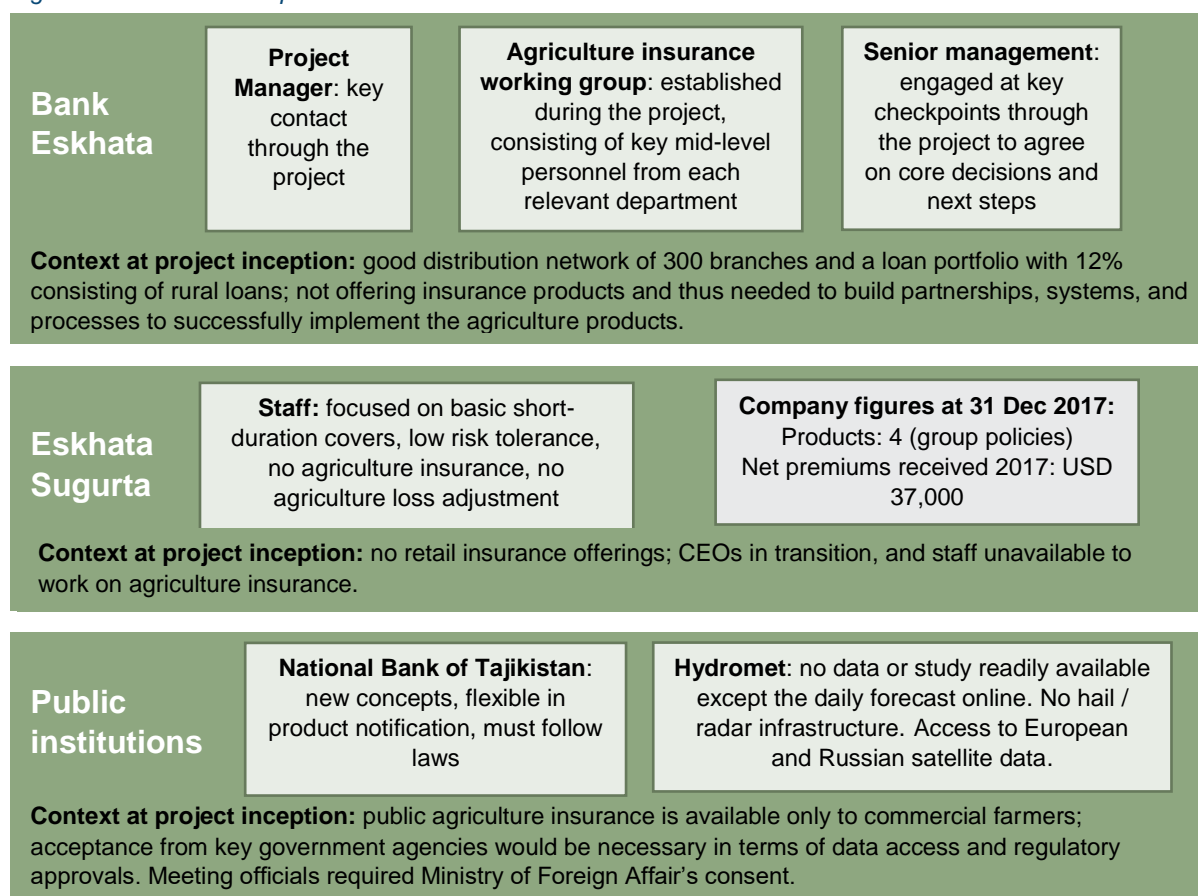
To accomplish this objective, the project was structured into four phases:

- **Feasibility study** to assess whether an economically viable climate-insurance product for the poor and vulnerable population in Tajikistan could be sustainable, and if so, which types of product(s)
- **Data sourcing** to assess and identify relevant data sets to support product design
- **Product design** to develop the technical details of the proposed product(s) (rate-making, coverage levels, processes, etc.)
- **Education of Investee staff** to prepare for implementation (identifying insurance and reinsurance partners, pilot testing plan, training staff, etc.) and transfer implementation capacity to key staff in order to successfully carry out insurance programming in the future

### Stakeholders

Bank Eskhata was primarily partner, with several other key stakeholders throughout the course of the project, as shown in Figure 1.

Figure 1. Stakeholder map<sup>1</sup>



<sup>1</sup> Data for Eskhata Sugurta was provided by the Eskhata Project Manager

## ACHIEVED RESULTS

Table 1 provides an overview of the key project activities and results.

Table 1. Summary of project phases and deliverables

Phase / Deliverable (as planned)	Date completed and key result	Description of activities / comments
<p><b>1. Feasibility study.</b> Will provide several alternative models on how a future agricultural insurance product should be implemented by the Investee. Decision will be taken on what products should be implemented, if any. If no product is selected for implementation, technical assistance is terminated, and the remaining phases are cancelled.</p>	<p>Feasibility study submitted on 13 December 2018 and approved by ESKHATA on 10 January 2019.</p> <p>The study concluded that a portfolio index would be the only feasible option at this point in time, and only if certain criteria were met in the following phases. Details are provided in Section 2 of this report.</p>	<p>The feasibility study was conducted between May and October 2018 and consisted of desk research and a series of 3 field missions including:</p> <p><i>Mission 1: Assess feasibility from an institutional perspective:</i> An initial visit took place in June with the purpose of gathering and understanding relevant information about Bank ESKHATA and ESKHATA SUGURTA. It included initial exposure to the Bank's client base and meetings with key public sector stakeholders in order to generate necessary support.</p> <p><i>Mission 2: Assess feasibility from a demand perspective:</i> In September, the Actuary and Agriculture Insurance Expert conducted field research with front-line staff and clients of ESKHATA, for the purpose of understanding feasibility from a demand and process point of view.</p> <p><i>Mission 3: Assess feasibility from a data and policy environment perspective:</i> Took place in October and included meetings with key public stakeholders to build partnerships for data sharing as well as gain support for the work and ensure no policy or regulatory hurdles</p> <p>The resulting information was paired with ongoing remote discussions with the BE Project Manager and senior management, as well as data gathering from tertiary sources. Bank ESKHATA and ESKHATA SUGURTA were in a time of transition during this period. The Bank had just had a change in Executive Director, and the insurer had been trying to fill the Executive Director position. These leadership changes added some challenge to the project initially, but over time this situation was resolved. Each visit also included components of staff training and knowledge building.</p> <p>For the Feasibility Study see Annexes: 1.1 English; 1.2 Appendices in English; 1.3 The full study in Tajik; and 1.4 the acceptance letter from ESKHATA.</p>
<p><b>2. Data sourcing report.</b> Relevant data sets, consolidated and updated and/or relevant data providers identified. Should there be not enough relevant data to support the</p>	<p>A Data Sourcing example has been drafted and shared with ESKHATA as a more appropriate</p>	<p>Between January and March 2019, the consulting team worked remotely with the ESKHATA Project Manager to gather and consolidate the specific data sets necessary for designing a weather index for BE's portfolio. This included:</p> <p><i>Yield data.</i> Several rounds of conversation with the district statistical agency were conducted in order to understand the composition, origin, and reliability of the yield data. It was then discussed with agronomists and TajStat staff during a field mission in April 2019.</p>

<p>product(s), technical assistance is terminated, and the remaining phases are cancelled.</p>	<p>tool for information for Eshkhat.</p> <p>Details regarding the data sourcing process and findings are provided in Section 3 of this report.</p>	<p><i>Remote sensing data – rainfall and Normalized Difference Vegetation Index (NDVI)</i><sup>2</sup>. With a lack of ground data available nationally, several international providers of remote sensing data were assessed for their potential to provide appropriate data to create the index. Celsius Pro’s Environmental Monitoring System was selected, and the relevant data sets analyzed to identify good and bad years for rainfall and correlate them with years of good and bad yields.</p> <p>The most appropriate approach to data sourcing was to focus on addition capacity building for staff prior to compiling a specific data. This approach would help build the concept of index insurance within the team, as well as allow the anticipated Analyst to be part of data acquisition since it would be that person that would be responsible for data gathering in the future. In the absence of the Analyst, the key results from the data sourcing were translated into an example of what the index design might look like in the pilot area, and this was presented to Eshkhat’s agriculture insurance working group.</p> <p>Data sourcing information can be found in Annexes 2.1 (Data request of HydroMet, TajStat, and Eshkhat).</p>
<p><b>3. Product design</b> for selected insurance product(s) pre-approved by the Investee. Product presentation to the Board.</p>	<p>Product presentation made to Board on 29 May 2019</p> <p>Termination letter received from Eshkhat on 8 August 2019</p>	<p>In order to focus on product design, three main concepts were taken into account that came about during the feasibility study. First, it is important that the product provides an important cover for Tajik farmers. Second, it must be easily offered by Bank Eshkhat. Finally, it should be able to be managed effectively by Eshkhat Sugurta, with the assistance of a reinsurer.</p> <p>The next step was to attain additional information by researching the demand, and assessing the supply and regulations. Therefore, demand research was conducted to understand the risks of farmers, their current coping mechanisms and the risk management gaps they face.</p> <p>Next, a quick review of supply and regulations was also conducted to identify issues for product development and distribution. The distributor of the insurance (at least at first) was given as Bank Eshkhat.</p> <p>After the assessment, two core issues were identified. First, Eshkhat Sugurta was structured effectively for the delivery and servicing of short-term, low-risk insurance products, but not for the specific requirements of agriculture insurance. Additionally, there is no existing agriculture loss adjustment in Tajikistan that could reasonably address agriculture losses (for a non-index-based cover). These issues forced consideration of both an evolutionary process allowing Eshkhat to start in 2019 with a basic agriculture insurance, while implementing the preparation for a more client responsive and more technically demanding product in 2020.</p> <p>The approach of taking time to understand the context before designing the product, allowed for multiple benefits. It allowed experience data to be generated and allowed for Eshkhat to start undergoing the</p>

