MOTT MACDONALD

Uzbekistan: Cotton Farming Project ESIA

Non-Technical Summary (Draft)

3 April 2020

Mott MacDonald
71 Sadovnicheskaya
Embankment
Moscow 115035
Russia

T +7 (495) 981 5665
mottmac.com

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List of Abbreviations

Abbreviation		Description
ACs	–	Affected communities
BAT	–	Best available techniques
BCI	–	Better Cotton Initiative
CLO	–	Community Liaison Officer
Company	–	FE “Indorama Agro” LLC
CTMP	–	Construction Traffic Management Plan
GoU	–	Government of Uzbekistan
EBRD	–	European Bank for Reconstruction and Development
EHS	–	Environmental, health and safety
ESIA	–	Environmental and social impact assessment
ESMP	–	Environmental and Social Management Plan
EU	–	European Union
Ha	–	Hectare
HR	–	Human resources
IFC	–	International Financial Corporation
ILO	–	International Labour Organization
International Lenders	–	EBRD and IFC
LLA	–	Land Lease Agreement
LRP	–	Livelihood Restoration Plan
NGOs	–	Non-governmental organisations
NTS	–	Non-Technical Summary
PPE	–	Personal protective equipment
Project	–	Cotton Farming Project in Uzbekistan
PTL	–	Power transmission line
PU	–	Producer units
RPF	–	Resettlement Policy Framework
SEP	–	Stakeholder Engagement Plan
Sponsor	–	Indorama Corporation Pte. Ltd
TMP	–	Traffic Management Plan
ZoI	–	Zone of influence

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1 Project Background and Description

FE “Indorama Agro“ LLC (the Company) is implementing a cotton farming project in Uzbekistan (hereafter referred to as the Project). The Company is seeking financing for the Project from international lenders – the European Bank for Reconstruction and Development (EBRD) and the International Financial Corporation (IFC). The international lenders require the Project to comply with national and international standards, namely:

- EBRD Environmental and Social Policy and Performance Requirements (2014)
- IFC Policy on Social and Environmental Sustainability and Performance Standards (2012)
- Applicable World Bank Group environmental, health and safety (EHS) guidelines
- International Labour Organisation (ILO) requirements
- European Union (EU) directives and standards
- Best available techniques (BAT) and good international industry practice (GIIP)

In accordance with applicable international requirements a comprehensive Environmental and Social Impact Assessment (ESIA) study was initiated for the Project and it includes two key phases: (i) ESIA Scoping Phase (July-August 2019) and (ii) Impact Assessment Phase (August 2019 - March 2020). These two phases overlap.

The Scoping Phase identified the key environmental and social issues associated with the Project that need to be considered by the ESIA Study, analysed and identified key Project stakeholders and initiated consultations with them. An ESIA Scoping Report and Project leaflet were prepared to inform local communities and interested parties about the Project. The Scoping Phase also included the preparation of the Stakeholder Engagement Plan (SEP) to guide Project consultation and disclosure activities during the ESIA process, and in the construction and operational phases.

The Impact Assessment Phase resulted in the production of the draft ESIA Report that will be disclosed to general public and key Project stakeholders. The ESIA Report assessed compliance with national and applicable international requirements and identified gaps, assessed potential impacts and risks, proposed mitigation, management and reporting measures.

The purpose of this non-technical summary (NTS) is to present the main findings of the draft ESIA Report in support of the consultation process. This NTS document:

- Provides Project background and description (Chapter 1)
- Summarises social impacts and proposed mitigation measures (Chapter 2)
- Summarises environmental impacts and proposed mitigation measures (Chapter 3)
- Describes proposed monitoring and reporting arrangements (Chapter 4)
- Explains how ESIA documentation will be disclosed and how comments will be collected and addressed before the ESIA report is finalised (Chapter 5).

1.1 What is the Project about?

The Government of Uzbekistan (GoU) has recently launched a programme for the creation of cotton farming clusters and approved a total of 66 cotton clusters with a total area of 660,000 hectares (ha). There is no formal definition of the term “cotton cluster”, but it describes a structure whereby the government allocates a defined area to a private investor who in return commits to growing cotton (either by direct farming and/or by contracts with existing/new farmers) and to establishing processing and/or manufacturing facilities for end use of cotton within the country. The main objectives are to reduce the role of the government in cotton production, create skilled jobs and position Uzbekistan as an exporter of textiles and garments rather than raw cotton. Cotton

clusters are also considered by the GoU and the wider international community as a good option contributing toward the eradication of forced and child labour in the cotton farming and production sector in Uzbekistan.

To respond to the GoU initiative, Indorama Corporation Pte. Ltd. (the Sponsor) set up a cotton cluster in Uzbekistan and started growing cotton (with rotation crops). The cotton cluster of Indorama Corporation includes:

- The existing spinning facility in the city of Kokand[1] commissioned in 2010 and operated by FE "Indorama Kokand Textile" JSC (an indirect subsidiary of the Sponsor**)**
- The cotton farming project in the Kashkadarya and Syrdarya regions of Uzbekistan to grow cotton for captive consumption at the spinning plant in Kokand, and for any future spinning capacity (the Project)

The Sponsor established a project company (FE "Indorama Agro" LLC) in Uzbekistan to develop and implement the cotton farming scheme for the cluster. The Sponsor intends to use 100% of the cotton farmed by the Project in the spinning facility in Kokand and in any other new capacity created by the Sponsor or added by FE "Indorama Kokand Textile" JSC to produce cotton yarn.

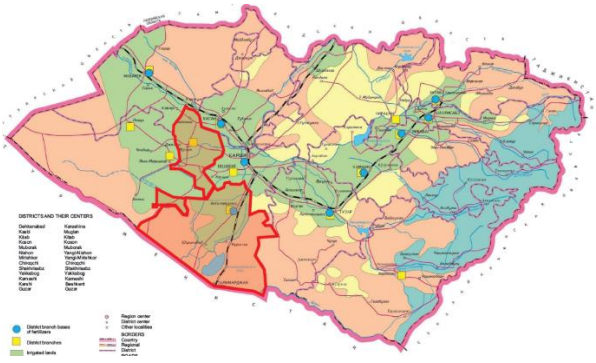
The Sponsor has been working closely with various international organisations and agribusiness advisory teams and continues to do so, and has developed a structured approach towards cotton farming to:

- Prevent the use of forced labour in cotton farming
- Increase production and water usage efficiency
- Enhance sustainability of the cotton sector in Uzbekistan
- Share knowledge and expertise in cotton farming.

1.2 Where is the Project located?

The GoU has allocated to FE "Indorama Agro" LLC 54,196 ha of cotton land in Kashkadarya and Syrdarya regions (Map 1.1) for direct farming under a lease agreement for 49 years.

Map 1.1: Project location – Kashkadarya region



Source: FE "Indorama Agro" LLC

Map 1.2: Project location – Syrdarya region

Source: FE "Indorama Agro" LLC

All land plots received by the Company were consolidated in 22 cotton farming sub-districts in Nishon, Kasbi, Oqoltyn and Sardoba districts (refer to the maps in Appendix A) based on the existing cotton farming sub-district arrangements.

[1] In Fergana Region in eastern Uzbekistan, at the southwestern edge of the Fergana Valley

Table 1.1: Project districts and sub-districts

Kasbi District	Nishon District		Oqoltyn District	Sardoba District
Beruniy	Nurli Kelajak	Hamza	Musamukhammedov	Istiqlol
Navrus	Uch Mula	Gulistan	Q. Ukuboev	Sh. Rashidov
Pakhtakor	Shirinobod	Turkmenistan	A. Toirov	T. Malik
Khujakulov	Oydin	Samarqand	Z.M. Bobur	G. Gulom
	A. Qodiriy			
13,088 ha	**14,549 ha**		**12,770 ha**	**13,789 ha**

Source: FE “Indorama Agro” LLC

All land parcels allocated for the Project direct farming were previously farmed sites with a long track record of cotton and wheat cropping, though a number of parcels have not been farmed recently due to degradation of various farming infrastructure and soil due to neglect and poor repair and maintenance.

1.3 How was the land allocated for the Project?

The land acquisition process for the Project was led by the district hokimiyats. Land parcels allocated for the direct farming were previously leased by individual cotton farms treated as legal entities in Uzbekistan. Before the Project 2,897 cotton farms operated in the Project footprint. In total 1,155 cotton farms were approached by the GoU in the land acquisition process and 1,068 farms agreed to terminate their land lease agreements (LLAs) while 87 farms decided to continue their own operations. Farmers who agreed to terminate their respective LLAs (1,068 farmers in total) were offered to join FE “Indorama Agro” LLC and work full time based on permanent labour contracts. Approximately 45% of the farmers (or 481 people) who terminated their LLAs agreed to join FE “Indorama Agro” LLC and are now working in the Company.

In addition to offering permanent jobs, the Company provided cash compensation to 82 farms in the Syrdarya region for land cultivation works (for instance, excavations and drainage works) completed on land parcels that were reallocated by the GoU to the Project. Compensation was estimated based on the market price of cultivating 1 ha of land and market price of diesel fuel, and paid in cash to 35 farmers in Sardoba district and 47 farmers in Oqoltyn district. Affected farms were allowed to harvest their crops to prevent any loss of crop income as a result of the land reallocation process.

The Project also purchased 24 ha of land in Sardoba and Kasbi districts for two ginning facilities and will purchase another 52 ha for seven farm depots in all four Project districts. Approximately 4.5 ha of municipal land was purchased by the Project to accommodate two residential complexes that will be constructed in the cities of Karshi and Gulistan.

1.4 The Project farming model

The Project will use two cotton farming schemes:

- ‘direct farming’ whereby affected people work as employees of FE “Indorama Agro” LLC, and
- ‘contract farming’ that engages local farmers to grow and sell cotton to the Company.

