



# Environmental Monitoring Report

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## MON: Agriculture and Rural Development Project - Additional Financing–Environmental Monitoring Report (January–December 2016)

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## Monitoring of projects on environmental performance as of end 2016

At the end of 2016 in total of 7 projects out of 13 projects (highlighted) were involved in monitoring. Two projects implemented by Sor Cashmere LLC and Monos pharma LLC were not involved in monitoring as re-paid their loans just after they received loans in 2011 and 2013. Mongol Shevro LLC, Mon Fresh LLC and Zavkhan Khuns LLC (re-paid their loans in 2013-2015) and Bornuur Foods LLC (was not operational since 2013) were not involved in monitoring. Darkhan Nekhii project was involved in monitoring additionally (it already paid it loan) as it has applied for additional financing of ARDP (See table 1).

**Table 1. List of projects received loan from ADB**

#	Company	Activity	Approval date	Issuing bank	Loan status
1	Monos Pharma	Pharmaceutical	December 2010	Khan	Re-paid in 2011
2	Sor Cashmere	Cashmere production	September 2010	Khan	Re-paid in 2013
3	Mongol Shevro	Tannery	August 2010	XAC	Re-paid in 2015
4	Mon Fresh Suu	Milk processing	May 2011	Golomt	Re-paid in 2015
5	Zavkhan Khuns	Meat processing	March 2012	XAC	Re-paid in 2013
6	Bornuur Foods	Milk processing	May 2012	Golomt	In implementation, but not operational
7	Darkhan Nekhii	Tannery	August 2010	Khan	Re-paid in 2014
8	Erdenet Carpet	Wool processing	December 2010	Khan	In implementation
9	Mogol Noos	Wool production	July 2011	TDB	In implementation
10	Mon Meat	Meat processing	October 2011	Khan	In implementation
11	Vitafit	Milk processing	March 2012	XAC	In implementation
12	Altai Cashmere	Cashmere production	June 2012	XAC	In implementation
13	Darkhan Minj	Tannery	October 2012	TDB	In implementation

During the monitoring PMU in ARDP used the following approaches in order to ensure compliance with ADB and GOM environmental protection requirements and identify problems that should be addressed by the PPEs:

- Visit to project site to define visually waste (liquid, sludge and solid waste) handling and resource saving and recycling practice, work place condition, workers' health and supply and use of PPE, safe operation of machines and equipment, housekeeping activities, chemicals use and storage maintenance, animal health ( for farm), and food safety and sanitation issues (for food production) etc.;
- Review of records, results of lab tests and samplings;
- Read conclusion and reports of government inspections and follow-up actions taken by a company;
- Tracking implemented mitigation measures and actions of recommendations provided by GEA/DEIA and IEE (PMU);
- Help PPEs to develop adequate environmental management plan (EMP) by providing with recommendation on mitigation and preventative measures;
- Communication with company's management and workers about updates and fulfillment of internal procedures, internal control/monitoring, and issues related to workers health and training on safety and preparedness on fire and accidents, and inspections conducted by state and local authorities etc.;
- Contact relevant government officials and local inspectors in order to ensure company's compliance with legal requirements;

- Contact certified laboratories to clarify sampling standards, parameters and results (water, soil and air pollution, and work place condition etc.;
- Tracking information of TV news releases, newspaper columns and online news related to company's environmental issues etc.

Throughout monitoring in 2011-2016 the environmental specialist in PMU has provided management of the companies, particularly managers in charge of environment, safety, health and hygiene issues of the company with advice and recommendation on the following issues as these were common weakness for most companies. These were:

- Make progress in housekeeping and waste handling;
- Keep records of transported solid waste and discharged waste water;
- Improve handling of chemicals, particularly hazardous and toxic chemicals;
- Conduct work place condition assessment by specialized agency;
- Improve work place condition, particularly improve/install air conditioning system in initial processing unit and chemicals storage;
- Improve workers use of PPE;
- Involve all employees in health-check-ups annually;
- Improve supply and maintenance of fire extinguishing tools and equipment, train workers on use of them;
- Take follow-up measures of state inspection in timely manner;
- Improve and develop/update all internal procedures such as procedure on handling of waste, hazardous and toxic chemicals, occupational and food safety and hygiene, and internal monitoring etc. in accordance with applicable laws and procedures;
- Improve internal record keeping, monitoring and reporting;
- Improve planning and implementation of EMP of the company etc.;

In order to confirm projects compliance with applicable laws and procedures of Mongolia during the project implementation period PMU has developed cooperation with:

- Department of Environment and Natural Resources (DENR) of Ministry of Environment and Tourism (former MEGD);
- Department of the Environment, Geology and Mining Inspection, and Department of Food, Agriculture of the General Agency for Specialized Inspection;
- Department of Environment and Green Development, and Specialized Inspection Department (SID) of Ulaanbaatar city;
- Department of Environment and Tourism, and Specialized Inspection Department (SID) of aimags;
- Environmental inspectors of district and soums.