<sup>2</sup> “The normalized difference vegetation index (NDVI) is a simple graphical indicator that can be used to analyze remote sensing measurements, typically, but not necessarily, from a space platform, and assess whether the target being observed contains live green vegetation or not.” (Source (from 05/10/2019): [https://en.wikipedia.org/wiki/Normalized\\_difference\\_vegetation\\_index](https://en.wikipedia.org/wiki/Normalized_difference_vegetation_index))



		<p>operational, technical and informational requirements for agriculture insurance. Lastly, it provided time to develop a team of loss adjusters if required.</p> <p>The product was then designed and presented in early 2019. There was some expressed reluctance towards the product. ESKHATA was particularly concerned with expanding to borrowers with non-irrigated crops, and adding a skilled analyst position.<sup>3</sup></p> <p>The Product Term Sheet is available in Annex 3.1</p>
<p><b>4. Insurance implementation and education of Investee staff.</b> Primary insurer identified, support for operational planning and preparations, reinsurance capacity secured. Assistance in review of relevant agreements with insurer and reinsurer and pilot testing plan. Consultant together with the Investee will choose the most appropriate way of staff education.</p>	<p>Education of Investee staff provided throughout the project.</p> <p>Details regarding the staff capacity building efforts can be found in section 5 of this report.</p>	<p>Recognizing the importance of agriculture risk management skills building for ESKHATA already during the first visit, the consulting team provided a half-day training program for staff on basic components of insurance and microinsurance. After the first field mission during the feasibility phase it became clear that continued and regular staff training would be required in order for ESKHATA to be ready to implement a pilot product. Therefore, ongoing education was conducted throughout the project; this came in many forms, including one-on-one ‘mentoring’ of key staff, as well as half-day and shorter workshops and webinars for management. Plus, a multi-day training on index insurance sponsored by IIF-TAF (with Frankfurt School trainers) was provided.<sup>4</sup></p> <p>Upon conclusion of the feasibility study, ESKHATA management made it clear that they wanted to proceed with product design and set a goal for launching a pilot for the spring cotton season. (See Annex 1.4 for the acceptance letter from ESKHATA.) It was agreed to aim for a pilot during the fall cereals seasons (see Annex 4.9 for relevant notes from call with management).</p> <p>The consulting team began working with ESKHATA on taking steps required for implementation and providing additional training sessions as well as one-on-one guidance. Significant effort was made to link the project with a reinsurer. Ultimately, two reinsurers showed some interest, but of course required projections on clients and premiums to suggest that there would be sufficient volumes to make it worth their efforts. (See Annex 4.8 for a list of the reinsurers contacted and their contact information.)</p> <p>In the end, the team was unable to get expectations of potential client numbers to the reinsurers as ESKHATA decided to terminate the activity.</p>

<sup>3</sup> In general, insurers start out with easier microinsurance products and build to more complex agriculture insurance. This project asked a great deal of ESKHATA SUGURTA in moving from auto and travel covers to agriculture covers. They would be well served to start with some additional easier products and build to various types of agriculture insurance products. Indeed, ESKHATA ultimately recognized the importance of starting with “easier” products that would provide value to their clients and as of October 2019, they are working on developing such products.

<sup>4</sup> It was recognized, seemingly by all, that this Frankfurt School training would have been timed at the very start of the project, even possibly before the signing of the loan agreement with ESKHATA. This would have helped ESKHATA to understand better what they should expect with agriculture insurance and the various types and requirements.

## **PROJECT TERMINATION**

The project was discontinued on 8 August 2019, at the choice of Eskhata Management, through a letter to IIF (see Annex 4.10).

## 2. Feasibility study

The feasibility study (Annexes 1.1-1.3) essentially concluded that agriculture insurance would be both beneficial to Bank Eskhata (BE) and the Tajikistan farmers. However, it was noted in the report that various improvements, sequencing, and human resources development needed to be addressed in order to have a successful result. Some of these conclusions and recommendations are reviewed below, with the benefit of hindsight and with the hope that these are valuable for future considerations of agriculture insurance in Tajikistan and with Bank Eskhata. Comments in *italics* in this section are quoted directly from the feasibility study.

### INSTITUTIONAL OBJECTIVES

*If the insurance is simply to cover the current portfolio and current target markets of BE, there is little need for agricultural insurance at the Bank (p. 9).* There is significant weather risk in Tajikistan, which Eskhata has mitigated among its current clients rather well. It has lending requirements that include multi-cropping to diversify the risk, and it lends only to farmers with irrigated cropland. It has treated agricultural production loans as simply loans to farmers, thus also allowing a variety of uses for the loans. Therefore, for their current client base and under current lending policies, agriculture insurance is of limited utility. It will not particularly increase Eskhata's portfolio value and will not have a dramatic impact on their loan losses due to weather risk events. The only way that agriculture insurance would really add value is if Eskhata would make a significant shift to add rainfed crops, as well as any other currently non-compliant crops, to their portfolio. During the product design phase, multiple discussions were held regarding establishing new lending requirements for rain-fed agriculture, but these were not established. In addition, projections for expanding the portfolio in the selected pilot regions were low, indicating that there was limited interest in reaching new market segments.

**Post-project assessment:** The Consultant understood that the objective of the agriculture insurance product development would focus on a new rainfed market to expand Bank Eskhata's portfolio. Eskhata management remain reluctant to expand its market to these rainfed clients due to their current level of risk tolerance. This may change as they offer a wider range of insurance products to their clients and get more experience in developing, servicing, and managing non-agricultural microinsurance products.

### DATA AVAILABILITY

Limited (reliable) weather and yield data is available in Tajikistan. *Ultimately, TajStat confirmed their interest to collaborate and supply data, which was then collected at the jamoat<sup>5</sup> level from the regional offices (p. 28).* During the data-sourcing phase, the yield data was collected from TajStat for the pilot regions and used to develop the basic portfolio index (see section 3 of this report for more information). In addition, the team was able to outsource data from CelsiusPro's Environmental Monitoring System (EMS) to fill in gaps, and this assisted in the product development and pricing.

The challenges of data availability are exacerbated by the fact that *Tajikistan is characterized by many different agri-climatic zones (p. 9)*, adding further complexity to the quantification of risk. Attempts were made to gather more and better data during each visit of the team to Tajikistan on national, regional, and local levels to varying degrees.

**Post-project assessment:** It will be important that Eskhata work with local data aggregators (like the TajStat and Tajikistan Hydrometeorological Service) to obtain a consistent, detailed, accurate, and timely source of data, as well as access to their historical data.

<sup>5</sup> "The jamoats of Tajikistan are the third-level administrative divisions, similar to communes or municipalities, in the Central Asia country of Tajikistan. There are approximately 405 jamoats of Tajikistan. Each jamoat is further subdivided into villages (or deha or qyshqol)." (Source (5/10/2019): [https://en.wikipedia.org/wiki/Jamoats\\_of\\_Tajikistan](https://en.wikipedia.org/wiki/Jamoats_of_Tajikistan))

## ENABLING ENVIRONMENT

The idea of *agricultural insurance that can mitigate correlated weather risk is new to the Bank and to Tajikistan* (p. 8). Introduction of agricultural insurance products in Tajikistan will require learning, development, and experience for a wide range of stakeholders. This became clearer as the project progressed. These stakeholders include staff and management of Bank Eskhata and Eskhata Sugurta, as well as government officials including those from HydroMet, Ministry of Agriculture, National Bank of Tajikistan, and potential insureds. The lack of index-based agriculture insurance at this point in Tajikistan requires substantial access to all these stakeholders as well as a substantial investment by Eskhata.

**Post-project assessment:** Gathering these stakeholders early in the process is important in helping them to understand why their involvement is critical. There seems to be political will to reach low-income farmers with appropriate insurance products.

The regulatory environment specifically was assessed as feasible, given that certain issues would be addressed. While *agricultural insurance is not explicitly mentioned* in the “Law of the Republic of Tajikistan on Insurance Activity”, the team believes this *falls under the class of “property insurance from damage”*. The *regulator seemed to support* the initiative of developing agricultural insurance products, provided that these products meet regulatory requirements. *The regulator stipulated that agricultural insurance must be offered on a voluntary basis. This can create a problem for lenders relying on microinsurance as a basis for expanding their markets. This issue should be addressed by Eskhata in the future* (p. 23).

**Post-project assessment:** Further discussions are necessary with the regulator. If BE is to expand its portfolio to present in more risky markets, it will be important for them to have the ability to require these new customers to obtain stipulated agricultural insurance, otherwise they would not, and indeed should not, expand to areas of such risk. This would be detrimental to Tajikistan and would hinder the satisfaction of government’s interest in getting financial services to the low-income populations of Tajikistan.

## INSURABLE RISKS AND FARMER NEEDS

In general, the feasibility study showed the need and the likely demand for insurance in certain areas. *Farmers mentioned three key risks that they face: drought, high temperatures and frost...most farmers reported drought and water access issues as their main concerns* (p. 39) *...drought is also the main concern for rain-fed-only crops, in particular in the Khatlon region, where cereals are produced on large cultivated areas without irrigation access* (p 40).

Farmers showed readiness to purchase microinsurance with a few conditions: *despite not having details or knowing the costs of a potential crop insurance product, producers express an interest in such a product. They emphasized that crop insurance would be worth contributing to if the cover matched the risks they experience and if they did not have an increase in loan interest rates...Farmers recognize perils and their impacts, and appeared to welcome a risk transfer mechanism from the private sector* (p. 47).