For the direct farming the Project will use 27,638 ha in Kasbi and Nishon districts (Kashkadarya region) and 26,559 ha in Oqoltyn and Sardoba districts (Syrdarya region).

The contract farming scheme was launched in Kasbi district in 2019 and now covers an area of 12,536 ha and engages 394 cotton farms. The contract farming area is divided into producer units (PU), each responsible for two to four cotton farming sub-districts managed by one PU Manager who reports directly to the Sub-district Manager. PU Managers are supported by a local agronomist to collaborate and assist local farmers on a day-to-day basis.

The Project plans to introduce contract farming in the Nishon district and reach in total approximately 900 farms covering a total area of 23,000 ha in 2020.

1.5 What are the main Project components?

The Project involves the following main components and activities:

- Restructuring and laser levelling of land plots
- Cultivation of the leased land, involving land redevelopment, planting, cultivating, harvesting
- Reclamation of abandoned fields, including desalinization
- Rehabilitation of irrigation and drainage systems including construction of drainage water collection and recycling facilities, pumps, etc.
- Procurement of machinery and equipment for field works
- Construction and operation of two gin plants
- Rehabilitation/construction and operation of seven farm depots
- Construction and operation of two residential complexes
- Contracting of cotton farms to grow and supply cotton to the gin plants
- Transportation of harvested cotton from the fields to the gin plants
- Delivery of cotton fibre from gin plant to the spinning facility in Kokand by the existing railway.

The Project facilities will be connected to electricity, water, sewerage, natural gas, and other utilities as required from main supply lines to the site boundary of all Project facilities.

Two gin plants are now under construction in the Kasbi and Sardoba districts respectively. The construction started in September 2019 and will take approximately five months. Gins will process harvested cotton and the capacity of each plant is 150 million tonnes/day of cotton fibre that will be consumed by the existing spinning facility in Kokand. The gin plant in Kasbi district will be constructed at the brownfield site of the existing depot and in Sardoba district, on a new greenfield site adjacent to the existing depot. The site selection process for the gin plants was driven by the presence of access roads and technical possibilities to connect to electricity grids, gas supply, water and wastewater utilities.

Seven farm depots will be rehabilitated / constructed in four Project districts to facilitate agriculture operations of the Company. These farm depots will accommodate warehouses for fertilizers and chemicals, storage facilities for harvested cotton and wheat, parking yards and workshop for machinery and equipment and the operational office premises.

As part of the Project, the Company will construct two residential complexes in Karshi and Gulistan to accommodate staff and families working in Kashkadarya and Syrdarya branches respectively, they will be recruited from other regions of Uzbekistan or abroad. Each residential complex will be designed to accommodate 80 residents in total. The estimated lifetime of the complexes is 50 years. The construction started in September 2019 and will last approximately seven months. Both residential complexes will be managed by the Company's own staff. It is estimated that 10 people will be required to operate and maintain these facilities.

1.6 Are there any associated facilities?

The connection of the new ginning facility in the Sardoba district to the electricity grid will require construction of a 5 km power transmission line and this facility is categorised as an associated project. The 35 kV, 5,000 kVA transmission line will be constructed by Uzbekenergo. The construction period is estimated to be 3 months.

1.7 Why is the Project needed?

Cotton farming plays a crucial role in the economy of Uzbekistan. Currently the Government of Uzbekistan is making efforts to restructure the cotton sector and improve cotton fibre production and processing with the target of abandoning the export of cotton fibre, eventually replacing this with finishing products in Uzbekistan. Cotton farming clusters are being established across the country to enable the cotton sector investors and manufacturers to obtain access to high-quality cotton raw materials.

The Project forms a significant component of this country-wide privatization process and is designed in part to support the GoU in addressing issues of child and forced labour in the cotton supply chain, specifically during harvesting in labour-scarce regions like Syrdarya with a high risk of forced labour. The Project will establish full-time, decent jobs in the international company, promoting good labour standards and implementing international best practices by insisting on decent work principles in the entire cotton supply chain.

The Project will be able to respond to the governmental initiative and contribute to implementation of the 2020-2024 National Strategy for Developing Textile, Garment and Knitwear Goods Industry in Uzbekistan. The Project will grow and supply cotton for processing at the spinning facility in Kokand which produces compact combed cotton yarn and open-end cotton yarn with more than 90% to be exported to Latin America, Europe, Bangladesh, Commonwealth of Independent States (CIS) and Turkey. The Project will also bring strong added value and know-how to the country in terms of transforming the current farming practices, establishing good industry practice and enabling the country to reach world markets, which have not been accessible until now.

1.8 What alternatives were considered?

The Kashkadarya and Syrdarya regions were selected because they are traditionally specializing in the cotton sector. A feasibility study was carried out by the Sponsor in 2018 and confirmed that the proposed regions are an optimal choice for cotton farming.

A “No Project” alternative has also been considered in two main scenarios. The first option includes the continuation of the status quo when private farms will continue operation on leased land although this scenario appears to be unlikely due to the widespread reform of the cotton sector in Uzbekistan. The second option suggests that an alternative organisation would take the opportunity to develop the cotton clusters in line with GoU policy. In this scenario, the alternative organisation could potentially proceed with funding from sources other than international finance institutions (IFIs), possibly from a bilateral source. Both alternatives would not satisfy the wider objectives aimed at the sustainable development, benefit sharing and reforming the cotton sector of the country. The No Project scenario would result in the benefits noted above not being realised. Furthermore, a lack of capacity (that the Project intends to build up) to control the entire cotton supply chain will mean that it will be more challenging for Uzbek cotton to reach world markets, which have not been accessible until now.

1.9 Who will finance the Project?

The Project will be co-financed by:

- Indorama Corporation Pte. Ltd (the Sponsor)
- The European Bank for Reconstruction and Development (EBRD), and
- International Financial Corporation (IFC) of the World Bank Group

EBRD and IFC are considering financing investment in agricultural machinery, buildings, ginning facilities, land redevelopment and rehabilitation of irrigation systems for this Project.

2 Social Impacts of the Project

2.1 Land development, preparation and construction phase

2.1.1 Land use changes and economic displacement

Before the Project a total of 2,897 cotton farms operated in the Project area. An average cotton farm in Kashkadarya region used to be 30-40 ha engaging three to four farm workers (about one worker per 10 ha). In Syrdarya region, an average cotton farm was smaller with 20-30 ha and two to three workers.

In total 1,155 or 40% of the existing cotton farms (including 65 female-headed farms) were approached by the GoU in the land acquisition process and 1,068 farms (including 12 female-headed farms) agreed to terminate their LLAs while 87 farms decided to continue their own operations.

Approximately 45% or 481 farmers who terminated the LLAs agreed to work in the Company and now they have permanent jobs there. 500 farmers terminated their farming business and decided not to try a job opportunity with the Project. For these people the Hokimiyats and the Company have no information. Liquidation of local farms also impacted secondary employment with estimated[2] 4,337 farm workers who may have lost jobs.

The Project acquired 3,709 land parcels covering 54,196 ha, including 50,037 ha of irrigated land and 4,194 ha in poor condition. The displaced local farmers who lost their employment have been exposed to a major unmitigated adverse impact of land use changes and economic displacement. These people used to be engaged in the cotton farming business but have limited skills and resources for coping with the socioeconomic shock of losing employment and income. Moreover, there are few alternative employment or business opportunities for cotton farmers in their local area and people seeking for jobs have to migrate to other regions or countries.

In seeking compliance with the applicable international requirements, the Project will mitigate this adverse impact by disclosing the Project Resettlement Policy Framework (RPF) that has been developed for this Project to guide any future land acquisition process and to plan measures on livelihood restoration. As an immediate action, the Project will complete a full asset survey of structures and assets remaining on the land allocated to the Company in all Project districts to identify, agree and compensate the affected farmers.

A Livelihood Restoration Plan (LRP) has been developed as part of this ESIA package in line with the applicable international requirements to avoid impoverishment of the affected farmers. Consultations with the affected owners and economic displacement will be managed in alignment with the LRP. If any physical displacement is required as the Project evolves, a Resettlement Action Plan will be developed and implemented based on the RPF.

Temporary land take or loss during the construction phase will be avoided where possible, and where necessary it will be managed through an action plan aligned with the RPF. The Company will introduce and implement the Project grievance mechanism. Contractors will be required through contract clause to avoid temporary land take or loss of properties from sensitive land/property users. Contractors will reinstate/restore the land to its pre-construction conditions. In case of any damage during construction, property/asset owners will be reasonably compensated in alignment with the RPF.

[2] Based on the number of farms with terminated LLAs, their average size and the labour demand of approximately one worker per 10 ha of cotton land.

The LRP along with other recommended mitigation measures will reduce the major adverse impact of land use changes and economic displacement to moderate or minor adverse, and will propose a monitoring mechanism to measure improvements.

2.1.2 Temporary employment generation during construction

The registered unemployment rates in the communities across the Project area vary between 4% and 12%, however actual rates in rural areas are still unclear as not all local people register with the employment agencies, and there are many people who are underemployed doing odd or seasonal work in the cotton farms or dekhkan farms. So actual rates are most likely significantly higher than the rates of the national statistics service. Approximately 4,971 people in the affected communities (ACs) were registered as unemployed in 2019. Among those registered as unemployed women accounted for 51-55%, while the rates for unemployed young adults (of each gender) varied between 25% and 43% in 2019.

Approximately 8,388 people in the ACs were working abroad, mostly in Kazakhstan and Russia and most of these were men. Reasons for the increasing labour out-migration (now reaching 12-15% in the ACs) include tightening of economic constraints, lack of local jobs, better earnings offered in Russia and Kazakhstan after their economic recovery (these two countries are the main targets for labour migration from communities) as well as increased labour force against previous years. Labour out-migration rates in Oqoltyn district are the lowest in the Project footprint (1%) and may be link to the poor knowledge of Russian language in the ACs that influences the opportunities for finding jobs elsewhere in Russia and Kazakhstan compared to other districts. People who are facing difficulties in earning good incomes in their local area are largely unskilled workforce (30%) or skilled workers (35%) aged 30 to 55.