During the project implementation period most companies made progress in environmental performance compared to their initial stage. Particularly, housekeeping, waste and chemicals handling practice, and work condition were improved evidently at all companies. Many companies could reduce water pollution and chemicals use by 15-20% due to introduced new equipment and new technology, and waste was reduced by 10-20% due to recycling and re-use. Food safety and hygiene was improved at meat processing and dairy plants due to newly installed hygienic equipment and tools, and renovation of plant units.

Chemicals handling and its storage maintenance was one of the environmental issues for most companies who use chemicals at the beginning of project implementation. Presently, these companies have improved chemicals record keeping, labeling and awareness raising among workers, and renovated chemicals storages in compliance with national requirement.

There was not recorded any serious accident and incident at all companies, and complaints of their community on environmental pollution and resource degradation issues during the project implementation period. According to the reports provided by companies nobody was diagnosed with occupation disease among workers.

Summary of results of environmental monitoring of 7 projects is presented in the table below (See Table 2). It outlines the each company's environmental issues and progress made to mitigate, prevent and minimize negative impacts from the project implementation. Environmental performance of 4 projects that already have re-paid their loans in also is included in this table as of their last monitoring year.

**Table 2. Summary of results of environmental monitoring of projects**

#	Project name Main issue	Environmental performance
1	<b>Mongol Shevro</b>  -Waste water; -Sludge; -Chemicals handling; -Work place condition.	<p>Implementation of EPP and EMP for 2014 was improved:</p> <ul style="list-style-type: none"> <li>- Sewage treatment facility and drainage system were renovated, filters were replaced. Water and chemicals use was decreased by 15-20% due to installed new equipment and introduced technology;</li> <li>- Waste was transported to designated landfills in accordance with the contract, conducted sewage analysis regularly; amount of solid waste was reduced (50-70%) due to new equipment and recycling, general housekeeping was improved noticeably: clean floor, waste handling etc.;</li> <li>- The company procures main chemicals from Clariant which provides environmentally friendly chemicals internationally, chemicals storage was improved by placing shelves, references of chemicals, improving lighting etc., chemicals use was reduced by 21.5 ton and water by 500 m<sup>3</sup> due to installed cow hide splitting machine (in 2011), experiment on vegetable tanning was successful, namely 30% of chemicals used for leather (for producing of leather for apparel) was replaced with the vegetable based chemicals. It resulted to reduce Cr and sulfides and lime;</li> <li>- Work place condition was improved evidently due to renovation of the entire factory building, air ventilation was improved in initial processing unit, lighting was improved in sewing shop due to renovation and replacement windows;</li> <li>- All employees were involved in medical check-up. They were involved in safety and health trainings, and provided with PPE regularly;</li> <li>- State inspection was conducted regularly. The company implemented measures to reduce water pollution in compliance with the inspection requirement.</li> </ul>
2	<b>Mon Fresh</b>  -Waste water; -Food safety; -Chemicals Handling.	<p>Milk collecting and cooling center and Monfresh dairy plant was monitored in 2014.</p> <p><b>1. Milk collecting and cooling center in Batsumber soum of Tuv aimag.</b></p> <ul style="list-style-type: none"> <li>- Milk safety and hygiene was improved due to established milk collecting and cooling center in Udleg bag of Batsumber soum. It was operational during the summer in order to provide good quality milk. Quality of milk was tested at the center regularly;</li> <li>- Also milk was transported from a dairy farm in Gachuurt village of Bayanzurkh district of Ulaanbaatar to the plant once in every 3 days. Milk was kept for two days at the farm by traditional method using tank with cool water. In order to provide safer and cleaner condition for milk the company established 5 cooling units in suburban area.</li> </ul> <p><b>2. Monfresh dairy plant</b></p> <ul style="list-style-type: none"> <li>- Solid waste was transported 2 times a week (by 1 ton) in accordance with the contract with the waste management company of the district;</li> <li>- Workers changing rooms, shower and rest rooms were renovated;</li> <li>- Milk powder was replaced (25-30%) with fresh organic milk which were packed in tetra-packs in order to provide the city population with quality milk;</li> <li>- Lab of the plant conducts hygienic and bacteriological test regularly;</li> <li>- Milkoscan, milk quality testing equipment was installed (Denmark made) in bacteriological lab in order to improve food safety;</li> <li>- Hygiene and sanitation at the dairy plant was improved due to its renovation;</li> <li>- All employees of the plant were provided with adequate EPP twice a year, workers training on safety operation was organized (30 employees attended);</li> <li>- All employees were involved in health check-ups. There was not reported any occupational disease among workers;</li> </ul>

