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Xinjiang's cotton irrigation technologies contribute to Central Asia's sustainable development

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In Uzbekistan, cotton is more than just a cropâ??itâ??s a symbol of national wealth and scientific collaboration. Referred to as "white gold," cotton fields in the suburbs of Tashkent are now at the heart of a groundbreaking initiative that showcases the power of international cooperation.

A demonstration site for water-saving drip irrigation technology, established in 2012 through a partnership between the China's Xinjiang Institute of Ecology and Geography and a local Uzbek research institution, has revolutionized cotton farming.

The technology uses plastic sheets and strategically placed hoses to deliver water directly to the roots, reducing evaporation and warming the soil. Li Yaoming, director of the Research Center for Green Development of Silk Road, highlights the success of this method, which has increased cotton yields two- to threefold and cut water usage by over 50% compared to traditional irrigation.

Initially met with skepticism, the technology has since gained widespread acceptance, with Central Asian institutions and governments seeking to replicate its success. Uzbekistan aims to expand this innovation across 2 million hectares of cotton fields, potentially saving 8 to 10 billion cubic meters of water annually.

Redirecting surplus water to the Aral Sea could help combat salt dust storms and improve the regional environment. This collaboration is part of a broader effort to address shared challenges in the region, such as water scarcity, climate change, and ecosystem degradation. Xinjiang and Central Asia, both located in temperate desert zones, face similar threats, including

rising temperatures and shrinking glaciers.

Since the 1990s, China has worked closely with Central Asian countries to promote sustainable agricultural practices. Innovations like drought monitoring systems and desertification control measures have been introduced across Kazakhstan, Kyrgyzstan, and Tajikistan. Li emphasizes that this cooperation is a two-way exchange.

While Central Asia benefits from Chinese expertise, researchers gain valuable data and insights from field trials in the region, accelerating technological advancements. Looking ahead, the Shanghai Cooperation Organization (SCO) has designated 2025 as the "Year of Sustainable Development."

Collaborative projects will leverage remote sensing, big data, and photovoltaic technologies to further enhance regional sustainability. Talent development is also a priority, with 97 Central Asian students already trained in advanced agricultural techniques, and more to follow. This partnership not only strengthens scientific innovation but also builds strategic trust and fosters new forms of collaboration, ensuring a greener future for the region.