Table 2.1: Workforce in the ACs in the Project area

Parameter	Total	Kasbi	Nishon	Sardoba	Oqoltyn
Total population in the ACs	133,027	44,186	45,996	18,856	23,989
Working age population	76,299	25,659 (58%)	25,897 (56%)	10,566 (56%)	14,177 (59%)
Active Workforce	60,162	20,585 (47%)	18,947 (41%)	8,004 (76%)	12,626 (89%)
Registered unemployed people	4,971	1,860 (9%)	1,678 (9%)	928 (12%)	505 (4%)
Working out of country	8,388	3,148 (12%)	3,531 (14%)	1,616 (15%)	93 (1%)

Some of people who are currently unemployed may potentially benefit from the Project employment opportunities during construction and operation. The Project is estimated to offer in total approximately 968 temporary skilled and unskilled jobs during the construction phase.

The construction of the two residential complexes and two gin plants is well under way and 408 temporary skilled and unskilled jobs have already been offered in Kasbi and Sardoba districts, including 100 temporary unskilled jobs for the people in the ACs and 280 skilled jobs for people from the Project area or wider Uzbekistan. The Company has also appointed eight local full-time engineers for the construction period to monitor contractors' performance as well as progress and completion of construction activities at each site.

The construction/rehabilitation of seven farm deports will start later in 2020 and approximately 650 jobs will be offered in the contractors' organisations across all four Project districts, including 175 unskilled jobs (28%) for people in the ACs and 350 (65%) skilled jobs for people from the area or wider Uzbekistan. 14 (3%) jobs will be offered to skilled/management international staff. Similarly, the Company will employ seven local full-time engineers who will monitor construction of the farm deports on behalf of the Company.

The PTL construction will take three months and this associated infrastructure project will be implemented by Uzbekenergo using their own construction labour resources due to complexity of the task and skills required of the construction workforce in this sector. No employment opportunities will be available to local communities during PTL construction.

The predicted temporary employment opportunities are assessed to be minor to moderate in significance and will be the primary beneficial effect of the Project during the construction phase. These benefits have already been partly realised and no additional enhancement measures are considered as feasible at this time because the construction phase is close to completion. The key focus will be on enhancement of the operational phase employment opportunities. To do this the Project will prioritise developing and disclosing the Project Recruitment Policy to the ACs and local employment centres. Temporary employment generation during construction will remain benefit of minor to moderate significance.

2.2 Operation phase

2.2.1 Operation employment

Operational employment opportunities are associated with 3,270 new skilled agricultural jobs created in the Company in Kasbi, Nishon, Sardoba and Oqoltyn districts as well as administrative jobs in the city of Tashkent, including 550 new jobs that will be on offer later in 2020 upon commissioning of two residential complexes, two gin plants and seven farm depots. The Project will also retain approximately 2,000 seasonal jobs for cotton chipping as well as 2,500 permanent and 2,500 seasonal jobs via contracted farms as depicted in Table 2.1 below.

Table 2.2: Estimated long term net employment changes as a result of the Project

Type of employment/ livelihood activity	Job losses	Job offered by Indorama / contracted farmers	Net employment change
Permanent skilled agricultural sector jobs	4,337 (in the farms liquidated by the land acquisition process)	3,270* (direct farmers and worker in ginning and other facilities hired by end 2020) 2,500* (contracted farmers hired by end 2020) = 5,770	+ 1,433
Unskilled seasonal jobs**	9,070 (informal, low paid insecure)	2,000* (mainly weed chipping jobs) 2,500* (contracted farmers) = 4,500	- 4,570
Total:	**13,407**	**10,270**	**-3,137**

Source: *Estimated by Mott MacDonald except: * estimated by FE “Indorama Agro” LLC

Notes: ** No. of jobs not equal no. of affected farmers; some farmers have more than one job at different times of the yr.

Although there will be an estimated net loss of 3,137 jobs, the lost jobs are seasonal, and there will be a net increase in permanent highly skilled opportunities. Therefore overall, the long-term change in employment as a result of the Project has been assessed to be a beneficial impact of moderate significance.

In order to maximise the employment benefits to directly and indirectly affected local communities, to manage expectations and to avoid social tension that might arise in relation to perceived inequity of recruitment approaches, the Company will develop a Project Recruitment Policy. The Recruitment Policy will be based on principals of non-discrimination and equal opportunities at recruitment for the Project jobs. The Policy will include a requirement to prioritise local[3] employment for positions that become available and set out specific targets for employment and engagement of women in all aspects of farming. The Company will widely disclose the Project Recruitment Policy and advertise permanent and seasonal jobs availability and recruitment processes including information about required skill levels, indicative timeframes for recruitment and likely duration of contracts to provide opportunities for the vulnerable groups in the ACs (such as the unemployed, unskilled or seasonal workers) to benefit from the Project. The Company will notify the local employment centres in the Project districts of the available jobs to prioritise recruitment of women and jobless from the ACs.

[3] “Local’ will be specifically defined in the policy as people originating from directly affected ACs, and secondary priorities will be assigned to people from the Project regions and Uzbekistan, in that order

Should the Company adopt these measures in particular the policy to recruit people from the ACs and women, then employment generation is expected to become a beneficial impact of minor to moderate significance for the operation phase, because the number of jobs created will not replace those lost in terms of exact number, but will be of better quality and will facilitate the engagement of women in skilled jobs. This may potentially reduce both the actual unemployment rates among women and out-migration from the local communities among skilled workers.

2.2.2 Livelihood changes during operation

While Uzbekistan has experienced increased urbanization in recent years, the share of those living in poverty in Uzbekistan is higher in rural areas. Based on national poverty data available (2017) people living in poverty account for 22,4% of total population in Kashkadarya region and 16,1% in Syrdarya region. Predicted changes in the operational employment (as discussed above) has already started affecting seasonal incomes of cotton pickers and weeding workers from local communities.

Starting from 2019, the number of jobs available for cotton pickers has reduced in the Project area, as the Company has mechanized harvesting operations, although cotton picking is partly retained in the contracted farms. As a result, manual cotton picking is not expected to remain a major source of income for the local communities. Seasonal weeding work will continue to be available in the Company and contracted farms although less labour is now required for weeding operations, because chopping activities has reduced by up to a third (from 3 to 1-2 passes). Manual topping is no longer required as it has been replaced by the application of herbicides. First weeding is now combined with harrowing and seeding and is no longer required as a manual operation. Also, before the Project, cotton was picked manually in five passes, now harvesting by the contracted farms is completed in one pass. In summary the work has become significantly less labour intensive.

During the cotton season women were mostly engaged in cotton weeding and harvesting, so the number of employment opportunities in cotton farming that were traditionally undertaken by women has also reduced now that the Project is underway. The money that women used to earn from cotton weeding and picking represented the major part of their personal income. A household could earn up to 40% of the annual income during weeding and harvesting of cotton and rely on this supplementary income during winter before cotton production started again. Now local cotton pickers have to go to other districts to pick cotton. Apart from the reduction in seasonal jobs, access to dried cotton plants for use as biomass fuel has been reduced for local households because the Company has brought in new technology, and now uses plant remains as soil organic matter. Women in communities traditionally used ovens for cooking and the cotton plants as fuel. They now have to buy coal at their own cost. All these constraints make local communities and especially women, highly sensitive to the loss of supplementary incomes as there are very few other alternatives available for them in the local area. Additionally, increased labour out-migration among men may potentially result in social tension as families are losing their traditional livelihood and women are left alone and made solely responsible for their families with less opportunities for personal income and support while their husbands are away in Russia or Kazakhstan seeking for earnings.

The direct farmers who are now employed by the Company are paid monthly salaries. The major change in the income pattern is that direct farmers earn regular incomes each month over the year while incomes of permanent farm workers, weeding worker and cotton pickers are gained during the cotton season only (Table 2.3).

Table 2.3: Average monthly incomes in the Project footprint, UZS

Project District	Company's direct farmers (12 months)	Farm workers (8 months)	Seasonal weeding workers (4-5 months)	Seasonal cotton pickers (1-2 months)
Kasbi	UZS 1,193,901	UZS 600,000	UZS 770,000	UZS 1,760,000-UZS 2,640,000
Nishon	UZS 949,897	USZ 600,000	UZS 550,000 USZ 660,000	UZS 2,640,000-UZS 3,300,000
Sardoba	UZS 2,259,494	UZS 2,000,000	UZS 720,000	UZS 1,980,000
Oqoltyn	UZS 1,519,822	UZS 2,000,000	UZS 1,100,000	UZS 1,760,000-UZS 2,640,000

Source: FE "Indorama Agro" LLC, Farmers Associations, Focus Group Discussions

Although the Project will provide a net increase (by 1,433) of permanent skilled agricultural sector jobs providing regular incomes, the reduction of seasonal incomes will be significant and will result from a net loss of 4,570 seasonal jobs in the Project footprint.

Without mitigation the adverse impact of livelihood changes is assessed to be major at the operation phase. This impact will be mitigated through the livelihood restoration measures the Company is committed to implement under the Project LRP and other measures such as the Gender Action Plan, training of local women to remove barriers for women accessing jobs, and an upskilling programme for women and seasonal workers in the ACs to help them to acquire or improve their skills and fill positions available in the Project. A promotion programme for women already employed in the Project will be implemented to enhance career opportunities for the female staff in the Company as well as a community development programmes to supplement community incomes in the Project footprint. These mitigation measures will attempt to turn major adverse livelihood impacts resulting from the net loss of 4,570 jobs into a negligible impact.