		<ul style="list-style-type: none"> <li>- Set of fire extinguishing equipment and tools were installed in all units of the plant;</li> <li>- State inspection on compliance of Food law, Law on State Inspection, Law on Administrative Responsibilities and other applicable laws and regulation of Mongolia was conducted by General Agency for Specialized Inspection (GASI) of Mongolia in 2012. It required improving sanitary and hygienic condition of the dairy plant. The company implemented following measures in accordance with requirements of the state inspection: <ul style="list-style-type: none"> <li>• Renovated plant building: floor, ceiling and walls;</li> <li>• Installed ventilation system in milk processing unit;</li> <li>• Established of chemicals storage room;</li> <li>• Developed internal procedure on Occupational safety and hygiene;</li> <li>• Established Committee responsible for Occupational safety and hygiene of the plant etc.</li> </ul> </li> </ul>
3	<b>Zavkhan Khuns</b>  -Waste water -Sludge -Food safety -Work place condition	<p>In 2013 most planned activities of EPP and EMP were implemented in timely manner. Environmental performance at the plant was improved, particularly waste handling practice, work condition and hygiene of the slaughterhouse was improved evidently;</p> <ul style="list-style-type: none"> <li>- Liquid and solid waste was transported 3 times a week (by 2 ton) during the operation period in accordance with the contract with the waste management company of the aimag;</li> <li>- Meat cutting room of the slaughterhouse was renovated;</li> <li>- Workers changing rooms, shower and rest rooms were renovated and improved;</li> <li>- Disinfection equipment for hands, boots and clothes were operated properly;</li> <li>- Chemical and bacteriological labs were upgraded. It equipped with E-microscope and water distiller. These labs conduct serological and bacteriological tests on daily basis.</li> <li>- Food safety and hygiene was improved due to implemented measures in accordance with Russian inspection requirements held in 2011. Namely, built disinfection bath for vehicle wheels, point for sludge uploading was improved (hang curtain, enclosed rubber screen to the sludge transporting vehicle in order to prevent sludge drops outside of the sludge collecting point. Russian veterinary inspection was held second time to ensure food safety condition at the slaughterhouse in 2012 (for meat export purpose). There was not revealed any violation regarding the hygienic condition of the enterprise. Veterinary lab of the aimag conducts meat tests on monthly basis (brucellosis and other infectious diseases);</li> <li>- Set of fire extinguishing equipment and tools were installed at the slaughterhouse;</li> <li>- Workers training on handling of chemicals and disinfectants, safety operation was organized twice (45 employees attended);</li> <li>- All employees of the slaughterhouse were provided with adequate EPP, all 45 employees were involved in health check-ups. There was not reported any occupational disease among workers;</li> <li>- State inspection was conducted by Professional Inspection Department (PID) of Zavkhan aimag regularly. According to the inspection results slaughterhouse was operated in compliance with national legal requirements.</li> </ul>
4	<b>Bornuur Foods</b>  -Waste water -Food safety	<p>Dairy plant was not monitored since 2013 as it was not operational. Dairy farm Bornuur Foods is located in Bornuur soum of Tuv aimag. During the last monitoring in 2013 PMU found that environmental condition at the farm was as follows:</p> <ul style="list-style-type: none"> <li>- Waste water generated from the farm was discharged into the septic tank of 250 ton.</li> <li>- Most of solid waste (90% of the waste was cattle manure) was kept in special site near the farm. It will be used for fertilization of crop land. Domestic solid waste was transported regularly on weekly basis (by 1 ton) in accordance with the contract with the waste management company of the soum;</li> <li>- In-house lab of the dairy farm conducts milk quality test regularly. Milk quality was tested by certified lab of Ulaanbaatar city on quarterly basis.</li> <li>- Cattle were involved in vaccination in timely manner.</li> <li>- Workers training on disinfection of equipment, occupational safety and hygiene, food safety, chemicals handling, and personal hygiene were conducted;</li> </ul>