*Tajik farmers are familiar with insurance concepts but have had poor experience with compulsory Soviet period government insurance...If sold as a portfolio product by the insurer to cover the bank’s portfolio, it will also be important for the Bank to develop a clear policy on claims that they can explain consistently to their borrowers, as such a program must be transparent to clients* (p 46-47). Indeed, the study concluded that a core condition for success would be for *Bank Eskhata to develop a transparent and objective policy for managing the settlements. This policy must include exactly what will happen with the settlement funds* (p 51).

The portfolio index product would work in a way that when the index is triggered, the insurer will need to pay Bank Eskhata based on the liabilities for the area covered by the trigger. Once paid, Bank Eskhata generally has the choice to retain all the funds as an extraordinary gain, apply some of the funds to impacted client loan balances and retain some to cover their own administrative costs, or use all the proceeds to cover outstanding principle and interest due from the impacted farmers. Because

transparency is important in building trust among any insurance clients, Bank Eskhata should be clear on their disbursement policy prior to enacting the cover and informing clients.

**Post-project assessment:** Demand is reasonably clear in the markets where demand research was conducted. However, future implementation will require commitment to transparency and to further seek an understanding of needs and demands of clients. Following the product development process that was presented and discussed with Eskhata staff should help with this.

#### **IMPLEMENTATION FEASIBILITY (INSTITUTIONAL CAPACITY):**

While the human resources capacity of Bank Eskhata was identified and proved to be quite strong for the offering and servicing of microinsurance, the institutional structure of Eskhata Sugurta (ES) is misaligned with the requirements of agriculture insurance (though appropriately aligned for the short-term group products that they currently offer).

*The feasibility study concluded, with their four group products and a total of USD 37,000 in retained premiums, this company will need to alter their structure to some extent to address the needs of agriculture insurance. Therefore, the simplicity of a portfolio product, managed as an index, and substantially reinsured will fit with the current structure of ES. A product and structure as is recommended will offer the insurance company time to build effective skill sets and data infrastructure for agriculture insurance (p 57).*

The draft term sheet for the recommended pilot product is provided in Annex 3.1.

Typically, successful microinsurance programs start out with basic products. In this way, providers learn about the market, improve their efficiencies, get a better understanding of how to provide value to clients, increase internal staff and systems capacity, and *then* move on to the next more complex product, such as agriculture insurance. This reflects the common evolution that we find with insurers. This generally leads to healthy growth and expansion.

At Eskhata Sugurta, the expected evolution was too dramatic. Their portfolio includes very simple, very short term risks, like travel insurance. ES is too many steps away in the evolutionary path for agriculture insurance to be successful without significant inputs including the acquisition of specific new staff.

With any data, one needs to (1) request the right data from the right sources, (2) understand the data and its related analysis, and (3) recognize how to respond to the results of the analysis. The weather and yield analysis required for successful index insurance implementation necessitates substantial data analysis skills (including the ability to get the data). It was strongly recommended that Eskhata hire an appropriate analyst for this array of work. A draft position description was provided to ES for such a position and can be found in Annexes 4.6.i (English) and 4.6.ii (Tajik). The feasibility study noted these issues and several efforts were made to address them throughout the product design phase.

**Post-project assessment:** In offering an insurance product both practically and legally, the presence of an insurer to take the risk is necessary. Given the relationship between the insurance company and the bank, the team automatically focused the insurance components of the project on Eshkhat Sugurta. In order to build knowledge for the introduction of index insurance, the team (and the IIF-TAF through the Frankfurt School) provided a great deal of capacity building during the project (discussed in Section 5 of this report). The hiring of a data analyst for the insurer was strongly pushed. The Bank Eshkhat staff did seem to benefit from trainings related to their role in insurance delivery. Additional hiring of the analyst, data acquisition, and claims management requirements were discussed in the feasibility study.

Bank Eshkhat explored the option of working with other insurers besides its sister company. However, it was reported that there was no interest from other insurers to do agriculture insurance business together.

Because of the limited capacity of ES, coupled with strong pressure to at least have a pilot product for 2019, the Consultant team developed a very basic product that required virtually no effort on the part of the insurer, and little effort on the part of the Bank. *The simplicity of a portfolio product, a satellite-based vegetative index portfolio insurance seems the most feasible solution for Eshkhat in the short-term due to time and data constraints, as well as the lack of operational readiness for loss adjustment (p. 50).* It was thought that at least there could be some operational lessons from this product that could facilitate much better products for following years. At the same time, this pilot was recognized as likely to contribute few lessons to a follow-up product other than simply getting Eshkhat started.

Eshkhat decided that they wanted to take a more gradual approach to microinsurance and thus cancelled the efforts towards agriculture insurance in favor of developing other retain microinsurance products first.

## OVERALL FEASIBILITY CONCLUSIONS

The feasibility study concludes, *Based on the data observed, an assessment of Bank Eshkhat and Eshkhat Sugurta, discussions with management and staff, and interviews with leaders of NGOs and government agencies (where that was possible), the team recommends a vegetative index portfolio cover for Bank Eshkhat disbursed for rain-fed agricultural activities during the 2019 agriculture year in the pilot raions of Shahrinaw and Shahrison (p. 58).* This approach was agreed by Bank Eshkhat, and was the focus of the data sourcing, product design, and training activities in the remaining phases of the project. These efforts were continued right until Eshkhat management decided to shift their focus.<sup>6</sup>

Generally, successful microinsurance requires an appropriate environment in which to flourish. There are four market components that necessarily must be evident. These include: a facilitating regulatory environment; active, committed, and capable insurers; effective distribution; and likely market demand. In Tajikistan, these components are explored in Table 2, from the lens of the feasibility study as well as the activities conducted during the following phases.

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<sup>6</sup> Subsequent event: outside of the project, the technical assistance team has continued to offer limited assistance after the project was terminated to help Eshkhat to develop and implement less complex microinsurance products.

Table 2. Status and needs for successful microinsurance in Tajikistan with Eshkhat

Component	Status	Needs	Score (1-10, 5=sufficient, 10=great)
<b>Regulations and public infrastructure</b>	No specific regulations for microinsurance or for index insurance	The regulator should learn more about the needs of agriculture and how it works in practice prior to regulating. Some jurisdictions use “regulatory sandboxes” for such controlled learning.	4
	Insurance regulations do not allow financial institutions to require clients to purchase insurance products.	Efforts are required by Eshkhat to get the regulator to allow credit linked insurance requirements for agricultural loans.	
	Limited data accessible	The government should provide broader access to weather and yield data for all who could provide benefits to Tajik farmers. They should also work on improving data collection infrastructure.	
	Access to government officials is challenging	Development of financial inclusion policy with requirements for officials to assist the private sector	
	In principle, officials seem interested in expanding risk management services to low income farmers	Formalize this interest by codifying a financial inclusion policy	
<b>Insurer (ES)</b>	Institutional structure was not aligned for agriculture insurance	Hire appropriately skilled staff (at least an analyst) or build the ability of current staff over several years	2
	Skill set gap in data analysis is evident at ES	Hire personnel with appropriate skill sets for agricultural insurance	
	Current strategy does not reflect agricultural insurance	Follow the strategy and do not make large moves away from that since infrastructure, capacity and other requirements will not be available unless it is part of the strategy.	
<b>Distribution (BE)</b>	BE has a strong infrastructure		6
	Strong management and staff	More training on ag insurance servicing	
	Reluctant to expand into new areas of agriculture lending	Need to decide on a strategy for growth	
<b>Demand</b>	Certainly need is present	Improved demand research amongst potential agricultural policyholders	5
	Limited insurance understanding in market		
	Seemingly fair potential market size		

**Post-project assessment:** This basic assessment of the fundamentals for successful microinsurance shows that in Tajikistan, the main missing component is that of the insurance company. Additionally, some issues with the regulator / supervisor should be addressed soon and could be assisted through the work of the Access to Insurance Initiative.

Several jurisdictions have managed the balance of these four components for the betterment of the low-income populations. Some others are out of balance. Some examples, in Table 3, include:

*Table 3: Examples of component strength in four countries*

	Regulations	Insurers	Distribution	Demand	Comments
Philippines	Focus on facilitating MI	With a facilitative structure they have been more involved	MFI, banks, and mutual benefit associations especially provide massive distribution	Insurers have shown rapid claims payments, excellent service, valued products which increased demand.	38% of the population is covered by MI (Source: Philippines IC)
Ghana	Use of basic sandbox to allow controlled experimentation	Attracted to the market by intermediaries that do all the work	Intermediaries working with mobile network operators (MNOs) have generated millions of low-income insureds	Simplicity of purchase (even free insurance) has provided the opportunity to prove the value of MI	>30% of the total population of Ghana is covered by MI. (Source: MIC@M)
India	In 2001, regulator imposed a high quota system on all insurers to provide cover to “social” and “rural” sectors	Regulatory quota with harsh penalty has gotten insurers involved. Also supported by government subsidies for health and ag insurance	Quota has pushed the use of virtually any possible distribution channel	Very low prices due to national and state subsidies has driven substantial demand.	As early as 2005 India covered over 110 million people with MI as a result primarily of the quota systems and subsidies (source: MIC@M)
Nigeria	Government now requires MI to be sold ONLY by MI Companies (not traditional regulated insurers)	Insurers have been forced out of the market	MNOs charged as much as 60% commissions in insurers for access to MNO clients	Remains substantial, but product is not available	Insurers offering MI in 2014 and 2018 saw a 58% DECLINE in business due to regulations (Source: MIC@M)



### 3. Data sourcing and analysis

#### OVERVIEW OF SOURCED DATA

Given the recommendations of the feasibility study and the subsequent agreement to accept the feasibility study by Eshkata the data sourcing zeroed in on analyzing the available weather and yield data from various sources in order to identify ‘shock’ years and calculate a possible index. The three main types of data analyzed are outlined in Table 4 and described in the following sections.