2.2.3 Improved labour conditions in the Project supply chain

Forced labour, especially in the agricultural and construction industries, is a recognised problem in Uzbekistan. A major beneficial impact is predicted in respect of improvements in labour conditions in the Project supply chain through adherence to International Labour Organization (ILO) standards, Better Cotton Initiative principles of sustainable cotton farming and decent work, introduction of best practices and implementation of Sustainable Cotton Standards System including across the Project primary supply chain (contracted farms).

Existing corporate values, policies, standards and practises of Indorama Group will be a solid foundation for managing the primary supply chain of the Project. The proposed measures to enhance this anticipated beneficial effect of the Project will include development, introduction and implementation of a Human Rights Policy that will incorporate commitments for respecting human rights, unacceptability of child labour and forced labour and fair treatment of employees. The Company will disclose the Human Rights Policy to all employees, contractors, contracted farms and other suppliers and they all will be bound to comply with the provisions of the Human Rights Policy via special provisions in their contracts. The Company is making sure that labour contracts are provided for all permanent and seasonal workers including at the contracted farms. Additionally, a workers' grievance mechanism will be established and managed by the Company and will be accessible to all Project workers, including contracted and subcontracted workers and the supply chain workforce. The Company will appoint Labour Officers and Social Officers (including female officers) who will be responsible for monitoring the contractors and their sub-contractors (during the construction phase), contracted farms, including labour conditions of their farms' workers and seasonal workers (during the operation phase). Labour and Social Officers will link with the existing monitoring teams for contracted farms in achieving compliance with the Human Rights Policy. The Project will develop and implement a human rights and labour monitoring and reporting procedure in respect of the contracted farms, will assign responsibilities and set out timelines

and define the remediation process when issues are identified. This procedure will be disclosed to all contracted farms and their workers.

2.2.4 Training, skills improvement and know-how transfer

Cotton farms in Uzbekistan went through several stages of the farm restructuring and land optimisation processes over recent ten years targeting at farms consolidation and specialisation. The land optimisation initiated by the GoU in 2019 established that the minimum size of individual cotton and wheat farms shall be 100 ha. Frequent changes and reforms weakened farms and reduced their capacities in efficient management. Majority of farmers are facing financial pressure and lack of machinery and these make it difficult to run even smaller farms of 15-20 ha. Cotton farms have no access to know-how and modern farming techniques and continue using traditional methods that are not able to significantly increase cotton yields and ensure sustainable cotton production, and eventually good profits for cotton farming businesses.

As the Project is located in the rural areas of Kashkadarya and Syrdarya regions, which traditionally specialise in cotton farming, the majority of available workforce are low-skilled seasonal labourers, farm workers or farmers specialising in various agricultural businesses.

As the Project has already employed local farmers and is contracting local cotton farms and seasonal workers, a beneficial impacts of moderate to major significance related to training, skills improvement and know-how transfer are predicted affect employees of the Company, contracted farms and their farm workers and women in the affected communities.

The Project has launched and will continue implementation of different training programmes across various management and operational levels in the Company and for the contracted farmers. Training of gin staff will be provided to build skills of the equipment operators during the installation and commissioning by the plant supplier at the Project sites. A budget will be allocated for the training programme.

The Company will develop and adopt a corporate Training and Mentoring Policy to sustain skills and knowledge transfer for the Project and secure skilled human resources for the lifetime of the Project. A corporate system for personal development review will be introduced to assess staff achievements and allow carrier goals to be planned and supported by the Company management. The Project will establish a training centre for operators to secure a pool of skilled workers to operate Project facilities for the lifetime of the Project.

2.2.5 Localised economic development

The majority of people in the local communities are traditionally occupied in the agricultural sector. Approximately 60-70% of the employed people are working informally in small family businesses, farms and dekhkan farms (specifically in seasonal jobs during weeding, chopping and harvesting) without formal labour agreements. Small businesses are mostly family-based operations specialising in trade, agriculture, construction and catering with limited opportunities to grow and develop.

The Project will generate in total 5,770 permanent skilled jobs in Kashkadarya and Syrdarya regions both in the Company and via the contracted farmers providing regular and stable incomes throughout the year to the Company's direct farmers, farm workers and their households. The Project intends to increase purchases from the contracted farmers by 40% thus providing an opportunity to earn more income. All contracted farms are now receiving financing, seeds, fertilizers, advisory support and training and will be provided with machinery to harvest and transport output to the collection points. The Project will extend this advanced technical support to all new farmers. Contracted farmers' incomes and personal business have already started growing. The Project has good potential to raise contracted farms profits even more through increasing yields, improving quality of cotton fibre and provision of advisory support to the farmers on modern farming practices.

Purchase of supplies and materials, equipment, goods and various services during the operation phase will create opportunities for local businesses, especially for those who secure longer term contracts. Potential

earnings during the operation phase will be available for a long-term period (of at least 49 years). Goods and services that can be procured locally include office equipment and furniture, stationaries and office supplies, catering, cleaning and laundry, vehicle maintenance, oil and fuel, fertilizers and chemicals, transportation, security, printing and photography. Small businesses in Kasbi, Nishon, Sardoba and Oqoltyn districts are expected to benefit during Project operation as a result of increased business operations.

These measures are predicted to have a localised economic development effect of minor to moderate significance for the affected communities and local suppliers/businesses who may potentially benefit from the Project. Enhancement measures are proposed to reinforce localised economic development. Thus the Project will develop a Procurement Policy that will promote local contracting and establish procurement practices to maximise local benefits, especially for women-headed businesses. In particular, the Project will set out targets for contracting female-headed business and local female staff. The Project Procurement Policy will be disclosed to suppliers and contractors.

With the aforementioned measures in place, the localised economic development effect may be enhanced, resulting in moderate beneficial impact.

2.2.6 Localised community disturbance

Localised community disturbance impact is predicted to be negligible to minor during operation. The Project activities in the fields will not be associated with strange or unfamiliar operations and will not disturb the perception of the rural living environment. Even though more fields will be put in operation after rehabilitation of poor condition land (1,656 ha) re-allocated to the Project, the impact will be negligible since these land parcels were previously used by other farmers for cotton farming. Noise from fields levelling, canals cleaning and rehabilitation is not expected to cause any significant impact on local communities, as the activities will be conducted in or along the fields and will be temporary in nature.

Noise arising from rehabilitation works will be controlled in line with international best practice. Proposed measures to mitigate nuisance from traffic will include preparation of the Traffic Management Plan to reduced safety of vulnerable road users on the local roads and residents affected by operation. Good practice and recommended measures will reduce disturbance to negligible.

2.3 Closure and decommissioning phase

At the end of the 49-year operation phase the Sponsor would need to consider an option that Project facilities might be rehabilitated or upgraded instead of being decommissioned provided it is economically beneficial to continue producing cotton. Should it be no longer economically viable to continue operations or carry out necessary upgrades, the likely social impacts resulting from the decommissioning phase of the Project that are predicted to be the most significant are identified below.

Subsequent assessment of these and other potential social impacts and effects will be required within the twelve months prior to the decommissioning phase.

2.3.1 Retrenchment

Should the Project facilities be decommissioned, this may result in closure of the Project offices and plants resulting in loss of jobs and collective retrenchment. The resultant loss of employment is likely to have an adverse effect on the well-being of retrenched staff and their dependents and the significance of these effects will need to be evaluated[4] immediately prior to the decommissioning phase.

[4] Evaluation will include such factors as total number of workers, percentage of workforce, percentage of working population, characteristics of current job market, level of diversification in the local economy, secondary impacts of unemployment.

If significant impacts and effects are predicted, a Retrenchment Plan will need to be developed by the Project to manage them.

2.3.2 Termination of contract farming

Closure of the plants would require the Company to terminate supply contracts with the contracted farms. Termination, if finalised before the end of the cotton farming season, may bring losses and result in adverse impact on contract farmers and eventually affect their farm workers. Impact significance would need to be determined prior to the decommissioning phase and mitigation proposed to avoid income and crop losses for the contract farmers. Termination of supply contracts is possible only after harvesting is completed and payments to contract farmers are made in full in compliance with the terms and conditions of the contracts.

2.3.3 Redundant facilities and unused land

Once the Project has reached the end of its life the equipment and facilities may become redundant, and in extreme cases derelict. If not mitigated appropriately, this could potentially pose community health, safety and security risks for the people and natural resources due to unsafe equipment and/or contaminated land. It could also lower the value of the Project area due to derelict structures.

During the decommissioning phase of the Project, all Project facilities will be removed, and the land will be reclaimed without any contamination. The pre-project landscape will be restored (except for rehabilitated fields), and the land will be available for re-allocation for other users. The Company will make the disused sites safe (for instance, no contaminated land or redundant installations), or landscape them to allow for the amenity value of the site is at a minimum returned to its initial state or improved.

2.4 Potential risks of the Project

The land development, preparation and construction phase of the Project will be associated with potential risks on construction workers and communities. A moderate unmitigated risk of the Project is associated with the potential impact on workers' health, safety, wellbeing and labour rights during construction that will last approximately five to seven months. These risks will be mitigated through implementation of the Environmental and Social Management Plan (ESMP) and other social management sub-plans, policies and procedures of the Project incorporated in the ESMP including contractor's supervision of the environmental, health and safety (EHS), labour and social practices on Project sites, enforcement measures in the contractor's contracts allocating sufficient EHS, labour and social resources to manage and monitor contractors' performance.

Forced labour, especially in the agricultural and construction industries, is a recognised problem in Uzbekistan Although there is a strong political commitment by the GoU and efforts by human rights organisations to address the issue, forced labour in Uzbekistan's cotton sector remains an issue especially in labour-scarce regions like Syrdarya, The Project is committed to preventing any forms of child labour and forced labour in the Project supply chain or any other operations it will be dealing with. The Project will promote decent work practices in cotton production and harvesting. The Project intends to undertake Better Cotton Initiative (BCI) certification for cotton production in 2020-2021. Principle 6 of BCI is Decent Work and refers to the ILO eight fundamental conventions that address the "core labour standards" including provisions for eliminating child labour and forced labour. BCI respects national law and the Decent Work Principle requires that all cotton producers achieve national labour and OHS compliance with international standards prevailing when national law sets standards below the referenced international requirement.