		<ul style="list-style-type: none"> <li>- All employees of the plant were provided with adequate EPP twice a year and being worn as required. All workers (10 employees) were involved in health check-ups;</li> <li>- Set of fire extinguishing equipment and tools were in place in all units of the plant;</li> <li>- "Fodder solutions" technology was operational and its products were used for cattle feed.</li> <li>- Work condition assessment was conducted by National center for workplace condition and occupational diseases study. Nobody was diagnosed with occupational disease among workers;</li> <li>- State inspection was conducted in accordance with Law on State Inspection by Professional Inspection Department (PID) of Ulaanbaatar city in 2012. In compliance with the state inspection requirements the company assigned the quality manager to be responsible for internal inspection of the company (control for waste handling, pollution, occupational health and hygiene etc.)</li> </ul> <p>According to the inspector environmental inspector of the Bornuur soum of Tuv aimag the farm was managed in compliance with national legal requirements, including land management and waste disposal.</p>
5	<b>Darkhan Nekhii</b>  -Waste water; -Sludge; -Chemicals handling; -Work place condition.	<p>Implementation of EMP of the company for 2016 was good:</p> <ul style="list-style-type: none"> <li>- In total of 69000 ton water was used for factory operation in 2016 it was (104810 ton in 2015). In house waste water treatment facility was renovated, sewage was sampled regularly. According to last sampling taken in 2016 pollution level of waste water before and after treatment (through in-house sewage treatment plant) was under acceptable limits. Water consumption was reduced by 50% by reusing soaking water 3-4 times;</li> <li>- Waste was transported in accordance with the contract (3,721 m<sup>3</sup>) to the designated landfills, amount of solid waste was reduced due to its reuse: leather trimmings were used for small garment production, and removed hair was used for felt production, and its waste was used for small garment production. In addition the company plans to produce bonded leather using leather waste;</li> <li>- Special permission on chemicals was obtained and toxic and hazardous chemicals was handled with caution in accordance with internal procedure;</li> <li>- Use of Cr in tanning was reduced by 50-60% by reusing it (up to 15 times). Currently chemicals storage was relocated and it was under renovation.</li> <li>- Chemicals was reduced by 5-10% as a result of introduced vegetable tanning technology eco-leather for export;</li> <li>- Due to newly installed equipment and machines a productivity was increased 30-40%, hand work was reduced by 20%, use of chemicals and water was reduced by 30%;</li> <li>- Workers were provided with occupational protective apparel and equipment in accordance with internal procedure,</li> <li>- 228 employees were involved in health check-ups;</li> <li>- Fire extinguishing tools and utilities were in place in all units of the plant;</li> <li>- 255 workers were involved in occupational safety, health and hygiene trainings;</li> <li>- Soil and air quality was sampled by certified lab, soil pollution (As) level in some areas were higher than acceptable limit;</li> <li>- Planted 400 trees, bushes on the plant territory;</li> <li>- Work condition at the plant was improved due to renovation of the factory; During the State inspection conducted by PID of Darkhan Uul aimag in 2016 work condition parameters of the tannery and shoe plant were measured in all units and shops (temperature, humidity, noise, dust, CO<sub>2</sub>, NH<sub>3</sub> etc.). According to its result noise and lighting in some units were higher than acceptable limits. The company has implemented measures to improve occupational safety and health condition of the factory in compliance with the inspection requirement.</li> <li>- DEIA for the project was updated as the company plans to expand its operation.</li> </ul>
6	<b>Erdenet Khivs</b>  -Waste water;	<p>Implementation of EPP and EMP of the company for 2016 was good. Overall environmental management, including planning and monitoring practice of the company has improved.</p>

