

KASHEMP – Producing high-quality textile hemp fibres in Southern Kazakhstan

Client II – International partnerships for sustainable innovations

Global textile production causes enormous strain on the environment. For example, the cultivation of cotton consumes large amounts of water, often in low-precipitation regions. Microplastic in the environment, partly caused by the production and use of synthetic textiles, is also becoming a significant environmental problem. In the “KASHEMP” project, German, Kazakh and Kyrgyz partners use German technologies to develop methods for growing and processing fibre hemp for use in textile fibres. This should create an alternative supply of raw materials both for the regional textile industry in Kazakhstan and the export market while simultaneously strengthening regional value creation.

Alternative to cotton

Kazakhstan is one of the most important cotton producers worldwide. The lack of precipitation is usually compensated for by additional irrigation, with all its associated environmental problems. One of the consequences has been the almost complete desiccation of the Aral Sea.

Fibre hemp is able to use groundwater much more effectively than cotton. “KASHEMP” therefore aims to use German technologies to help develop methods for growing and processing fibre hemp for the production of textile fibres in the southern Kazakh regions of Almaty and Shymkent. Based on methods for hemp straw processing, raw textile materials are to be developed which can be returned to the natural material cycle after use in an environmentally neutral manner. The project focusses on the production of fine, tear-resistant, predominantly impurity-free fibres in a comparable quality to cotton or wool in order to use these fibres as a suitable mixing partner in textile products. The production of textile-capable cotton-like hemp fibres will make it possible to provide a native alternative or supplement to the supply of raw materials for the regional textile industry. “KASHEMP”’s goal is to combine active environmental protection with sustainable management, while preserving income within a problematic industry in developing and emerging economies, to the benefit of both regions.

A consortium of German, Kazakh and Kyrgyz companies together with scientific institutions will address questions across the entire technological chain, from cultivation to textile-capable fibres or yarn. Regional cultivation experiments as well as the first stage in processing provide the raw materials. Concepts for quality refinement and

processing will be developed for these materials on the basis of scientific studies. The main focus is on use in the Kazakh textile industry, but the export market is also taken into consideration.



Growing hemp in Kazakhstan.

From cultivation to the product

In addition to environmental aspects, “KASHEMP” also considers social aspects and the need to cooperate on an increasingly international level for the benefit of all regions involved. In this way, the project secures regional jobs along the entire value chain, from agriculture to the manufacturing sector.

On-site cultivation trials are accompanied by the provision of seeds of productive fibre varieties as well as the identification of environmental indicators such as water consumption. German engineering partners are working to support the development of harvesting technology that has been adapted to suit the region and the type of use as well as the application-oriented processing of hemp straw. The support from scientific partners, particularly in evaluating

agricultural biomass, but also the intermediate and end products, provides essential fundamental knowledge for designing and adapting the supply chain of fibre hemp as a raw material for textile production.



Hemp fibres as a raw material for textile production.

Implementation prospects

If the project is successful in establishing and adapting the intended production process, this will translate into value creation in the regional textile industry. Additional prospects arise from the extensive potential for hemp fibre usage, not only locally, but also against the backdrop of the growing global interest in alternative raw textile materials. The German mechanical engineering partners will be able to expand their expertise to include the knowledge and solutions developed in the target region. This will open up additional prospects for them as specialist suppliers for a sector that is growing steadily worldwide.

Funding initiative

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Project title

KASHEMP – Producing high-quality textile hemp fibres in Southern Kazakhstan and implementing German harvesting and processing technology and implementing German harvesting and processing technology

Duration

01.01.2019–31.12.2021

Funding code

01LZ1708A-F

Funding volume

807,921 Euro

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Internet

bmbf-client.de

Published by

Bundesministerium für Bildung und Forschung/
Federal Ministry of Education and Research (BMBF)
Division Global Change; Climate Research
53170 Bonn, Germany

July 2019

Editing and layout

Project Management Jülich (PtJ), Forschungszentrum Jülich GmbH; adelphi research gGmbH

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