Given that the Project area is among the region impacted by forced labour due to mobilisation of workers from non-farm sector, the unmitigated risk of child labour and forced labour associated with the cotton supply chain is estimated to be moderate taking into account recent improvements achieved by Uzbekistan in addressing the issue in collaboration with the international community. As the Project is engaging local farmers in the Project supply chain, stringent management, monitoring and reporting arrangements have been recommended by the assessment and will also involve Project engagement with key stakeholders, non-governmental

organisations (NGOs), the Government and other projects in their joint efforts of establishing sustainable cotton production practices. Should these measures be implemented the Project will be able to address the issue of forced labour and child labour at least in the Project coverage area in Syrdarya and Kashkadarya regions of Uzbekistan.

The occupational health and safety (OHS) risks related to the Project will be associated with the operation of the Project key components and works in the fields and unmitigated risks are predicted to be moderate. However, there are well-known measures to mitigate OHS risks. Similarly, the operation phase of the Project may potentially pose a risk to community health, safety, security and wellbeing from the use of machinery and vehicles; and transportation, storage and use of hazardous substances. These risks can be easily mitigated or prevented.

2.5 Cumulative social impacts

There are six other cotton clusters operating in the Project wider area (five in Kashkadarya region and one in Syrdarya region). Jointly with the Project these clusters are mechanising cotton farming operations, promote decent working conditions for cotton pickers and offer attractive prices for cotton supply. Along with significant efforts being undertaken by the Government of Uzbekistan, civil society organisations, local activists and international community (WB and IFC, ILO, BCI, International Cotton Advisory Committee and others) in establishing sustainable cotton production practices in the cotton farming sector of the country and BCI certification of the Company in 2020-2021, the Project will contribute to a cumulative effect of solving the issue of forced labour and child labour at least in the Syrdarya and Kashkadarya regions of Uzbekistan .

Another cumulative effect is predicted for the Project and is associated with the sector industrialisation resulting from operation of the other five clusters in the Project wider area, construction of processing (gins) and manufacturing (weaving, knitting and garmenting) facilities and replacement of low-paid seasonal jobs by skilled full-time jobs in the cotton clusters and new processing and manufacturing facilities.

3 Environmental Impacts of the Project

3.1 Air quality

3.1.1 Land development, preparation and construction / decommissioning phase

Construction, demolition, excavation works, and field levelling activities can result in the generation of dust, which can have a moderate temporary effect on nearby local communities. The activities associated with the construction and decommissioning phase of the Project are considered to have a range of different dust raising potential, with some activities causing high levels of dust if appropriate measures are not taken to reduce it. These activities will however occur for a short duration reducing the potential impact. Taking the dust raising potential and the duration of the works into account, the magnitude of dust effects on workers and public health is considered to be negligible to moderate. The only receptor close to the construction site of the gin plant is Denov community, located at a distance of 116 m from the gin site. The proposed mitigation measures such as dust water suppression and installing enclosures and covers that are compliant with the IFC Environmental Health and Safety (EHS) Guidelines for controlling air quality impacts will be incorporated into the construction phase management plans.

3.1.2 Operation phase

Dust

Potential impact of dust during the fields levelling, excavation, ploughing activities could be moderate without appropriate mitigation measures. To minimize effect of dust on workers and public health to minor, generic good industry practice during works in the fields will be conducted with due consideration to weather conditions, including prohibition of dust-generating activities in the vicinity of settlements in windy days to minimise dust transfer to residential areas.

Use of fertiliser and pesticide aerosols

As part of cultivation of cotton, fertilisers and pesticide will be applied to the fields. This will be undertaken from tractors, using vertical sprayers that will dispense the working solution from 2 m height down to the soil surface. This way the working solution of aerosol will completely settle on vegetative parts of plants or on soil surface.

Considering the low volatility of water-based aerosols due to the big weight of droplets, it is unlikely that any aerosol droplets that did not reach to the surface of vegetative parts of plants or soil at the time of spraying would be carried by wind to a significant distance.

Given that application of fertilisers and anti-pest treatment will be conducted during short periods up to four times a year, the potential impact of fertiliser and pesticide aerosols on atmospheric air quality is assessed as insignificant. The best practice measures to further reduce the risk of potential negative impact on atmospheric air quality such as prohibition of application of fertiliser and pesticide aerosols in the vicinity of settlements in windy days are developed and will be implemented.

Air emissions from the gin plants

Gin plants will generate temporary emissions of cotton dust, nitrogen and sulphuric oxides during operation in autumn-winter period in result of cotton fibre cleaning and drying, cotton seeds processing and heating of premises, Potential minor emissions of cotton dust and fumes of sulphuric acid used for seeds treatment may cause insignificant and short-term increase of levels of these substances in atmospheric air. Gas boilers operating during the ginning period and the heating season will have a minor local impact on air quality, due to emissions of nitrogen oxides and sulphur oxides. Considering the low levels of these pollutants in air in absence of other fixed emission sources, magnitude of this potential impact on sensitive receptors (Denov

community) and overall effect on air quality is assessed as insignificant. All measures for prevention and minimisation of emissions from operating gin plants will be incorporated into the Project design to meet national and applicable international standards. To reduce potential impact of fugitive emission sources, continuous monitoring and timely repair of fuel tanks, pipelines and locking accessories shall be provided. However, measures to further mitigate the potential impact will be adopted.

3.1.3 Decommissioning phase

In the event of decommissioning of the Project, it is likely that any potential air quality impacts would arise as a result of demolition of buildings and facilities, and would be likely to be similar to those experienced in the construction phase, as broadly similar activities would be required. Similar to the construction phase these are considered to be of moderate adverse significance. Similar mitigation measures as for the construction phase will be applied.

3.2 Ground and soil conditions

3.2.1 Land development, preparation and construction phase

Gin plants and machinery storages will be constructed at the well-developed sites previously used by kolkhozes and farmers communities for collection, storage and ginning of cotton and grain, storage of agricultural machinery and workshops.

Site preparation activities for infrastructure and gin plants will result in overturning of topsoil and has a potential to disturb underground reservoirs, metal elements and pipelines which may be present underground, and cause contamination of currently unpolluted soil horizons. Therefore, considering the past exploitation of sites for cotton, grain and machinery storage the sensitivity of soils is considered as low, the magnitude of potential impact on soil during excavation works and levelling at the gin plants construction sites is assessed as minor adverse.

During construction, a range of potentially hazardous substances will be used, such as oils, lubricants, fuels, and cement. These materials will also require transport to the site. Accidental spills or leaks of hazardous substances may result in local contamination of soils, with potential implications for groundwater. However, with modern site management In line with international best practice the probability is considered low enough as to present an insignificant risk. Considering the moderate value of soils contaminated by fertilizers and oil products in the Project area and excluding gin construction sites, the impact on soil is assessed as negligible beneficial.

Impacts from waste can be suitably mitigated by following the project-specific Waste Management Plan.

3.2.2 Operation phase

Storage, transport and use of hazardous materials

Similarly, to the construction phase, the main potential contamination impacts for the Project are associated with the use, transport and storage of hazardous materials, and disposal of pesticides and fertilizers residues. Pollutants associated with the Project operation include oil, fuels, pesticides, fertilizers, and other chemicals related to the plants care, such as those for cotton plants defoliation. Impacts may result from leaks and spills from the storage tanks, losses during transportation, usage of excessive volumes of chemicals during plant care activities and inappropriate way of residue disposal.

Most of the chemicals used by the Project are water soluble and highly mobile and can potentially contaminate a large area. Without mitigation chemicals in groundwater may migrate laterally, presenting risks to groundwater resources further afield. Some liquids may also migrate vertically in groundwater presenting a risk to deeper aquifers in spite of low quality of ground water with high natural salinity.

Contamination from excessive application of defoliants, pesticides and fertilizers will be managed through the strict instructions on preparation of solutions of fertilizers, pesticides and other agrochemicals, and accurate identification of crops needs.

Chemical hazards will be controlled in line with national and international requirements and safety data sheets provided by chemical producers. Safety control measures will be based on the requirements of national and applicable international standards such as EBRD Performance Requirement 4 and EU Seveso III Directive[5]. A comprehensive Health, Safety and Environment Plan will be implemented, aimed at preventing accidents, injuries and work-related diseases through the identification of the causes of physical, chemical and biological hazards and by prioritising hazard elimination, hazard control and hazard minimisation.

Gin plants and vehicles depots will be provided with storage facilities for oil products and agrochemicals in line with national regulations, i.e. all hazardous materials will be stored in bunded areas or containers or on lined surfaces with surface drainage to a wastewater treatment system.

Contamination has a potential to affect soil quality locally at the gin plant sites and across the wider area of fields. Soil is considered to be a low or negligible to low value receptor because of contamination by fertilizers and oil products. Based on its low value, the significance of impacts to soil is assessed as insignificant.

All operational staff will be made aware of potential hazards. The Project will arrange safe storage of hazardous materials. Suitable ventilation system will be provided. Staff welfare facilities be supplied with clean water for hand and face washing and drinking. An Emergency Preparedness and Response Plan will be prepared in strict compliance with national regulations as it is required to prevent fire and explosions at cotton gins. Impacts to workers' health also can be prevented by use of appropriate personal protective equipment (PPE) in accordance with the national requirements and IFC EHS Guidelines.

3.3 Water resources and water quality

3.3.1 Land development, preparation and construction phase

During the construction phase, the main impact with respect to surface water resources such as drainage channels used by local communities for livestock watering and production of bricks will be the potential for surface runoff with high contaminated sediment loads to enter the drainage system. The runoff from the site, particularly excavation works near and within drainage collectors, is likely to have a high sediment load. There is also the possibility of surface runoff being contaminated as a result of accidental fuel and chemical spills during construction.