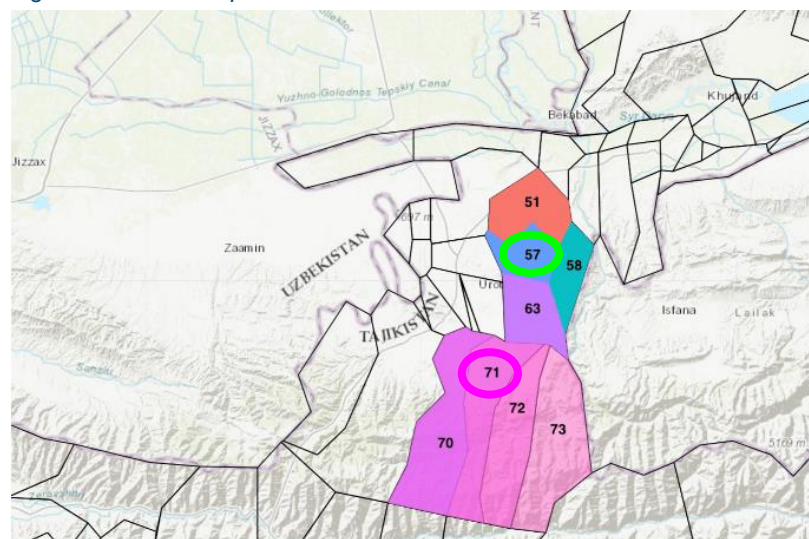
Table 4. Data sources analyzed during Phase 2

Data type	Source	Purpose
<b>Weather data (NDVI and Rainfall)</b>	Remote sensing <sup>7</sup> data accessed via Celsius Pro’s Environmental Monitoring System (EMS)	Data analysis for trends, aggregation level options and identification of potential index variables, trigger values and other features.
<b>Yield and agronomic data</b>	Tajikistan Statistics Agency (TajStat) – Ghonchi district office; focus group discussions with farmers; local agronomists and Eshkata branch staff; existing literature	Identify production and yield trends, geographical specificities within district, and poor historical yield years. Support weather data analysis and interpretation. Identify relevant periods on which to focus the weather data analysis. Develop financial projections with Eshkata.
<b>Household economic data</b>	Eshkata branch office; focus group discussions with farmers	Identify the value proposition for farmers – coverage amounts

#### Remote sensing data – rainfall and NDVI

Eshkata Bank decided to look into the insurance option for the Ghonchi district (historically called Devashtich). Remote sensing data from CelsiusPro’s EMS platform was downloaded for several levels of aggregation in Ghonchi: the pixel data points as well as the district and jamoat level data from the platform (). Both rainfall (CHIRPS) and NDVI data were downloaded in order to determine which of the two variables, or some combination of the two, is better suited to serve as the index.

Figure 2: Jamoat map for Ghonchi district



(Source: EMS CelsiusPro Platform)

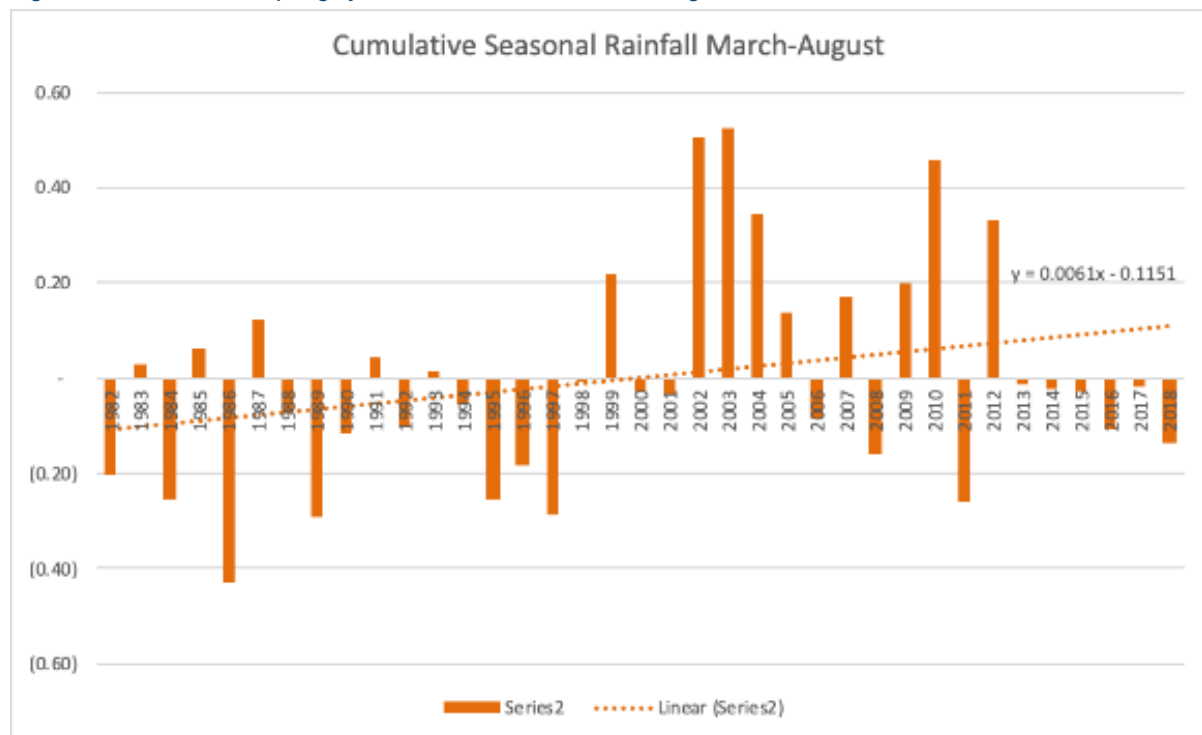
8 villages with distinct agronomic and exposure profiles

Jamoat #	Jamoat Name
51	Yakhtan
57	Ghazantarak
58	Mujun
63	Ghonchi Town
70	Dalyoni Bolo
71	Simoni
72	Rosrovut
73	Vahdat

<sup>7</sup> “Remote sensing is the science of obtaining information about objects or areas from a distance, typically from aircraft or satellites.” Source (5/10/2019): <https://oceanservice.noaa.gov/facts/remotesensing.html>

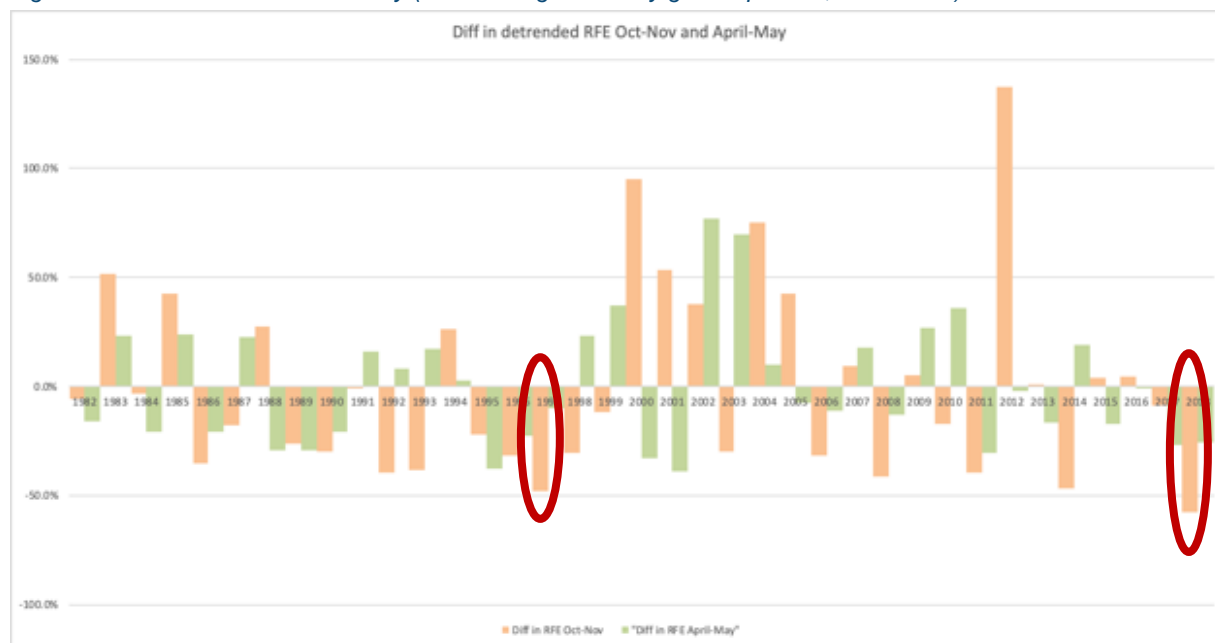
**Rainfall.** The CHIRPS<sup>8</sup> daily rainfall estimates were cumulated over the two crop cycles (winter and spring) for cereals over the time period 1981 to 2018. The total rainfall and the most crucial rainfall months were analyzed for the two key periods (October-November and April-May, as identified by the agronomists and farmers). Figure shows the historical cumulated rainfall anomaly (as % from average) for the spring crop cycle, for one specific jamoat. For each jamoat, the rainfall data was then detrended (in a simplistic way) to assess the number of bad years and the deficit of rainfall to identify drought years. Figure shows the yearly variation from average rainfall during the two key seasons. Years with larger negative variations (such as 1997 or 2018) would be considered as ‘shock’ or drought years, which should trigger a payout.