<p>-Work condition; -Handling and storing of chemicals.</p>	<ul style="list-style-type: none"> <li>- In total of 146440 m<sup>3</sup> water was used and 133567 m<sup>3</sup> waste water was generated from the factory in 2016. Waste water pollution level has been decreased due to renovation of the in-house waste water treatment facility for last several years.</li> <li>- Analysis on waste water was conducted regularly. Results of lab samplings showed that there was no serious pollution, and its pollution level has decreased for last few years;</li> <li>- Due to replacement of scouring line its productivity increased by 1.5 times, water use was decreased by 20%, temperature in scouring unit was decreased from 40°C to 28°C;</li> <li>- Solid waste was removed in timely manner in accordance with the contract with waste removal company. In total of 5200 m<sup>3</sup> waste was transported in 2016;</li> <li>- Waste wool was re-used for production of felt products such as ger insulation, slippers and souvenirs;</li> <li>- The company produced 5000 m<sup>2</sup> insulation material for construction in 2016 by using recycled wool waste;</li> <li>- Due to replacement of dyeing equipment water and steam use was decreased by 10-15%;</li> <li>- Due to installation of automated carpet weaving machine productivity was improved 4 times, noise was reduced by 50-60%, manpower was reduced twice;</li> <li>- Workers were provided with protective apparel and equipment in timely manner;</li> <li>- All units were provided with fire extinguishing equipment and tools. Emergency apparel and EPP (in 8 units), and "First aid" (in 10 units) were placed at the factory;</li> <li>- Work condition of the factory has improved due to replaced lighting and air conditioners of most units. Electricity cost was reduced by 30% due to installed LED lamps;</li> <li>- Due to built separating wall between combing and knitting units noise was reduced;</li> <li>- Obtained permission on import and use of toxic and hazardous chemicals. Handling chemicals and its record keeping was managed and monitored in accordance with the internal procedures of the company;</li> <li>- Internal procedure on handling, storing and transportation of waste, and procedure on handling of hazardous and toxic chemicals were followed at the factory;</li> <li>- In-house lab was upgraded with new textile testing equipment manufactured by Tesdan LLC, Italy in order to conduct analysis of wool and cashmere fibers, yarns etc. in compliance with International standards. Air conditioner was installed in the lab.</li> <li>- Work condition was improved due to renovation of the entire factory building and facilities. Rest rooms for workers were renovated and improved changing rooms were placed in all shops;</li> <li>- 350 workers (out of 861 employees) were involved in health check-ups in 2016. No one was diagnosed with occupation disease among workers;</li> <li>- Workers training on occupational safety, fire prevention, labor laws was organized in accordance with training schedule. In total of 982 employees were involved in these trainings.</li> <li>- Soil and air samplings were under acceptable level required by national standards.</li> <li>- In compliance with national requirements the company established special committee responsible for internal inspection on waste handling, air and soil pollution, environmental impact assessment of the company, and developed company's procedure on internal inspection.</li> <li>- Last inspection was conducted in autumn of 2015. It assessed environmental impact and occupational hygiene of the factory. According to these inspections the factory has low risk operation. During the last monitoring PMU contacted environmental officer of ETD and inspector SIA of Orkhon aimag in February 2016 and enquired about environmental performance at the factory. According to them the company complies with environmental laws and regulations, only concern was sewage treatment facility which needs in improvement.</li> <li>- DEIA for the project was updated as the company plans to expand its operation.</li> </ul>
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7	<b>Mogol Noos</b>  -Waste water; -Sludge removal; -Work condition.	<p>Initial processing plant in Bayantsogt soum and Knitting factory in Zuun Mod soum of Tuv aimag was monitored in 2016.</p> <p><b>1. Initial processing plant in Bayantsogt soum of Tuv aimag</b></p> <p>Most of the planned measures of EMP were implemented:</p> <ul style="list-style-type: none"> <li>- In 2016 in total of 6240 m<sup>3</sup> water was used for plant operation, of which approximately 55% was used for scouring operation.</li> <li>- Waste water was sampled by Central lab of SID of Ulaanbaatar city regularly. Results of the samplings showed that pollution level of COD in waste water was exceeding the acceptable level;</li> <li>- The company plans to establish a new waste water treatment facility during the 2<sup>nd</sup> project with ADB financing in order to solve waste water problem of the plant;</li> <li>- Total amount of domestic solid waste disposed in 2016 was 3.3 ton and sludge 38 ton. About 30 ton of ash was generated from its coal fired boiler every year. Coal use was reduced by 20%, its waste was reduced by 50% as steam boiler was replaced with energy efficient one. It plans to re-use sludge and ash for production of building material (concrets) in future.</li> <li>- The company keeps records of waste transportation. It recycles poor quality raw wool and waste wool and makes felt for ger (national dwelling) insulation. Approximately 46 ton of waste wool was recycled for felt production (10,000.0 m felt or 2000 felt covers for ger insulation) in 2016.</li> <li>- Work condition in wool scouring and combing units (T<sup>o</sup>, lighting, air ventilation etc.) was improved noticeably due to renovation of the plant. There were constructed additional walls separating operational units, all walls and floor of initial sorting unit were covered with tiles;</li> <li>- Workers were trained and instructed on occupational safety regularly in compliance with general procedure on employees occupational safety;</li> <li>- Placed complete set of fire extinguishing equipment at all facilities of the plant. All employees were involved in training on fire prevention organized with cooperation of specialized agency,</li> <li>- All employees were provided with occupational apparel twice a year and protective equipment on weekly basis (gloves, mask) in accordance with internal procedure on Supply of occupational apparel and protective equipment;</li> <li>- All employees (38) were involved in medical health check-ups. No one was diagnosed with occupation disease among workers;</li> <li>- Last state inspection of aimag was conducted in August 2015 and required to improve internal monitoring, housekeeping activities. Necessary measures had been taken in order to fulfill inspection requirement.</li> </ul> <p><b>2. Knitting factory in Zuun mod soum of Tuv aimag</b></p> <ul style="list-style-type: none"> <li>- All renovation work of the wool combing and spinning units was completed, and machines and equipment were installed (1<sup>st</sup> floor). Sewing unit was established and operational partially;</li> <li>- Water and sewage system of the plant was renovated;</li> <li>- It has contract with the "Tuv Chandmani" company of Tuv aimag on water supply and sewage discharge, and solid waste disposal. It used 198 m<sup>3</sup> of water in 2016 for plant operation, mostly for domestic use.</li> <li>- Total amount of the solid waste disposed in 2016 was 1.5 ton. During the winter in total of 2.5-3 ton ash was generated from its coal fired boiler.</li> <li>- All windows of the factory building were replaced, and its roof was repaired. Work condition of the plant was evaluated by aimag SID as with low risk.</li> <li>- Visually work condition in wool spinning unit was normal (lighting, temperature, humidity etc.);</li> <li>- Solid waste mostly contains yarn waste (50% non-standard yarn, 50% short yarn). In total of 1 ton solid waste was transported by company's own truck to the designated landfills of Tuv aimag in 2015. During the cold seasons the stove generates 5 ton of coal waste monthly (3 months).</li> </ul>
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		<ul style="list-style-type: none"> <li>- All employees (23) were involved in medical health check-ups. No one was diagnosed with occupation disease among workers.</li> </ul>
8	<b>Mon Meat Trade</b>  -Waste water; -Meat safety; -Occupational hygiene and sanitation; -Solid waste.	<p>Meat processing plant in Ulaanbaatar and slaughterhouse in Kherlen soum of Khentii aimag was monitored in 2016.</p> <p><b>1. Meat processing plant in Ulaanbaatar</b></p> <p>Environmental performance at the meat processing plant in Ulaanbaatar was sustainable. Plant infrastructure was improved. Plant was connected to the central system of water supply and sewage treatment.</p> <ul style="list-style-type: none"> <li>- It has contact with the Water Management Authority of the Ulaanbaatar city on water supply and sewage discharge. It used 650 tons of water in 2016 for its meat processing operation;</li> <li>- Solid waste was transported by company's truck to the designated landfills twice a week in winter and daily in summer in accordance with contract with City Maintenance and Public Utility Authority of the district. It was extended every year. In total of 110 ton of solid waste was generated in 2016. Amount of solid waste was reduced by 25%: 1) sheep bone and fat of the internal organs were collected and sold to third party; 2) fat of the meat and internal organs were used for by products mince; 3) Some waste such as gullet, gland etc. were sold for dog food to private people;</li> <li>- A solid waste storage was built in compliance with national requirements;</li> <li>- Developed internal procedure on storage and handling of disinfectants and occupational safety;</li> <li>- Renovated all facility of the plant (floor, wall, ceiling) etc. and built meat storage in accordance with hygienic requirements;</li> <li>- Conducted daily instructions on occupational safety and hygiene;</li> <li>- Work area equipment and tools were cleaned and disinfected regularly;</li> <li>- Plant employees were provided with protective apparel and equipment twice a year, and gloves and masks regularly, all employees (15) were involved in health check-ups quarterly;</li> <li>- Placed fire extinguishing tools and equipment at the plant;</li> <li>- Meat and by-products safety, quality and hygiene was examined by Veterinary department of Songino Khaikhan district 2-3 times a week. Meat and by-products quality (heavy metal and drug residue etc.) was sampled by laboratory of SID of the district regularly. Disinfection of the plant was carried out by Veterinary department of the district in accordance with a contract;</li> <li>- State inspectors of SID of Ulaanbaatar city conducts inspection of meat processing plant regularly. In 2016 it examined compliance of Law on Food, Law on Sanitation, Law on Food Safety, Law on Occupational Safety and Hygiene and Meat Inspection Code at the plant. According to the inspection general work place condition in all units of the plant was in compliance with national standards "Occupational Safety and Hygiene. Work place environment and hygiene. MNS 4990:2015", "Occupational Safety and hygiene. General requirements for noise norms and safety. MNS 5002:2000", "Occupational Safety and hygiene. General requirements for lighting norms. MNS 4996:2000", and the plant was evaluated as with low risk.</li> <li>- The company has implemented necessary steps to improve hygienic and sanitary condition of the plant and met veterinary requirements (e.g. rest room, changing room and canteen for workers were renovated);</li> <li>- 18 workers were involved in health check-ups;</li> <li>- "AAA" accreditation was issued to Monmeat Trade LLC by GASI in January 2016 based on results of inspection control and accreditation on the butchering cattle, production and operation technology, veterinary and sanitation of meat and meat products. It was valid until January 2018. This accreditation was acceptable for Russia and China for exporting goods.</li> </ul> <p><b>2. Slaughterhouse in Kherlen soum of Khentii aimag</b></p> <ul style="list-style-type: none"> <li>- Renovation and upgrading of slaughterhouse in Khentii aimag was completed. All necessary equipment and lines were installed. It was operational from April through November. Cooler (-16°C) and freezer (-25°C) were established newly.</li> </ul>