Given the length and configuration of drainage collectors, it is expected that all suspended matter (e.g. sand, clay) that gets into them will settle on canal bottom and never reach the receiving water bodies. Also, the risk of receiving water contamination with materials from oil and fuel spills can be assessed as insignificant, as the 100-km long drainage system represents a large bio-accumulating capacity – i.e. its aquatic vegetation is well developed and can absorb and accumulate organic contaminants.

The construction will follow local construction norms and rules, and applicable good environmental practice and pollution prevention measures set out in the Environmental and Social Management Plan.

3.3.2 Operation phase

Abstraction and irrigation

Water is currently abstracted from the Amu Darya river, and from the Syr Darya river. Quantity of water supply to irrigation systems is determined and regulated by local Irrigation System Basin Authorities. Water is supplied

[5] Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the Control of Major-accident Hazards Involving Dangerous Substances

to irrigation system in abundance; however, certain parts of the Project area are exposed to water deficit, due to poor condition of the distribution network, tie-ins, leaks, etc. Irrigation water consumption by farms and households is not metered.

Depending on ground water level, climate, soil and other conditions, the number of irrigations of cotton varies within a wide range from 2 to 12, at the irrigation rates from 2-8 000 m^3/ha and raw-cotton crop yield of 3-4 ton. Current irrigation water consumption in the Project areas is about 3,000 m^3 per 1 ton of raw cotton. It is expected that improvements brought about by the Project will help to reduce water demand for cotton production by 30%, and further reduction of 20% will be achieved through cutting down water losses caused by the poor state of the irrigation systems.

The Project provides for the following improvements that will result in overall reduction of water consumption from 3,000 m^3 to 2,000 m^3:

- Laser levelling of fields (expected reduction of water consumption by 20%)
- Improvement of drainage systems will decrease water transmission losses
- Pivots and laterals with targeted water applications will reduce water usage
- Improved irrigation scheduling will help to avoid excessive and deficient irrigation of crops
- Improved soil organic matter will increase soil water holding capacity
- Reduced salinity of soil will result in lower / eliminated water applications for leaching.

In addition, drainage water reuse for irrigation is being considered. The Company will monitor drainage water quality and assess of drainage water reuse efficiency.

Therefore, considering that irrigation water is supplied to the Project area from reservoirs and irrigation system rather than straight from the rivers, and that the Project cropland makes up about 5% of irrigated land in Kashkadarya region and 28% of irrigated land in Syrdarya region, the Project impact on Amu Darya River due to reduction of abstraction volume for irrigation can be assessed as insignificant beneficial, and as minor beneficial on Syr Darya River.

Water Quality

The risks of uncontrolled application of pesticides and fertilisers in the fields, and the risks of excessive soil leaching may result in pollution of drainage water and recipient water bodies. Increased levels of salts and pesticides will affect the ecological community in the drainage canals which provide habitat for multiple plant and animal species. Given the poor initial quality of water in Kashka Darya river and Deuhana lake, sensitivity of these receptors to the pollution impact is assessed as moderate. The impact on receptors at the initial stage of the Project operation is therefore assessed as significant adverse, with a trend toward reduction to minor, provided that a reasonable approach to application of defoliants, pesticides and fertilizers is adopted in respect to concentrations of solutions and accurate identification of crops needs.

The Aidar-Arnasay lake system being a key ornithological area is highly sensitivity to water quality changes, therefore, impact on this receptor is assessed as major adverse at the initial stages, with a trend toward reduction to moderate or minor, provided that mitigation measures will be adopted.

Occupational health impacts

Throughout the Project operation, workers will come into contact with irrigation water and drainage water that may carry biological hazards such as helminthic and acute intestinal infections. There is also a risk of exposure to residues of fertilizers and pesticides applied to crops, either from direct run-off or by leaching. The magnitude of OHS impact is assessed as major and the significance of the impact is assessed to be major.

To minimise impacts on workers' health the Project personnel will be instructed to avoid contact with irrigation and drainage water without reasonable process needs and trained in the first aid measures in case of ingestion of such water. Medical attention will be provided in case of poisoning or suspicion on biological hazard.

The rates of fertilizers and pesticides application in the fields will be adequately calculated to produce the best crop yield with minimum application of the chemicals and will be at least within the limits recommended by producers. This measure is intended to reduce wash-out of fertilizers and pesticides into the drainage canals, and to minimise the impact on the recipient water bodies and exposure of workers.

Drainage water quality will be continuously monitored for level of petroleum products, pesticides, etc. An Emergency Action Plan will be developed to respond to accidental discharge of petroleum products, pesticides and other agrochemicals into drainage collectors and irrigation canals.

Drinking Water Consumption

It is expected that drinking water for the Project domestic and other needs will be supplied from artesian wells (not included in the Project scope) to be drilled at the gin sites and vehicle depots. There is a risk that artesian water will not be suitable for drinking and other uses, due to potentially high mineral content. In such situation, water for domestic needs will be purchased and delivered to the gin sites and vehicle depots in road tankers.

Furthermore, given the standard drinking water consumption rate adopted in Uzbekistan, every worker will consume a maximum of 50 litres of water per day. Thus, combined drinking water consumption at all Project facilities will be hardly more than 10 m^3, and the impact magnitude will be insignificant.

Project Wastewater

No process wastewater is expected in relation to the cotton production technology. The Project operation is expected to generate storm water runoff, wastewater from washing agricultural and other machines contaminated with oil and petroleum products, as well as domestic wastewater.

The Project activities (construction and reconstruction of gin sites and vehicle depots) will include provision of storm water and domestic wastewater collection systems. It is expected that storm water collection and treatment will be provided in compliance with Uzbekistan regulations; such facilities will include grit removal and oil trapping, and so treated water will be discharged to drainage channels.

In the absence of central sewerage systems, sanitary wastewater will be collected in septic tanks and subsequently removed for treatment by specialized contractor.

Washing of agricultural machinery and other vehicles will be arranged on dedicated sites with water recycling systems.

Even though information on the future wastewater collection and treatment systems is scarce, considering the local climate (annual precipitation of 200 mm), the standard rates for water consumption and wastewater generation, the Project impact on local habitats, soil and water bodies is assessed as insignificant adverse.

3.3.3 Decommissioning phase

Decommissioning phase activities are likely to be very similar to the construction phase. Good practice will be adopted to manage storm water runoff. However, in addition there is a risk of surface water being contaminated as a result of chemicals remaining in various vessels, pipes and other items. Assuming the implementation of good practice measures, the magnitude of the potential impacts of increased sediment loads on water resources, water quality will be negligible or minor. The sensitivity of the receiving water bodies to increased sediment is deemed to be negligible. Therefore, the significance with respect to sediment impacts is assessed as being insignificant and additional mitigation beyond the use of good international industry practice for construction and demolition is not therefore required.

3.4 Ecology and biodiversity

During the Project construction and operation, the potential impacts may include noise and light nuisance from construction and operation activities affecting birds and mammals, dust deposition around working areas

affecting adjacent habitats, increased risk of local pollution events due to the use of vehicles affecting adjacent habitats, accidental introduction and dispersal of invasive species, temporary or permanent habitat loss during construction of new and rehabilitation of existing water canals; and loss of and damage to Red Book listed species of plants during site works.

Protected areas

Designated nature conservation areas (international or national designations) are located at the distance from the Project sites:

- Hissar Mountain Forest National Reserve located in 130 km from the Kashkadarya Project site;
- Zaamin Mountain Juniper Reserve located 95-98 km from the Syrdarya Project site;
- Important bird areas including the Talimarjan reservoir (6 km from Project site) and Aidar-Arnasay lake system (located in 60 km from project site); and

are extremely unlikely to be affected by the works. The sensitivity of the protected sites is considered to be medium or high. Given the distance of these protected sites from the Project area the impact magnitude is negligible, the impacts are considered to be negligible.

Sensitive habitats

The Project sites consist of fields and disturbed ground. The habitats within the Project's zone of influence (Zol) are of low conservation value represented by weed vegetation and supressed semi-desert vegetation of inarable lands. Some additional vegetation clearance is likely to be required during the upgrading of the existing irrigation and drainage systems and change of fields configuration. However, these habitats are considered to be of low conservation value; the impacts of the works will be minor in magnitude, and therefore negligible.

Notable flora

Two Uzbekistan Red Data Book species were recorded within the Project Zol: Ficus carica and Platanus acerifolia. The direct impact will consist of removal of these trees during the upgrading of existing irrigation and drainage system and change of fields configuration. These species are considered to be of medium conservation value. Impacts of the works are considered to be minor adverse in magnitude; therefore, all trees across the Project territory are to be saved.

Notable fauna

There are no records for threatened fauna species in the Zol that would be listed on the IUCN Red List and the Red Data Book of Uzbekistan. No bird species of international conservation concern or listed on the Red Data Book of Uzbekistan were recorded in the 2019 ornithological surveys either. Impacts on threatened animal species are considered to be negligible in magnitude and therefore not significant.

Mitigation Measures

Any potential impact on habitats and flora as a result of spillages and pollution will be mitigated in line with IFC Environmental, Health and Safety Guidelines. The Project design has considered and incorporated the use of existing infrastructure corridors in order to avoid or minimise habitat loss and degradation. The best practice noise reduction measures will be implemented to reduce impacts on breeding or migrating birds during construction and operation:

3.5 Material and waste management

Materials and waste of the Project can be grouped into two categories – non-hazardous and hazardous. Potential hazardous materials and wastes may include pesticides, fertilizers, oils and solvents waste, contaminated packaging, cleaning materials, contaminated soils, used batteries, mercury lamps. Management

of these hazardous substances, particularly handling and final treatment or disposal options will require close consideration.