Figure 3. Ghonchi town spring cycle rainfall variation from average



<sup>8</sup> CHIRPS was created in collaboration with scientists at the USGS Earth Resources Observation and Science (EROS) Center in order to deliver complete, reliable, up-to-date data sets for a number of early warning objectives, like trend analysis and seasonal drought monitoring. (Source (5/10/2019): <https://www.chc.ucsb.edu/data/chirps>)

Figure 4. Cumulative rainfall anomaly (% of average for 2 key growth periods, 1992-2018)



This analysis was conducted at the jamoat level, as per information from a local agronomist as well as the input of both farmers and Eshkata’s branch staff, the district has two zones:

- the Southernmost is located at the foothills of a mountain range and is cooler and receives more precipitation;
- the Northernmost is drier, very flat, and has more rainfall variability.

The data indeed showed significant trends and confirmed differences between North and South Ghonchi.

**Normalized Difference Vegetation Index (NDVI).** NDVI data from the EMS was analyzed based on the end of the crop cycle and the harvest time (May to August for both cycles) for the available years, 2002 – 2018. The NDVI was analyzed in particular for the months of June and July for both Northern Ghonchi for Southern Ghonchi at the jamoat level (considering the different climatic patterns mentioned above), and cumulatively over the crop cycle periods. Figure shows the cumulative historical figures for June for Ghzantarak Jamoat; worst shock years could be identified as 2003 and 2010.

The NDVI cumulative values for the month of June were then compared with the bad years that were identified by qualitative input from farmers, in order to triangulate. This did not result in a compelling correlation, as discussed in the next section on data sourcing issues.

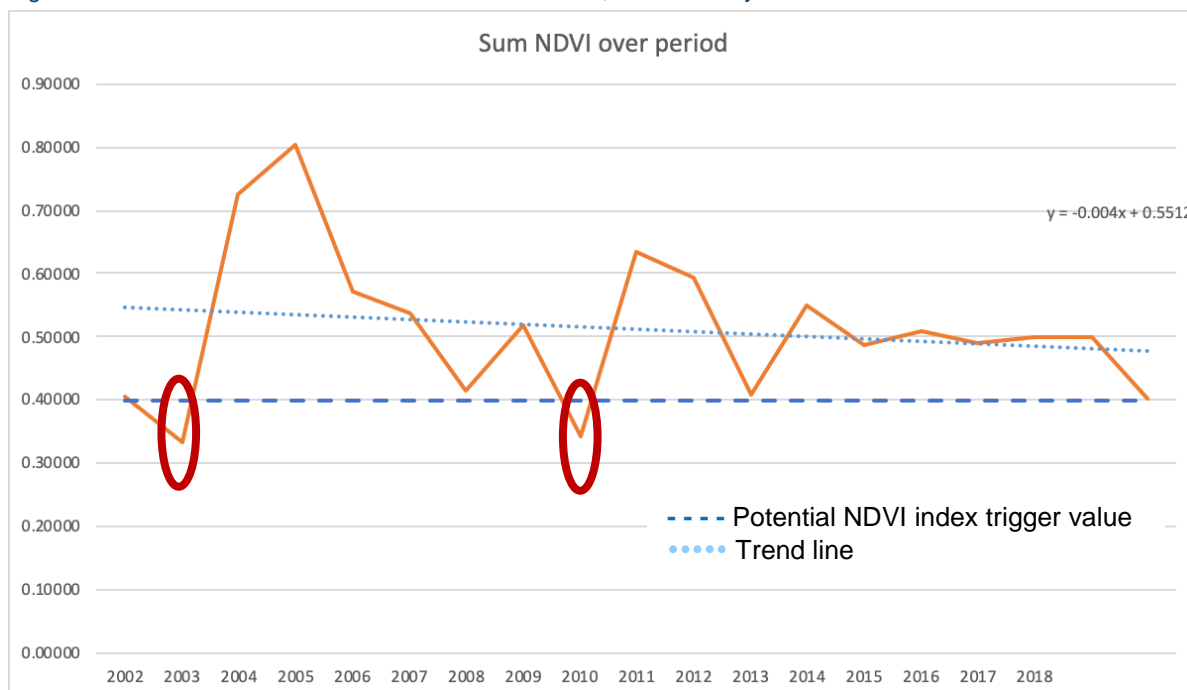
### Yield and agronomic data

**Yield data.** The rainfed crops grown in the regions and considered for new loan introduction along with insurance were cereals: wheat and barley. They are grown both during a winter cycle (October - May) and a spring cycle (March - August).

The Tajik statistics agency requires each farm to report their production for each crop. Data is submitted on paper to the district office and compiled locally, with availability only back until 1997. This farm-level data was collected from the TajStat office in Ghonchi town; it was provided in an Excel format with inconsistencies from year to year.

The yield data initially shared was aggregated between crops and in other tables shared by the agency, between crop cycles.

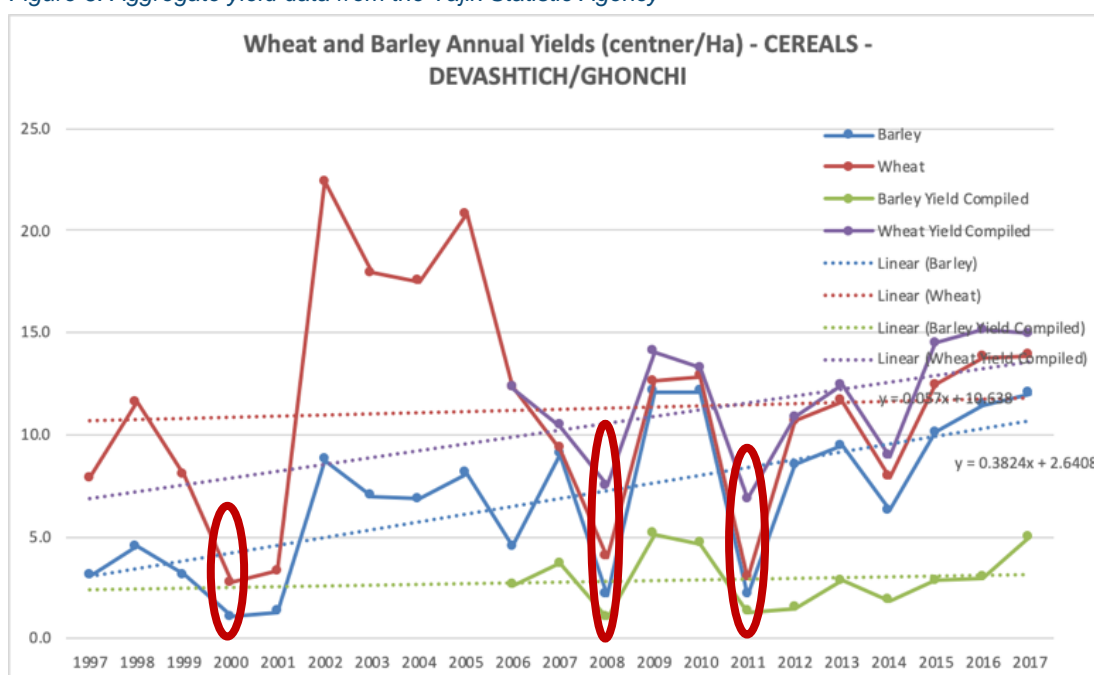
Figure 5. Cumulative NDVI values for the month of June, Ghzantarak jamoat



In order to calibrate the TajStat data, the team asked three groups of farmers for their input. This qualitative input (only a small sample), included bad years as per farmers' recollection (ranking of bad years) and sample yield levels. It has to be noted that this information came from late (during the design phase) farmers' interaction as no demand research was conducted in Ghonchi in September 2018, during the feasibility study demand research field mission. It was after the agreement of the Feasibility Study that Eshkata determined that Ghonchi should be the pilot region.

The revised yield data was analyzed on a cumulative basis to identify low-yield "shock" years. Figure shows the resulting annual yields, with low years in 2000, 2008, and 2011.

Figure 6. Aggregate yield data from the Tajik Statistic Agency



**Agronomic data.** The team collected other agronomic information through interviews in Ghonchi, Khujand and the rural branches. Agronomists confirmed crop cycle dates, soil and production differences by jamoat, cereals varieties, and main production risks. These had to be taken into account for data analysis and interpretation.

#### Household economics data

In order to assess the potential for loan and insurance product features, the branch staff provided information on the crop cycles' budget and margins. The production costs for cereals were assessed at around TJS 2000 - 3000 (USD 200-300)<sup>9</sup>. Also collected in this manner were detailed numbers of hectares of unirrigated cereal production in the district, for each jamoat. Branch staff shared some figures by jamoat in order to develop some financial projections for Eskhata Bank.

### REVIEW OF THE KEY DATA SOURCING ISSUES

Historical yield data quality proved insufficient to be used for the prototype design. In particular, there was no visible correlation with bad rainfall years. It was then uncovered that the government taxed farmers for several years from 2009 to 2015. It led farmers to under-report their yields during these years. The data from TajStat was thus unreliable and could not be used for calibration or verification purposes for index development. Furthermore, no formal, standardized crop-cutting experiments are known to have been conducted in Tajikistan to complement the farm reporting – which could have been considered as an alternative source of data. Thus, in order to identify the worst years, we relied on the qualitative input from farmers and agronomists, but no calibration of the proposed indexes could be undertaken.

**No verification on the ground.** The remote sensing data from the EMS is the only currently available source of rainfall data. No other ground data was available, as no weather station is installed in the Ghonchi district (the closest one is in Istaravshan, a district bordering northwest Ghonchi). The Tajik meteorological agency was consulted in April 2019 to identify other options, but access to data was not granted other than by recruiting an agency staff to conduct some analysis. However as mentioned in the feasibility study, there is an on-going project of the World Bank to automate weather stations and centralize data, which could be leveraged in any future efforts to develop index insurance.