		<ul style="list-style-type: none"> <li>- Water for slaughtering operation was supplied from a well with permission of the local government. The company has contract with Public Utility Service company "Khentii Us" of Khentii aimag on water supply and discharge. Total amount of the water used in 2016 was 112 tons. 187 ton of liquid waste was transported to the designate site of soum;</li> <li>- Solid waste, sludge and waste water generated from the slaughterhouse was transported to the designated landfill of Kherlen soum in accordance with the contract with same company. Total amount of the solid waste disposed in 2016 was 300 tons.</li> <li>- Livestock health examination was conducted by a veterinarian of the Veterinary department of Khentii aimag during slaughtering. This veterinary Department also carries out disinfection of the slaughterhouse on the basis of a contract on bi-weekly during the period from April to November when slaughtering operation goes on.</li> <li>- Occupational safety and hygiene of the slaughterhouse were inspected by the Specialized Inspection Department of the Khentii aimag regularly. The last inspection carried out in May 2015 order to examine compliance of Law on Food, Law on Sanitation, Law on Food Safety Law on Occupational Safety and Hygiene and Meat Inspection Code. It made conclusion that the slaughterhouse operates in compliance with national requirements and had low risk.</li> <li>- 20 workers were involved in health-checkups;</li> <li>- "A" accreditation was issued to Monmeat Trade LLC by GASI in January 2016 based on results of inspection control and accreditation on the butchering cattle, production and operation technology, veterinary and sanitation of meat and meat products. It was valid until January 2018. This accreditation extends to distribution and sale in domestic meat market.</li> <li>- During the last monitoring PMU contacted environmental inspector of SID of Khentii aimag in February 2016 and enquired about environmental performance of the slaughterhouse. According to him the company was required to improve water and waste management in order to comply with national requirements (extend permission and contract on well water use, keep records of sewage and waste removal, improve internal control etc.).</li> </ul>
9	<b>Vitafit</b>  -Food safety; -Cattle health; - Occupational hygiene and sanitation.	<p>Dairy farm Atarchandgana in Kherlen soum of Khentii aimag and Vitafit dairy/yogurt plant in Ulaanbaatar was monitored in 2016.</p> <p><b>1. Dairy farm Atarchandgana in Kherlen soum of Khentii aimag.</b></p> <ul style="list-style-type: none"> <li>- Farm building was renovated and upgraded by a shelter for two year cattle with capacity of 150 cattle. Two milk cooling tanks (Freon based) with capacity of 3 and 5 ton were installed. Insulation of all shelters was improved with technical assistance of EBRD in 2016.</li> <li>- In total of 10 ton solid waste and ash from coal based boiler, and 185 ton manure was generated from the farm. Manure was dried in nature and used for fodder plantation as natural fertilizer;</li> <li>- Approximately 265 ton water was used for farm operation;</li> <li>- In average of 2 ton of milk was transported to the plant in every 3 days (In winter it sells milk to local company). Milk quality was tested by certified lab of Khentii aimag on quarterly basis;</li> <li>- Cattle was involved in vaccination in timely manner. There were 220 cattle, of which 79 were cows. Contracted veterinarian checks animal health;</li> <li>- 25 workers were involved in health checkups;</li> <li>- According to the environmental inspector of the Ulziit village of the Kherlen soum the farm was managed in compliance with national legal requirements, including land management and waste disposal;</li> <li>- During the last monitoring PMU contacted environmental and veterinary inspectors of SID and veterinarian of Veterinary Laboratory of Khentii aimag in February 2016 and enquired about environmental performance of the farm and cattle health. According to veterinarian the farm management has implemented measures to fight against brucellosis (there was recorded several cattle with brucellosis) and improve cattle health.</li> </ul>