3.5.1 Land development, preparation and construction phase

Materials used during construction will principally comprise the items of equipment for the Project, as well as materials used for site preparation such as rods for piling and buildings, concrete for foundations and auxiliary structures, steel for buildings, materials for fitting out the interiors of buildings.

The environmental impacts of wastes associated with the Project construction phase will be short-term and mostly reversible for aspects such as littering of the construction site and surrounding territory by packages and domestic wastes, pollution of soils by waste concrete, bricks and spills of oil products. These potential impacts during the construction phase will be effectively managed through detailed waste management plans.

3.5.2 Operation phase

Materials considered to be of a hazardous nature will require bespoke consideration, particularly for handling, storage, final treatment and disposal options. Some materials will have a known consumption and storage volume whereas the consumption and volume of other materials will be dependent on routine activities therefore it is difficult to give exact volumes for all materials. The following table presents the key materials required for the Project.

Table 3.1: Key hazardous materials used during the operation phase

Material	Storage
Pesticides	Dry storage
Fertilizers	Dry storage
Mineral oil	Stored in drums in a secure bunded storage building
Diesel and petrol	Stored in tanks at a bunded territory
Sulphuric acid	Stored in drums in a secure bunded storage building
Mercury lamps	Stored in a secure box in a storage building

All material deliveries will be unloaded in impermeably paved areas. All materials will be stored in a weather protected building and the flooring will be bunded to contain any spillages and equipped with a drainage system. Sorbents and equipment for spills response procedures will be provided inside. Storage buildings will be also equipped with appropriate fire and explosion detection and response equipment.

Working solutions of fertilizers and pesticides will be prepared in the application machinery tanks or at a dedicated site with impermeable paving and a drainage system. Considering that pesticide packages are small (100 to 550 grams) and that fertilizers and pesticides are supplied as dry solids, any significant leakage to the environment is unlikely.

Fuel unloading from road tankers, fuel storage and fuelling of farming machinery will be arranged at dedicated sites equipped in line with the applicable national standards, including provision of impermeable paving and drainage system connected to oil trap within the storm water runoff treatment system, as well as firefighting equipment.

Waste streams that will arise from the Project operation will require adequate utilisation, handling, storage and disposal procedures to ensure adverse environmental impacts are kept to a minimum and to comply with national regulations and applicable international standards. Hazardous wastes generated through the operations are expected to include spent chemicals, waste oils, oily rugs, mercury lamps.

Project will produce a cotton fibre, cotton seeds, wheat corn, and mung bean. Raw cotton will be stored at the open space at the gin sites and farm depots. Cotton seeds, wheat corn and mung beans will be stored at silos. There no risk of contamination of the environment in relation to the Project products storage.

The ESMP includes reference to the control measures in order to minimise the likelihood of incidents associated with materials storage, handling and use.

3.5.3 Decommissioning phase

Good international industry practice and national regulation of Uzbekistan provide for design considerations for waste management during decommissioning. The Company will employ these approaches where possible and will continuously review waste disposal practices to identify more environmentally acceptable routes.

3.6 Traffic and transport

The potential traffic impacts on the sensitive receptors around the construction sites such as the gin sites are assessed to be insignificant because of low baseline traffic on motorways in the Project areas and short duration of the construction phase.

Additional daily traffic during the construction of two residential complexes in Karshi and Gulistan will not result in a major increase in traffic on the connection roads because of the small volume of construction material required. The magnitude of additional movements is considered as minor. Delivery of construction materials should be conducted out of peak hours. Vehicles parking along roads will be prohibited. Measures to reduce the risk to vulnerable road users and occupants of residential properties in the vicinity of access routes will be identified as part of the detailed Construction Traffic Management Plan (CTMP).

During the operational period the impact will be negligible due to the number of residents and because vehicle parking areas will be located out of settlements and agricultural machinery will move between fields mostly using internal roads without entering to settlements or public roads. However, an operational TMP will be developed for the operation phase to reduce risks to community health and safety resulting from the Project machinery movements.

Mitigation measures proposed for construction will also be applied during the decommissioning phase. However, it is expected that mitigation based on future knowledge and best practice will be recommended as part of any future detailed decommissioning plan.

3.7 Noise and vibration

Noise and vibration impact during the Project construction and operation activities will originate from various sources including running construction and agricultural machines, operation of gins to separate cotton fibres, seeds and waste, as well as cotton seeds storage. Given the remote location of the planned gin site in Syrdarya region in relation to sensitive receptors like neighbouring communities, potential noise impact will be negligible.

3.8 Resilience to climate change

The following actions are recommended in order to appreciate the potential risks to the Project from the changing climate:

- Proposed adaptation measures included in Project design, potential to introduce innovative / improvements in e.g. irrigation efficiency
- Site-level studies / visit and stakeholder interaction to understand the current vulnerability to high temperature, droughts and extreme weather / hazards
- Work on proposed crop varieties to understand resilience to projected changes in climate
- Research on what alternative crop varieties with higher tolerance might exist and how rapidly could be deployed in response to changing climate.

The Project will engage with local authorities, planners, investors to understand wider plans for development in the catchment that may affect the exposure of Project sites to climate-related risks – e.g. proposals for

alternative economic activity that may compete for water demand (locally or upstream), proposals for improving transport networks that will enhance resilience to hazards, etc.

3.9 Cultural Heritage

No Project infrastructure or construction activities will occur within 200 m of any known cultural heritage features and therefore there will be no direct impact to known cultural heritage assets. There is the potential for previously undiscovered archaeological remains (buried archaeology) to be impacted by the preparatory site works at the Project site locations. At the same time, ploughing depth will be 60 cm in the topsoil level and the potential risks for buried archaeological or human remains will be negligible, therefore.

The operation of the proposed Project is unlikely to impact any known or unknown archaeological remains and artefacts as, should any be present, they will have been disturbed and removed during the construction phase. Therefore, the impact is considered negligible.

In the event of unknown archaeological finds or features being identified during the course of the Project construction groundworks, an emergency procedure will be put in place in order to stop work and allow for the assessment of the archaeological potential of the remains. A ‘chance finds procedure’ will be included within the CEMP. If buried archaeological remains are of significance, then a system will be put in place to mitigate harm. This may involve protecting the remains or a system to excavate and record the remains.

4 Proposed Monitoring and Reporting

4.1 Overview

In order to provide Project compliance with environmental, health and safety and social requirements of the law and lending agencies the Project Environmental and Social Management Plan (ESMP) has been developed. The ESMP provides a summary list of environmental and social mitigation measures and monitoring requirements during the Project lifecycle. Summary of proposed monitoring measures is provided in sections below.

4.2 Social issues

EBRD and IFC standards require internal monitoring and external or independent monitoring of all Category A projects or projects with significant impacts. Monitoring reports will be disclosed by the Company every three months during development/construction, bi-annually during the first three years of operation and annually starting from the fourth year of operation onwards.

In view of the child and forced labour issues historically associated with the cotton sector of Uzbekistan both internal and third-party monitoring of the Project (including farmers monitoring) is required. Therefore, the Project will actively participate in third party monitoring and invite inspectors and observers to its sites to conduct audits.

Adherence to the occupational health and safety plan and procedures will be given the utmost attention and audited frequently. A warning system for violations and non-compliance will be established and implemented for the monitoring system to be effective. The Project will aim to reduce the number of accidents among Project workers to a rate of zero, especially accidents that could result in lost work time, disability, or even fatalities.

The following actions to monitor and record mitigation and enhancement measures are proposed during the construction phase and during operation (where applicable) by the Company and third parties:

- Records will be kept of people employed from ACs and their pre-project status including their employment status, which village they are from, their ethnicity, their gender, their age and their start and end date of employment. Copies of job and supply chain opportunity descriptions posted will be kept on file
- The number of people receiving training, certificates and resultant employment on the Project from the upskilling programme will be recorded
- Records of numbers of people affected by retrenchment (as well as other data related to the retrenchment process, impacts and plan) will be kept, if relevant
- A list of signatures showing that workers have received and understand their contracts and the Worker Code of Conduct will be maintained
- Grievances will be received and recorded via the workers' grievance mechanism and the log will be reviewed monthly by Company's Human Resources (HR) Departments to identify patterns or area where actions can be taken to prevent recurrent problems
- Land acquisition grievances and livelihood restoration grievance will be received and recorded via the LRP grievance mechanism and the log will be reviewed monthly by the Community Liaison Officers (CLOs) with monthly reporting to the management
- OHS training records will be maintained, especially for:
  - OHS training and hazardous work training
  - Security guards
  - Toolbox talks

  - HIV/AIDS awareness sessions
  - Emergency drills.
- Accidents, incidents and diseases logs will be maintained to monitor health and safety of Project workers
- Confidential health records for Project workers will be maintained, including HIV/AIDS test results, medical results and occupational injury or disease. These records will be aggregated and made anonymous for review by external parties
- Regular site monitoring of OHS issues and PPE compliance will be carried out and recorded
- Annual monitoring of Projects risks of child and forced labour during cotton with the participation of Project stakeholders, local/international NGOs, local government and Project stakeholders and reporting to the International Lenders
- Collaboration with ILO third-party monitoring missions during harvesting
- Annual reporting on supply chain due diligence on child and forced labour as part of compulsory reporting under the Loan Agreements
- Personnel files will be kept for each worker and will include next of kin contact details in case of accident or emergency, social security number, copy of identity card, certificates and qualifications, internal and external training, leave records, record of past abuse/criminal record for security workers.
- Payroll records will be kept
- Security records will be maintained logging entries to Project sites by non-employees and any incidents that occur with regard to security or security guards
- Community grievances will be received and recorded via the community grievance mechanism detailed within the Stakeholder Engagement Plan (SEP) and the CLOs, as described within the SEP, will carry out analysis to identify common or recurrent problems. There will be follow-up of these issues with the Company's management and contractors to find to deal with the causes and actions to prevent further recurrence.
- There will be monitoring of community grievances by the CLO to check for complaints against security guards. These will be followed up with the relevant authorities if necessary
- Negotiations, consultations and activities under the Project LRP will be documented and kept on file to demonstrate compliance with EBRD PR5 and IFC PS5. All monitoring and reporting will be carried as detailed within the LRP instrument.
- Annual Corporate Social Responsibility reporting during the operation phase

All of the above will be regularly monitored during the construction and operation phases as appropriate by Company's EHS Managers and their teams. Monthly Environmental, Health and Safety reports will be provided to the Company's management during the construction phase and will be made available to external monitors and auditors when required. Be-annual reporting frequency during the first three years of operation may be reduce from the fourth year of operation onwards.