**Heterogeneity in varieties of cereals grown and harvesting dates.** Considering the differences reported by the local agronomists, further analysis would have been done to finalize the index features (triggers and cumulative calculation periods) and tailor them better for each jamoat.

### RECOMMENDATIONS FOR NEXT STEPS REGARDING DATA SOURCING

The following key actions regarding data sourcing are recommended if and when agriculture insurance development is re-started in Tajikistan:

1. Eskhata should remain aware of the continuing progress made in the World Bank project to enhance data collection and availability with the Tajik HydroMet. This project is intended to result in the provision of regular access to current weather data.
2. To implement agriculture insurance, it's important to compare satellite data to ground-level data to thoroughly understand local weather trends.
3. Explore the soil moisture option for index design, with Swiss Re and remote-sensing modelers<sup>10</sup>
4. Finalize the data collection list provided during the project and initiate discussions with local statistical office to collect raw farm-level production yield data

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<sup>9</sup> USD 1 = TJS 9.63 at 30 Sept 2019 (Source 5/10/2019):

<https://www1.oanda.com/currency/converter/>) rounded by the authors to USD 1 = TJS 10)

<sup>10</sup> This option was discovered late in the process as reinsurers were being contacted. Marcel Andreas of Swiss Re (contacts in Appendix XB) noted that they had been testing soil moisture measurements in nearby countries and that this might be a possibility for Tajikistan. This option was not followed up as they needed to see a commitment to long-term business from Eskhata.

5. Lobby for the Tajikistan National Association of Insurance Companies<sup>11</sup> to work with government to improve availability, accuracy, and analysis of agricultural data.
6. Assess historical water availability with relevant water and irrigation government agencies (for historical drought severity assessment and identification)
7. Explore additional remote-sensing datasets (from European agencies for example)

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<sup>11</sup> “In February 2019, the National Bank of Tajikistan announced the creation of the National Association of Insurance Companies, which will support the development of insurance activity in the country.” Source (30 Sept 2019): <https://www.xprimm.com/TAJIKISTAN-National-Association-of-Insurance-Companies-created-articol-2,12,49-13139.htm>

## 4. Product design

### ABOUT THE PROPOSED PRODUCT

#### Index characteristics

Farmers and agronomists reported that a “good” harvest required precipitation in October, November, April and May. Thus, the combined cumulative rainfall estimate (RFE) data during these key months and NDVI toward the end of cycle were used to define the prototype index.

Historical rainfall deficit information for these periods and the identification of bad years were used to define the triggers. Several scenarios were tested and costs assessed for two jamoats: I Somoni (in Southern Ghonchi) and Ghazantarak (North of Ghonchi Town). Retained scenarios shown in Table 5 were used to assess risk premium in Ghonchi and inform Eshkhat Bank of the cost of a drought index cover for each jamoat. The rainfall triggers indicated were expressed in percentage terms (as the difference from average) instead of millimeters of rain for simplicity of presentation to Eshkhat.

Table 5. Prototype index characteristics – I Somoni and Ghazantarak

Index characteristics – I Somoni			
	NDVI June (value)	RFE Oct-Nov (diff from average)	RFE April-May (diff from average)
<b>Trigger</b>	0.6	-35%	-25%
<b>Exit</b>	0.5999	-40%	-35%
<b>Weight</b>	50%	20%	50%

Index characteristics - Gazantarak			
	NDVI June (value)	RFE Oct-Nov (diff from average)	RFE April-May (diff from average)
<b>Trigger</b>	0.45	-45%	-30%
<b>Exit</b>	0.3	-50%	-40%
<b>Weight</b>	50%	20%	40%

#### Product features (term sheet)

Table 6 below is the latest summarized term sheet shared with Eshkhat Bank for discussion. It explains and presents a brief overview of the product (including process information).

Table 6. Prototype term sheet discussed with Eshkhat Bank in May 2019

PROTOTYPE PRODUCT FEATURES		
<b>Coverage</b>	Type of crop	<ul style="list-style-type: none"> <li>Rain-fed Barley in Ghonchi (Sub-branch)</li> <li>Rain-fed Barley and Wheat Kalininabad (Sub-branch)</li> </ul>
	Risks covered	Catastrophic crop losses (indicative example: more than 50% lower than average yield) as measured by a vegetative index and based on rainfall estimates. (See Table 5 for further details.)
	Regions	Ghonchi – two sub-branches: Ghonchi and Kalininabad
<b>Benefits</b>	Sum insured	Outstanding loan balance (sum of outstanding principle and interest of clients’ rainfed crop components at the date that the index is deemed to have exceeded the set threshold.)
	Payout schedule	Payment to Bank Eshkhat within 10 days of triggering
<b>Eligibility</b>	Policyholder insured	Bank Eshkhat
	Portion of portfolio eligible for coverage	<ul style="list-style-type: none"> <li>Loans made for purpose of wheat and barley production on rainfed lands only in Kalininabad</li> <li>Loans made for purpose of barley production on rainfed lands only in Ghonchi</li> </ul>

<b>Mechanism</b>	Index	Combination of vegetative index (NDVI) and rainfall estimates (satellite)
	Trigger	Rainfall deficit over Oct-Nov (-35%) Rainfall deficit over April-May (-25%) June cumulative (0.6)
<b>Premiums</b>	Insurance rate	% of sum insured <ul style="list-style-type: none"> <li>Ghonchi 9% plus est. 25% loading (zone 1)</li> <li>Kalininabad 12% plus est. 25% loading (zone 2)</li> </ul>
	Payor	Bank Eshkata would pay the first year portfolio insurance premium from its retained earnings
<b>Limitations &amp; exclusions</b>	Risks excluded	Only covers deficit rainfall with rain-fed crops as defined above
	Deductible	Losses of 15% or less of the total potential benefit will be treated as a deductible and will not be paid
<b>Enrolment</b>	Sales window	September
	Beneficiary education	Basic education on insurance, cover, index, claims
	Process and required documentation	Automatic with loan disbursement for rain-fed portion of loan from the Ghonchi / Kalininabad sub-branches
	Documentation	Normal loan application, loan officers will need to distinguish between irrigated and rain-fed areas in hectares so Eshkata can be clear about its rain-fed coverage.
<b>Term</b>	Insurance period	March to September
<b>Claims</b>	Frequency	Expected once in 6-8 years
	Settlement to clients	Based on claims policy of Bank Eshkata (to be developed). Eshkata needs to determine by policy how much of the index settlement will be used for the reduction of loan balances for their affected borrowers.

As mentioned above, several options and combinations were considered. Several iterations including comparing cost of cover to benefits were discussed with the management of Eshkata Bank. Discussions included options for cover as a percentage of the loan amount to be applied to client balances (full cover 100% vs. 50% for example) and qualifying franchise (not paying losses of less than 15% of the total possible coverage).

### Implications for premiums

As rainfall patterns and exposure differs by jamoat (and in particular between the North and the South of Ghonchi district), we assessed the cost of cover (premium) for two jamoats: Gazantarak (North Ghonchi) and I Somoni (South Ghonchi). The other jamoats were expected to have similar exposure and thus cost of cover by zone would be the same. Assuming a 25% loading, for example, the risk premium rates and the gross premium rates (as a percentage of the loan borrowed for covered lands) for the scenario in Table 5 (above) are shown below in Table 7.

Table 7. Indicative risk and gross premiums – I Somoni and Gazantarak

Jamoat	Cover	Risk Premium	Loaded Premium
<b>I Somoni</b>	100%	10.2%	13.7%
	75%	7.7%	10.2%
<b>Gazantarak</b>	100%	15.7%	21.0%
	75%	11.8%	15.7%

### PRODUCT LIMITATIONS DISCUSSED WITH ESKHATA

A drought cover in Ghonchi (especially Northern Ghonchi) is expensive as it is quite an exposed area. It would be advisable to include risk mitigation measures for farmers (drought-resistant seeds and



crops, improved techniques, and long-term weather predictions for example) along with the introduction of the drought insurance.

When considering interest rates paid by borrowing farmers (26% is the interest rate cap set by the government and thus the rate used by Eshkhat) there is a concern that in the future (after the pilot) interest rates plus insurance costs paid by borrowers may create too much of a challenge for the potential income of the farmers.

The proposed prototype had additional limitations that were conveyed to the Eshkhat Bank team, including:

- Other risks (for example high temperatures and frost, mentioned in the section on insurable risks above) are not captured; mostly drought would be detected with this index design
- Lower intensity events are excluded, because losses of 15% or less of otherwise qualifying claims would not be covered as these would be too expensive for Eshkhat to service.
- Data limitations, as discussed in section 3 on data sourcing (lack of yield and ground data to calibrate and verify design, heterogeneity of crop calendars), need to be addressed by ES (their proposed analyst) and the National Association of Insurance Companies, in coordination with TajStat.

## 5. Education of Investee staff and insurance implementation

### IMPLEMENTATION AT ESKHATA

As noted in sections 1 and 2, continued training at Eskhata is necessary. This was identified early on in the feasibility study phase, and steps were taken to build up knowledge of agriculture insurance implementation both from the perspective of the Bank and the Insurance Company throughout the project, and through a number of methods. Figure 2 shows some of the key training activities conducted with the staff and management of the two companies.

Figure 2. Training and guidance approaches and activities



## PILOT TESTING

Pilot testing is a critical component of product development. It allows one to test, on a limited and controlled basis, the results of the demand research on clients who are actually paying for cover. This way the institution can learn lessons around market interest in the product, process for managing the product, and how staff and stakeholders effectively interact with clients.