		<p><b>2. Vitafit dairy/yogurt plant (Orgil Khuns LLC)</b></p> <p>Implementation of EMP at the plant was good.</p> <ul style="list-style-type: none"> <li>- Milk supplied by Atarchandgana farm was added to yogurt production (tetra-packs) by replacing imported milk powder (up to 25-30% in summer).</li> <li>- In total of 110336 ton water was used for plant operation. Waste water generated from the plant was sampled regularly by Central lab of the Water management authority. According to the sampling results its pollution level was under acceptable limits of national standards.</li> <li>- Solid waste was transported 2 times a week (by 1 ton) in accordance with the contract with the waste management company of the district. In total of 140 ton of solid waste was generated by the plant in 2016;</li> <li>- Lab of the plant conducts hygienic and bacteriological test of milk regularly;</li> <li>- Ultraviolet lamps were procured and installed in operation units;</li> <li>- Workers training on disinfection of equipment, occupational safety and hygiene, food safety, chemicals handling, and personal hygiene were conducted in accordance with training program;</li> <li>- Keeps records of chemicals consumption regularly and sends report to the Emergency department of the district on semi-annual basis;</li> <li>- All employees of the plant are provided with adequate EPP twice a year and being worn as required;</li> <li>- All employees of Tetra-packs (79 employees) were involved in health check-ups twice in 2016. Nobody was diagnosed with occupational disease among workers;</li> <li>- There were recorded 3 cases of minor accidents related to workers careless activity during their work. One injury was caused by violation of instruction for safe use of ladder, and other two were caused by wet floor. The company conducted risk assessment of all work places and developed plan on reduction of risks and improved internal control in order to prevent from workers injury and accidents;</li> <li>- Workers training on occupational safety, chemicals handling, fire prevention, was organized in accordance with training schedule. In total of 472 employees, of which 44 workers of Vitafit Impex (Dairy plant) were involved in these trainings.</li> <li>- Set of fire extinguishing equipment and tools were installed in all units of the plant;</li> <li>- Work condition assessment was conducted by Research center for occupational health in 2015. It reported that work place condition (temperature, humidity, lightning) was normal meeting national standards MNS 4990:2000 and MNS 5080:2001;</li> <li>- State inspection was conducted regularly (10 times) in accordance with Law on State Inspection by Professional Inspection Department (PID) of Ulaanbaatar city and Khan-Uul district. According to these inspection reports the plant has been operated in compliance with national legal requirements.</li> <li>- All procedures were updated for Vitafit group and workers trainings were conducted in compliance with ISO 22000 requirements. Certificate of ISO 22000 (Food safety management system) was issued to Vitafit group on 22 August 2016.</li> </ul>
10	<p><b>Altai Cashmere</b></p> <p>-Waste water; -Work condition.</p>	<p>During the last monitoring in 2016 the company has been operated with two shifts (it had 1 shift in 2015).</p> <ul style="list-style-type: none"> <li>- The company used 6287 m<sup>3</sup> water in 2016. Scouring line was not used fully. Therefore it scours sometimes other company's cashmere by contract (e.g. Bayalag Ulzii LLC).</li> <li>- In total of 56 ton of solid waste was transported to the city landfills in accordance with the contract with waste management company of the district;</li> <li>- Employees were provided with protective apparel and equipment in accordance with internal procedure, changing room and shower for workers were well maintained;</li> <li>- Fire extinguishing system and tools were in place;</li> <li>- The company does not use any hazardous and toxic chemicals and dyes. Dyeing of cashmere was outsourced to "Mongol Nekhmei" LLC.</li> </ul>