4.3 Environmental issues

4.3.1 Air quality

Quantitative monitoring of pollution emissions from stationary sources should be conducted, and records kept of fuel consumption (natural gas, diesel, gasoline).

During the ginning period and heating season, regular monitoring of air quality shall be provided at the boundaries of gin plant sites, to identify the impact caused and devise possible measures to further reduce emissions.

4.3.2 Ground and soil conditions

The main impacts on soil for all aspects and phases of the Project are considered to be contamination. This is particularly significant during the early construction phase when ground disturbance, leaks and spills are more likely and during the operation phase when storage and application of fertilizers, defoliants and pesticides will take place.

Detailed records shall be kept for tracking all fertilizers, pesticides, defoliants, oils, fuel, and other hazardous materials used by the Project. Rates of plant care aids application will be monitored and reviewed against requirements and plans to ensure excessive use is prevented. Hazardous materials and wastes handling and disposal will be monitored and reported to ensure that hazardous wastes and materials streams are handled in line with safety requirements.

A Soil and Drainage Water Monitoring Plan shall be developed to control soil and drainage water quality and prevent pollution.

4.3.3 Water resources and water quality

Exact follow of the technology and instructions, quality control and detailed records of fertilisers and pesticides solutions preparation and application will prevent excessive application of these chemicals and contamination of drainage water. Irrigation and drainage water will be regularly monitored to identify potential impact of the Project on composition of drainage water.

4.3.4 Ecology and biodiversity

Regular inspections of construction sites and fields will be conducted. The Environmental Manager will ensure the measures included in the ESIA Report and ESMP such as protection of adjacent habitats from physical damage or nonharmful for habitats pest management are implemented. Specialist advice from a qualified ecologist will be sought as required.

4.3.5 Material and waste management

Materials and waste handling and disposal monitoring for the Project construction will be undertaken by the Contractor. Materials and waste handling and disposal monitoring for the Project operation phase will be undertaken by the Company with reference of the process performance and waste volumes to be accurately estimated at the design stage, subject to approval by competent authorities.

4.3.6 Traffic and transport

Standard monitoring of road incidents in line with national requirements will be undertaken. Special monitoring is not required.

4.3.7 Noise and vibration

All regular monitoring of operational noise levels will be carried out at the nearest sensitive receptor in Denov community located 116 m to the north from the gin site boarder and at the working places to prevent any impact.

4.3.8 Greenhouse Gases

Greenhouse gas emission assessment and reporting will be conducted for the Project on annual basis using data on fuel and fertilizers usage.

4.3.9 Cultural heritage

Special monitoring is not required so far.

5 Where can I find more information about the Project?

Information on the Project is available via the Project website (www.indorama-agro.com) and in local communities as indicated in the table below.

The following Draft ESIA documents have been disclosed and published and are available upon request from the Community Liaison Officers (CLOs) via contact details as described below.

- ESIA Scoping Report
- Draft ESIA Report prepared in line with applicable international requirements:
  - Volume I: Non-Technical Summary (this document)
  - Volume II: Impact Assessment
  - Volume III: Appendices and Supporting Documents
  - Volume IV: Environmental and Social Management Plan
- Stakeholder Engagement Plan
- Livelihood Restoration Plan.

Printed copies of these documents will also be made available in the Company's Offices, Districts Hokimiyats in Kasbi, Nishon, Sardoba and Oqoltyn and the following settlements via mahallas:

Kashkadarya Region		Syrdarya Region	
Kasbi District	**Nishon District**	**Sardoba District**	**Oqoltyn District**
Chulquvar QFY	A. Qodiriy QFY	Birlik MFY	A. Navoiy MFY
Denov QFY	Balkhiyak MFY Katta Amkhor	Dustlik MFY	Ahillik MFY
Fazli MFY	Istiqboi MFY	Qurg'ontepa MFY	Dustlik MFY
Jarkucha MFY	Kaptari MFY	Ota Yurt MFY	Kurkam Diyor MFY
Kamashi MFY	Kuksoy MFY	Yortdosh MFY	Sakhovat MFY
Khujaki MFY	Oydin MFY		Shodlik MFY
Mushqoqi MFY	Qirqquloch QFY		
Nazartepa MFY	Shirinobod MFY		
Nurobod MFY	Yangiobod MFY		
Pakhtakor QFY			

According to the international requirements the ESIA documentation will be disclosed for a period of 60 days. The Company will collect comments from the Project stakeholders. Collected comments will be addressed in the Final ESIA Report that will be issued at the end of 60 days disclosure period and made public. Comment boxes and grievance forms will be made available in each community (via mahallas) listed above.

The Project has identified two Community Liaison Officers who will be responsible for liaising and for arranging communications with the Project area communities in the two Project regions. The Project CLOs will collect

comments on the Draft ESIA Report. Should you have any questions / comments on the Project, please also contact the Project CLO:

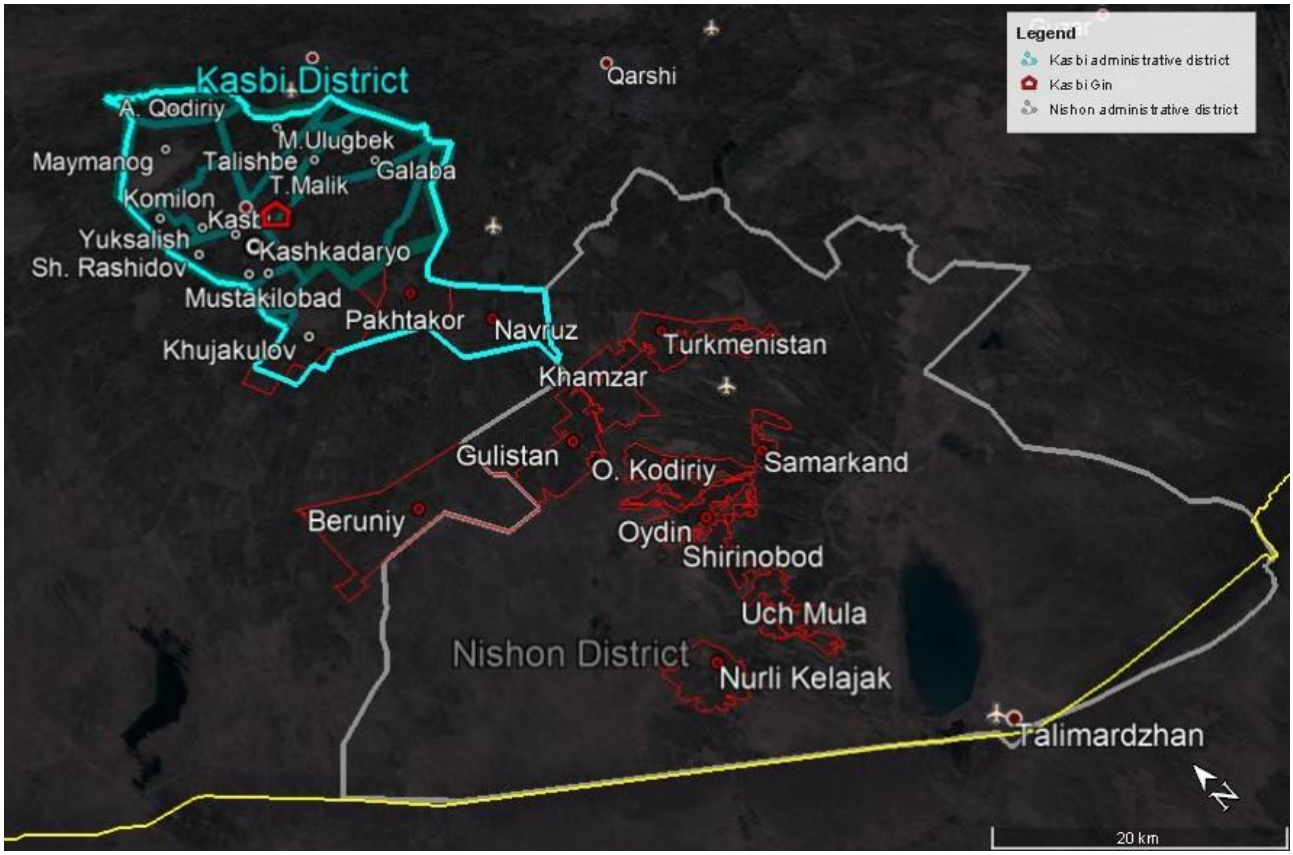
The CLOs will be channelling and manage community grievances during Project planning, construction and operation in their respective regions. The CLOs will also attend and record public meetings and maintain lines of communication with the affected communities.

Contacts	Project CLO in Kashkadarya region	Project CLO in Syrdarya region
Company:	**FEE Indorama Agro, Kashkadarya Branch**	**FEE Indorama Agro, Syrdarya Branch**
Name:	**Ravshan Tadjiev**	**Jasur Khusankhodjaev**
Tel.:	+998905066863	+998998212000
Email:	rtadjiev@indorama.uz	jkhusankhodjaev@indorama.uz

Appendices

B. Maps

B.1.1 Project area in Kashkadarya region



B.1.2 Project area in Syrdarya region