- . Several efforts were made to prepare the pilot test, including:
  - Discussed the process one-on-one with the project manager
  - Included a brief on piloting in an Eshkata staff training (Annex 4.4)
  - Provided a detailed template for managing the steps of the pilot
  - Provided the book “Microinsurance Product Development for Microfinance Providers” which includes an extensive plan and process for pilot testing microinsurance.
  - Coaching on financial projections development
  - Provided a set of templates for use by the project manager to help in accomplishing the steps to pilot testing
  - Developed and shared a detailed work plan for the pilot test
  - Provided guidance throughout the process until progress terminated

## REINSURANCE

A key concern expressed by Eshkata Sugurta throughout the project was the ability to secure reinsurance. In the jointly agreed work plan between the Consultant, Bank Eshkata, and Eshkata Sugurta, efforts were made during the product design phase to begin discussions with reinsurers. Getting buy-in from a potential reinsurer during the product design phase was necessary in order to ensure a product was designed that would be re-insurable.

The Consultants contacted several reinsurers and reinsurance brokers active in the region, including contacts available from the Consultant, the IIF-TAF, and the Investee. Reinsurers and their contacts are noted in Annex 4.8.

Additional reinsurers that were identified but not contacted, and may wish to be explored for any future efforts include: Paris Re, Liberty, and Qatar Re.

Two key issues emerged from the conversations with reinsurers. The first was that there was a lack of financial projections, which made it difficult for them to assess the business case. From the numbers that were shared, it was also clear that the pilot was very small scale, and without financial projections for subsequent years to show Eshkata’s intended growth for the insurance (or even a commitment from Eshkata management to expansion in years after the pilot), there was little content to convince reinsurers that it was worth their efforts to continue until such decisions were made by Eshkata.

## 6. Future success

Several additional product options were considered by the team for Bank Eshkata. The briefly annotated options provided in the feasibility report (and reproduced here in Table 8) remain potential products for the future in Tajikistan given changes as suggested above.

Table 8. Product options for Bank Eshkata for 2020 and beyond

Potential Product	Loss adjustment requirements	Market	Needs
<b>Vegetative Index</b>	Not required	Rain-fed production, irrigation failures, temperature stressed, other	The viability of the product will depend on the correlation to crop growth and its ability to identify catastrophic (less than 50 yield average) seasons
<b>Hail (named-peril product)</b>	Hail damage must be reported by the producer and assessed	Regions identified by surveys of the state emergency committee	Damage reports at raion levels would need to be collected and analysed
<b>Frost and freeze damage to flowers and buds of fruit trees (named-peril product)</b>	Damaged must be assessed in the days following a freeze. Damage from freezes depends on the development state of the fruit crop.	Mostly northern Tajikistan, producers working in a value chain oriented on the export of dried fruits	The killing temperature (the temperature that buds can withstand for a half-hour) needs to be defined, and products offered within 20 km of a hydrometeorological station.
<b>Yield product (multi-peril product). Triggers when yields are less than 70% of 5-year average.</b>	Assessment of insured events requires trained and certified loss adjustment staff	Modern cotton gins that have "tight" value chain management and verifiable data from each producer	Countrywide.

**Post-project assessment:** Successful implementation of these options requires the following for all or some:

Insurer with the abilities to develop, underwrite (with a reinsurer), and service agriculture insurance

For some products, agriculture loss adjustment services which are non-existent in Tajikistan and would need to be developed.

Regular and unimpeded access to accurate weather and yield data for risk quantification requires a close relationship with Hydromet, TajStat, and others, as well as strong capacity for analysis of this data.

## Annexes

### 1. FEASIBILITY STUDY

1. Paper (English)
2. Appendices (English)
3. Paper (Tajik)
4. Approval by Eshkhat Bank

### 2. DATA SOURCING

1. Data request – Hydromet, TajStat, Eshkhat

### 3. PRODUCT DESIGN

1. Product term sheet (as presented to management, slides 15 and 16)

### 4. IMPLEMENTATION / EDUCATION OF INVESTEE STAFF

1. (Agriculture) insurance 'basic training' presentation
2. Management webinar on product design and pilot testing progress
  - i. English
  - ii. Tajik
3. Presentation for Eshkhat to use with NBT
4. Pilot testing presentation
5. MIS-IT team presentation
6. Data analyst job description
  - i. English
  - ii. Tajik
7. Work plan (MIC@M, Bank Eshkhat, Eshkhat Sugurta)
8. Reinsurance contact list
9. Key call notes / decision point
10. Letter of discontinuance from Eshkhat

## Annex 1.4: Bank Eskhata approval of feasibility study and its recommendations



**БОНКИ ЭСХАТА**

Соа. № 541/134, аз « 10 » 01 2019 с.

Ба № \_\_\_\_\_, аз « \_\_\_\_\_ » \_\_\_\_\_ 20 \_\_\_\_\_ с.

To Celsius Pro account Manager Joël Durand;  
To the Principal and Managing Director  
of MIC@M – Michael McCord

Bank Eskhata OJSC would like to thank you for such a high-quality work on the feasibility study, for your commitment of professional understanding and advising on the implementation of new knowledge and innovations at Eskhata.

We have read the results of the feasibility study and acknowledge the concepts presented in the report. We would like to process further the steps in the project of agricultural insurance.

As you know, insurance companies and banks do not have much experience in providing insurance services, especially agricultural insurance. We would like to get a little more knowledge about how it works and what steps to take for the success of the project. The report was clear and simple to understand. The technique of using satellite technology is very interesting for us. It will be very interesting for us to see in practice the process of the use of NDVI.

Our task was to choose the region for the pilot test of the dry-land agriculture. It seems that the presentation of NDVI makes sense in expanding the OJCS Bank Eskhata portfolio in the financing of dry-land agriculture. Farmers in fact do grow crops in non-irrigated fields, especially cereals. At the same time, the bank looks into lending for the non-irrigated agriculture and be sure that certain weather risks are covered by the insurance policies. There is a potential in growing the portfolio in non-irrigated arable land. The region we present is Devashtich (former Ghonchi). Since the majority portion of the cereals (Wheat and Barley) is planted during fall period, we wanted an alternative crop which is planted during spring.

OJSC “Bank Eskhata” would recommend the agricultural insurance for Cotton during the production season of 2019 for the pilot test. We have analyzed the possibilities in growing the portfolio in cotton production for the region of

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РМА 510004229, РЯМ 5110001371

002365

J.Rasullov. We have an experience in lending for the cotton producing farmers, both individually and on the corporate level. We have mentioned this crop several times; we see the importance of this certain crop for several reasons. Cotton is a strategic crop in Republic of Tajikistan. Eshkata Bank has significant plans to finance cotton producing farmers throughout the country. There is a potential in growing the portfolio by being competitive among the MFIs and the cotton gins which actively provide financial and material support to the farmers with appropriate conditions. We are open to receive the feedback in the possibilities in providing such insurance products in the production of the cotton in the irrigated lands. Thus the pilot region for cotton is chosen to be J.Rasulov rayon.

In the future, we would like to work on several projects given in the feasibility study report. Our main concern for now is to launch the index insurance for the irrigated and non-irrigated crops. Other recommendations from the feasibility study are also taken into consideration in future implementation possibilities. The climate risks in the regions vary, and there are certainties that could be minimized via introduction of the agricultural insurance.

The implementation process is subject to the close collaboration of both the project implementation team from the bank and the insurance company with the consultants' team. We would like to recommend consultants to visit often in the implementation process, because the experience of the team of consultants could lead to an effective collaboration for the success of the Agricultural insurance in OJSC Bank Eshkata, LLC Eshkata Sughurta, and in Tajikistan as a whole.

Sincerely,  
Acting CEO



Kosimov Sh.M.

## Annex 3: Pilot test product term sheet

### Vegetative index portfolio cover Barley and Wheat - winter season 2019

#### PILOT PRODUCT TERM SHEET

<b>Coverage</b>	Type of crop	<ul style="list-style-type: none"> <li>• Rain-fed Barley in Ghonchi (Sub-branch)</li> <li>• Rain-fed Barley and Wheat Kalininabad (Sub-branch)</li> </ul>
	Risks covered	Catastrophic crop losses (indicative example: more than 50% lower than average yield) as measured by a vegetative index and based on rainfall estimates
	Regions	Ghonchi – two sub-branches: Ghonchi and Kalininabad
<b>Benefits</b>	Sum insured	Outstanding loan balance (sum of outstanding principle and interest of clients' rainfed crop components at date of triggering (?))
	Payout schedule	Payment to Bank Eshkhat within 10 days of triggering
<b>Eligibility</b>	Policyholder insured	Bank Eshkhat
	Portion of portfolio eligible for coverage	<ul style="list-style-type: none"> <li>• Loans made for purpose of wheat and barley production on rainfed lands only in Kalininabad</li> <li>• Loans made for purpose of barley production on rainfed lands only in Ghonchi</li> </ul>
<b>Mechanism</b>	Index	Combination of vegetative index (NDVI) and rainfall estimates (satellite)
	Trigger	Rainfall deficit over Oct-Nov (-35%) Rainfall deficit over April-May (-25%) June cumulative (0.6 )
<b>Premiums</b>	Insurance rate	% of sum insured <ul style="list-style-type: none"> <li>• Ghonchi 9% plus est. 25% loading (zone 1)</li> <li>• Kalininabad 12% plus est. 25% loading (zone 2)</li> </ul>
	Payor	Bank Eshkhat (premium not directly passed to borrowers)
<b>Limitations &amp; exclusions</b>	Risks excluded	Only covers deficit rainfall with rain-fed crops as defined above
	Deductible	Qualifying franchise of 15%
<b>Enrolment</b>	Sales window	September
	Beneficiary education	Basic education on insurance, cover, index, claims
	Process and required documentation	Automatic with loan disbursement for rain-fed portion of loan from the Ghonchi / Kalininabad sub-branches
	Documentation	Normal loan application, particular care with rain-fed component value
<b>Term</b>	Insurance period	September – July
<b>Claims</b>	Frequency	Main payout expected once in 6-8 years
	Settlement to clients	Based on claims policy of Bank Eshkhat

#### 2019 Classification of communities within pilot area

Rayon	Jamoat	Zone
Ghonchi (Devashtich)	Yakhtan	1
	Ghazantarak	1
	Mujun	1
	Ghonchi town	1
	Dalyoni bolo	2
	I.Somoni	2
	Rosrovut	2
	Vahdat	2



## Annex 4.6.i: Analyst position description - English

**JOB TITLE:** Mid-level Agriculture Insurance Research Analyst

**POSITION OBJECTIVE:** The Agriculture Insurance Research Analyst is responsible for obtaining and analyzing agricultural as well as client experience data for the management and development of a wide range of agriculture insurance products for ESKHATA Insurance in Tajikistan.

