

M/S. Khairul Auto Rice Mill

Khulna, Bangladesh

Consultation on development of climate change adaptation strategies for companies

Given the geographic location as well as socio-economic conditions of Bangladesh, exposure to climatic change is high and the adaptive capacity to cope with climate risks is rather low. Climate change currently poses a high risk to the sustainable development and economic growth of Bangladesh and will become even more severe in the future. Communities and especially small- and medium-sized enterprises (SME) belong to the most vulnerable groups. SMEs often lack the skills, resources and infrastructures needed for adaptation to climate change.

This case study has been developed in the framework of the global programme 'Private Sector Adaptation to Climate Change' (PSACC) implemented by GIZ. The aim of the global programme is to develop and test instruments to build SMEs' adaptation capacities to cope with climate change risks and increase their resilience.

About the company

M/S. Khairul Auto Rice Mill is a small business that was founded in 2007 and is registered by the government of Bangladesh. The company produces par-boiled rice (60 % of production) and atop rice (40 %).

Location	Khulna, Bangladesh
Sector	Food Processing
Products	Rice (par-boiled rice & atop rice), Rice Polish, Khud (broken rice), Tush (rice hulls) & Kura (rice bran)
Company size	Turnover per annum: n.a. Employees: 31 (5 permanent staff and 26 wage labourers)



Working area © adelphi, 2016

How is the company affected by climate change?

Climate change affects the company in various ways. Firstly, the rice mill heavily depends on the **supply of paddy (crop)**. Agricultural production, however, is hampered by 1) intense and irregular rainfalls and 2) salinity intrusion from sea level rise. Secondly, the company needs **sufficient sunlight** to dry its rice, which is spread out in an open-air rice dryer place. Excessive rainfall during pre and post monsoon, longer fog periods and cold waves in winter negatively affect the drying process and lead to lower outputs. Thirdly, **working conditions** are deteriorating because of rising temperatures in hot season and falling temperatures in winter. Additionally, high energy consumption (e.g. for husking) leads to frequent **power interruptions**. In the future, stronger siltation of drainage systems might cause **flooding** of the company premises (2-3 feet lower than the road).

Key climate phenomena

Temperatures have been increasing and **heat waves** have become stronger and more frequent. In winter, the region now experiences more **fog and cold waves**. Extreme weather events like **heavy rain and cyclones** occur regularly during rainy season, and increasingly also outside the rainy season. **Floods**, which are caused by heavy rain events, lead to river erosion and create stronger siltation of the river banks. During the dry season, **less and more erratic rainfall** might lead to a decrease in water levels and an increase of soil salinization.



Open-air rice dryer place
(© adelphi, 2016)

Climate risks and Adaptation measures

Climate Phenomenon / Impacts	Climate Risks	Identified adaptation measures
Rising temperatures 	<ul style="list-style-type: none"> • Reduced productivity of workers involved in rice processing • Frequent power interruptions in summer • Decrease in rice quality 	<ul style="list-style-type: none"> • Installation of ventilation system • Construction of shaded spaces, e.g. shed • Refreshments and drinks for workers • Installation of alternative energy sources (solar panels, diesel generator)
Heavy rainfall 	<ul style="list-style-type: none"> • Reduced number of days for drying rice from sunlight • Delay in production and delivery of rice 	<ul style="list-style-type: none"> • Installation of an auto dryer machine with boiler • Improving (access to) weather forecasts
River flooding 	<ul style="list-style-type: none"> • Significant loss of crop production 	<ul style="list-style-type: none"> • Selecting additional and alternative markets to reduce dependency on the local market
Salt water intrusion 	<ul style="list-style-type: none"> • Decrease in crop production due to soil degradation from salinity. 	<ul style="list-style-type: none"> • Selecting additional and alternative markets to reduce dependency on the local market
Siltation 	<ul style="list-style-type: none"> • Flooding of companies premises (due to blocking of drainage systems) 	<ul style="list-style-type: none"> • Maintenance of drainage systems (if possible, with support from the government) • Lifting the ground level of the company premises
Storms 	<ul style="list-style-type: none"> • Damages to crop production and harvest • Power distribution system got cut 	<ul style="list-style-type: none"> • Alternative power source e.g. generator, solar etc.

Adaptation strategy

Climate risk management tools provide information for SME to build adaptation capacity and to develop individual adaptation strategies. PSACC developed the climate risk management tool “Climate Expert” (www.climate-expert.org), which in addition to assessing vulnerabilities, includes guidance on assessing costs and benefits of different climate risk management options. The Climate Expert assessment enabled the identification of the following prioritized adaptation options for M/S. Khairul Auto Rice Mill:

- Installation of an auto dryer machine with boiler
- Construction of shed, ventilation system
- Motivational activities (offering refreshments, change in work shift) for worker productivity during heat periods

M/S. Khairul Auto Rice Mill has now identified and prioritized adaptation measures to reduce the risks posed by climate change. Moreover, it has developed a communication plan that helps to disseminate the results of the company assessment among employees (announcing the motivational measures) and financial institutions (in order to raise awareness on the need for funding). The next step will be to identify possible funding options. As companies from the same sector face similar challenges like M/S. Khairul Auto Rice Mill, this case study can inspire and raise the awareness for climate risks of other rice and food processing companies as well.

For more information on this case study and PSACC, contact us

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