		<ul style="list-style-type: none"> <li>- It uses environmentally safe chemical substances for its cashmere scouring operation. Scouring agents and solvents were procured from England (Stephenson Specialty Chemicals) which manufactures these textile chemicals in compliance with international standards;</li> <li>- Due to installation of new whole garment production machine and printing machine productivity was improved;</li> <li>- Solid waste was removed in timely manner in accordance with the contract,</li> <li>- Chemicals storage was relocated on first floor and its maintenance and recordkeeping was good;</li> <li>- Analysis on waste water was conducted quarterly by the district inspection department. Results of lab samplings showed that there was no serious pollution. Soil and air samplings were under acceptable level required by national standards;</li> <li>- All employees were not involved in health check-ups in 2016 due to shortage of funding. The company plans to do it in 2017;</li> <li>- Last state inspection on company's occupational safety was conducted in accordance with Law on State Inspection by Professional Inspection Department (PID) of Ulaanbaatar city in September of 2016. According to this inspection the factory complies with national requirements and its condition was defined as with low risk. The company was required to improve internal monitoring on occupational safety and hygiene.</li> </ul>
11	<b>Darkhan Minj</b>  -Waste water -Sludge -Work place condition -Handling of chemicals	<p>During the project monitoring in 2016 PMU found that the company made progress in environmental performance. It was evidenced by the following:</p> <ul style="list-style-type: none"> <li>- The company has contract with Water management authority of Darkhan Uul aimag on water use and discharge. In total of 3700 m<sup>3</sup> water was used for plant operation in 2016. It was treated through in-house sewage treatment facility initially (mechanical treatment) prior its discharge into central sewage system.</li> <li>- Analysis on sewage was conducted regularly on monthly basis by local certified laboratory of Darkhan Us Suvag LLC and SID of the aimag. Results of the samples taken in March of 2016 showed that pollution level in waste water (except solid substances) was under acceptable limits.</li> <li>- In order to reduce water pollution level the company replaced 4 filters of sewage system in the wet processing unit and waste water treatment facility, treatment facility was cleaned and maintained regularly;</li> <li>- Waste water generated from the initial processing (with Cr) and pickling units was re-used for this operation 4-7 times;</li> <li>- Waste disposal point of the plant and waste record keeping was improved. In total of 378 m<sup>3</sup> solid waste was transported to the local landfills in accordance with the contract with local authority of public service;</li> <li>- Waste disposal point and raw material storage was disinfected by contracted company;</li> <li>- Improved chemicals storage: labeling, shelves and floor were renewed, different kinds of chemicals such as oil, dyeing agents were separated on different shelves; lightning was improved; heating and air ventilation was installed newly, sink was built newly, and record keeping and reporting was improved;</li> <li>- Work place condition was improved: Air conditioning system in chemical processing unit was replaced. Lighting in all units were improved; Floor in wet processing unit was renovated and its tiles were replaced with proper ones, ceiling in wet and dry processing units were renovated;</li> <li>- Work condition parameters were measured by inspectors of PID of Darkhan Uul aimag. According to its report temperature, humidity, NH<sub>3</sub> and dust all units were under acceptable limits meeting MNS 4990:2015;</li> <li>- Planted 100 trees and bushes on the territory of the plant building;</li> <li>- Workers rest room and canteen was renovated and furnished with new tables, chairs and drinking water;</li> <li>- Improved supply of fire extinguishing tools and equipment in 3 units;</li> <li>- Workers were provided with occupational protective apparel and equipment in accordance with internal procedure;</li> <li>- Conducted workers training on safety operation, providing first aid service, occupational safety and hygiene, fire prevention according to the training program. 150 workers were involved in 4 training in 2016;</li> </ul>

		<ul style="list-style-type: none"> <li>- Procedure on Internal monitoring was developed, and internal monitoring was included in responsibility of OSH manager in order to improve internal monitoring;</li> <li>- Soil around the plant was sampled by certified laboratory. According to its result heavy metal concentration except Arsenic (As) in soil was under acceptable level (Higher concentration of as was related by natural soil composition of the area<sup>1</sup>). Soil on 900 m<sup>2</sup> was removed and replaced with new one;</li> <li>- Specialized Inspection Agency (SIA) of Darkhan Uul aimag performed environmental and safety inspection regularly in order to ensure compliance with national environmental protection requirements. The company took follow-up measures according to these inspections in timely manner;</li> <li>- Environmental inspector of SID of the aimag has confirmed that the plant takes measures to reduce water pollution, and it operates in compliance with national requirements.</li> </ul>
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In addition, operation of these companies were inspected regularly by relevant state professional and specialized agencies such as Department of Environment and Green Development, Specialized Inspection Agency (SIA) of city and aimag and inspectors of soums and districts in order to ensure compliance with national environmental requirements. Conclusion/reports of these inspections were used by PMU in ARDP during the project monitoring.

Prepared by environmental specialist in PMU of ARDP.

Updated in April 2017.

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<sup>1</sup> Statement of Certified laboratory "Khanlab" LLC regarding of soil sampling results, 2016.