**REPORTS TO:** Executive Director, ESKHATA Insurance

### DUTIES and RESPONSIBILITIES

- Identify required data, and sources necessary and helpful to the development and on-going management of agriculture insurance products
- Develop strong and collegial relationships with data providers such as the Tajik HydroMet, Tajikistan Ministry of Agriculture, donors and NGOs, international data providers and any and all others that can provide various agriculture data for regions throughout Tajikistan.
- Develop and manage a system within ESKHATA to aggregate, track, and analyze the data obtained for the ultimate use of tracking product risks and developing new products based on relevant and quantitative data.
- Working with ESKHATA Bank (and potentially other distribution partners) identify experience data required and assist with implementation and regular production of appropriate data for analysis.
- Generate regular, easy-to-interpret reports based on collected and analyzed data. These reports will include spatial representations as appropriate of current and potential market areas.
- Research and analyze product data and feedback from customers, underwriting, business development, and partners/prospects to support the ongoing development of enhancements to improve value for clients
- Execute research to support a rationale for product development and to develop intelligence about industry trends.
- Research, develop & implement best process strategies for the analysis of pilot tests and rolled out products.
- Develop expertise on other products in the marketplace
- Provide guidance and direction to internal managers, including actuarial, underwriting, claims, and business development for developing new products and managing the life cycle of existing products
- Conduct analysis of competitor's products, features, pricing and other information.
- Provide ongoing technical support and product customization for existing portfolio of products
- Other duties as assigned.

### EDUCATION and EXPERIENCE

- Bachelor's degree (or preferably a specialist degree) in an area that includes strong mathematics skills
- High-level math skills and the ability to translate mathematical information into concise reports.
- Knowledge of the insurance market in Tajikistan
- Experience working with climatological data and mapping software to assist in analysis for the purpose of product decision making

- Strong written and verbal communication skills
- Experience with agriculture insurance product development
- Strong critical thinking skills
- Attention to detail and strong organization skills
- A team player with ability to problem-solve and partner with others to effect solutions
- Results oriented and enthusiastic with a serious commitment to excellence

## Annex 4.6.ii: Analyst position description - Tajik

**ТАВСИФИ КОР:** Таълилгари (Аналитики) илми соъаи суғуртаи аграрӣ, дорои дарлаъаи миёна

**МАЌСАДИ ВАЗИФА:** Таҳлилгари соъаи суғуртаи аграрӣ барои ӯамъоварӣ ва таълили маълумоти соъаи аграрӣ ва ҳамчунин маълумоти таҷрибаи мизольон барои роъбарият ва рушди маҷмӯи васеи маъсули суғуртаи аграрӣ барои ЉДММ Эсхата Суғурта дар Тоҷикистон масъул аст.

Таълилгар ба директори ЉДММ Эсхата Суғурта **ЊИСОБОТМЕДИЊАД.**

### ЎЊДАДОРИЊО ВА МАСЪУЛИЯТЊО

- Муайян намудани маълумотҳо ва сарчашмаҳои зарур ва муфид барои таъия, инкишоф ва идоракунии мудовими маҳсулҳои суғуртавии аграрӣ.
- Эълд кардани муносибатҳои кавӣ ва ӯамкорӣ бо таъминкунандагони маълумот, аз кавили Агентии обунавосанлиии Тоҷикистон, Вазорати кишоварзии Тоҷикистон, донорҳо ва созмонҳои ӯайридавлатӣ, таъминкунандагони байналмилалии маълумот ва ҳамадигар тарафҳои, ки метавонанд маълумотҳои гуногуни аграриро барои минтақаҳои Тоҷикистон дастрас гардонанд.
- Таҳия ва идора кардани низом дар дохили Эсхата барои ӯамъоварӣ, пайгирӣ ва таълили маълумоте, ки барои истифодаи ниҳои пайгирии хавфу хатарҳои маҳсул ва коркард ва рушди маҳсулҳои нав дар асоси маълумоти мувофиқ ва миқдори дастрас гардидааст.
- Бо Бонки Эсхата кор карда, (ва энтимолан бо шарикони дигари паънкунӣ) маълумоти талрибавии заруриро муайян кардан ва дар амалигардонӣ ва истехсоли мунтазами маълумоти мувофиқ барои таҳлил мусоидта кардан.
- Дар асоси маълумоти ӯамъшуда ва таълилшуда, таъия кардани ӯисоботҳои мунтазам ва осон барои тарӯма ва фаъмондан дар асоси маълумоти чамъгардида ва таҳлилшуда.
- Таҳқиқ ва таҳлили маълумотҳо ва бозхурди фикру ақидаҳои мизочон, андеррайтинг, рушди соҳибкорӣ ва шарикон/дурнамоҳои баъри дастгирии инкишофи давомноки беҳтаргардониҳои барои арзиши мизочон.
- Гузаронидани таҳқиқот баъри дастгирии асосноккунӣ барои рушди маҳсул ва таъияи сарчашмаҳои зеҳнӣ дар бораи тамоюлҳои саноатӣ.
- Гузаронидани таъкики, таъия кардан ва татбиқ кардани стратегияҳои дорои раванди беътарин барои таълили санлишҳои пилотӣ ва маъсулоти пешниодшуда.
- ӯамъ ва ӯанӣ гардонидани талриба доир ба маъсулоти дигар дар бозор.
- Таъмин намудани роҳнамоӣ ба менелерони дохилӣ, аз чумла суғуртави, андеррайтинг, даъвоҳои ва рушди соҳибкорӣ барои таҳияи маҳсулоти нав ва идоракунии гардиши ӯаёти маҳсулоти вуљуддошта.
- Гузаронидани таълил маъсулот, хусусиятҳои, нарҳои ва маълумоти дигари рақибон.
- Таъмини дастгирии техниии давомнок ва мувофиқи талаботи мизоль тағйир додани маъсулот барои портфели вуљуддошта.
- Ўндадориҳои дигаре, ки таъин шудаанд.

### МАЊЛУМОТ ВА ТАЊРИБА

- Маълумоти олии дарачаи бакалавр (ё беҳтараш дорои дарачаи ихтисосӣ) дар соъае, ки малақаҳои математикии кавӣ дошта бошад.
- Ковилиятҳои сатҳои баланди математикӣ ва ковилияти таъвил додани маълумоти математикӣ ба ҳисоботҳои мухтасар.
- Донистани бозори суғурта дар Тоҷикистон

- Таҷрибаи қор бо барномаҳои компютериӣ ва харитасозии маълумотҳои барои дасғирии таҳлил бо мақсади қабули қарор дар бораи маҳсулот.
- Малакаи муоширати (коммуникатсионии) қавии хаттӣ ва шифоҳӣ
- Таҷрибаи тағия қарадни маъсули суғуртагии аграрӣ
- Қобилияти қавии тафаккури интиқодӣ
- Диққат додан ба лӯзъиётҳои ва доштани малакаи қавии ташкилотӣ
- Будани бозингари як даста бо қобилияти ҳалли мушкилиҳои ва ҳамкорӣ бо дигарон барои ҳалли мушкилот
- Ба натиҷаҳои нигаронидашуда ва ҷавасманд будан ба ўндадориҳои ҷиддӣ.

## Annex 4.8 List of reinsurers contacted

Company	Contact	Email
<b>Contacted by MIC@M:</b>		
<b>SCOR</b>	Michael Rueegger	MRueegger@scor.com
	Vadim Bogatov ( <i>Eskhata contact</i> )	VBogatov@scor.com
<b>Guy Carpenter</b>	Marc Berger	Marc.Berger@guycarp.com
<b>Swiss Re</b>	Marcel Andriesse	Marcel_Andriesse@swissre.com
<b>Partner Re</b>	Rinat Bektlevov	Rinat.Bektlevov@partnerre.com
<b>AXA re</b>	Rami Bou Nader	Rami.Bounader@axa.com
<b>Contacted by IIF-TAF:</b>		
<b>Swiss Re</b>	Mario Wilhelm	Mario_Wilhelm@swissre.com
<b>Hannover Re</b>	Dr. Leif Heimfarth	Leif.Heimfarth@hannover-re.com
	Andreas Bronk	Andreas.Bronk@hannover-re.com
<b>Munich Re</b>	Michael Roth	MRoth@munichre.com
	Alexa Mayer-Bosse	ABosse@munichre.com

## **MicroInsurance Centre** at Milliman

Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

[milliman.com](http://milliman.com)  
[microinsurancecentre.org](http://microinsurancecentre.org)

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