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# IRRIGATION EQUIPMENT PRODUCTION IN CENTRAL ASIA:

# INDUSTRIALIZATION OF WATER SECTOR

Joint working document

Almaty 2025

# Joint EDB-UNIDO project aims to develop irrigation equipment manufacturing in Central Asia

Focusing on the water sector as a foundation for peace, health and economic growth creates numerous opportunities for investment in infrastructure and industry
(*e.g., a significant market of ~$200 million per year for irrigation equipment has emerged in CA*)

Periodic droughts and lack of water resources during the irrigation season affect crop yields and food security in the region
(*irrigated land accounts for about 24% of the total cultivated area and 66% of the value of CA's gross agricultural production*)

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## PROSPECTS AND OPPORTUNITIES

The development of irrigation equipment production is a natural continuation of EDB's comprehensive work in the water sector of Central Asia
(*today, another joint project of EDB with the MWRI of RoK and UNDP is under implementation, where it is planned to introduce the best practices of water accounting and irrigation in 5 regions of Kazakhstan*)

EDB promotes innovative development of territories and increasing the share of high-tech products, improving living standards, creating new jobs and reducing water stress throughout Central Asia

**The development of the irrigation equipment sector is aimed not only at solving the challenges of the region's water sector, but also at developing an industrial base.**

# In five years, the Aral Sea basin could face chronic water shortages

## ASB region challenges

**5-12 км³** — *assessment of water scarcity in the ASB after 2028-2029 due to a combination of climate change, population growth, and increased water withdrawals by Afghanistan*

**up to 50%** — *of irrigated lands in CA countries are subject to salinization*

**up to 40%** — *of water is lost during filtration, 2/3 of which is lost in the field*

## 10 PRACTICAL STEPS

to preserve the potential of irrigated lands, water and food security

1. **STRENGTHENING REGIONAL COOPERATION**
   - **INDUSTRIAL AND SERVICE CLUSTER** for production of modern irrigation equipment
2. **SCALING UP FINANCING**
3. **PROMOTION OF INNOVATIVE TECHNOLOGIES**

**PRODUCING IRRIGATION EQUIPMENT LOCALLY CAN HELP ADDRESS CHANGING WATER SECURITY IN CENTRAL ASIA**

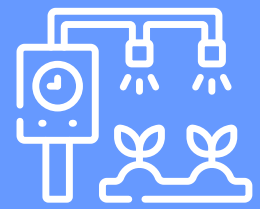
# The Central Asian countries have entered the phase of active measures for the development of a functioning water sector

*RoK example*

NATIONAL PROGRAMS ARE IN PLACE TO SUPPORT THE PURCHASE OF AGRICULTURAL MACHINERY AND WATER-SAVING EQUIPMENT

WORK IS UNDERWAY TO CONSTRUCT 42 NEW RESERVOIRS AND RECONSTRUCT 37 EXISTING RESERVOIRS

ABOUT 14.5 THOUSAND KILOMETERS OF IRRIGATION SYSTEMS ARE PLANNED FOR RECONSTRUCTION



A SEPARATE SPECIALIZED MINISTRY OF WATER RESOURCES AND IRRIGATION HAS BEEN ESTABLISHED

# In-house production of irrigation equipment - one of the answers to the region's growing water challenges

## SUPPORTING THE PRODUCTION INITIATIVES

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- Investment financing
- Technical assistance grants
- Strengthening the critical mass of enterprises

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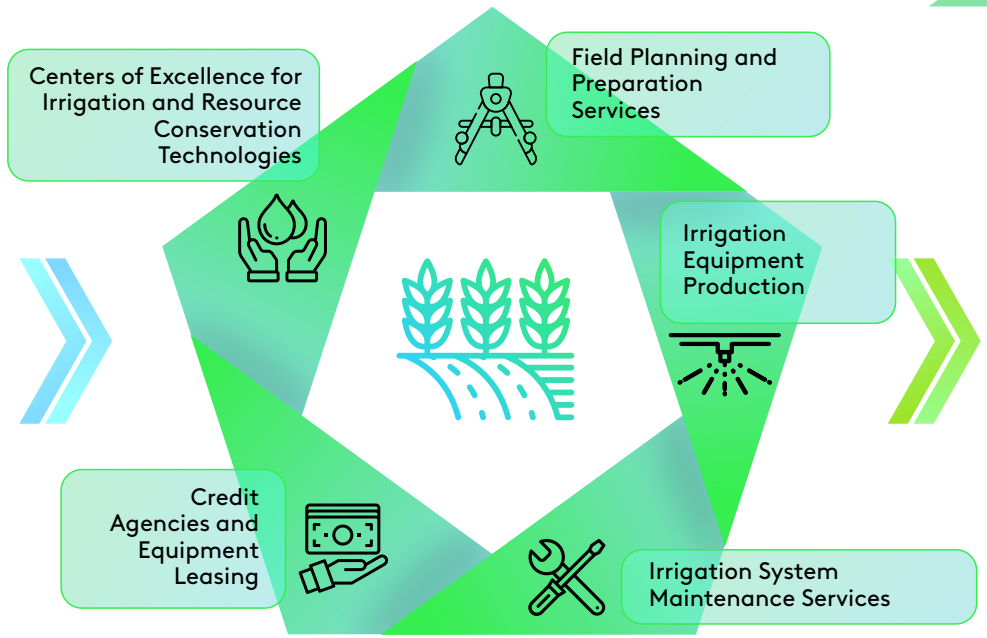
- Institutional capacity building
- Selection and development of cluster initiatives
- Deepening cooperation

## INDUSTRIAL AND SERVICE CLUSTER




## OPPORTUNITIES

- Increased adoption of water-saving technologies
- Improved engineering and technical condition of irrigation systems
- Improved efficiency of water use and the level of agricultural productivity
- Industrialization of the water sector

**In addition to the production of irrigation equipment, the cluster approach will aim to improve the competitiveness of the region's agro-industrial complex.**

# Conditions in Kazakhstan are favorable for the development of the irrigation equipment manufacturing sector

**THE AIM OF STATE POLICY IS THE DEVELOPMENT OF NEW INDUSTRIES AND THE CREATION OF A FAVORABLE INDUSTRIAL ENVIRONMENT**

## 1 Active industrial policy

The Law of the Republic of Kazakhstan "On Industrial Policy" adopted on 27.12.2021

State program for the development of domestic industries and export-oriented industries adopted on 30.06.2022

## 2 Territorial cluster development policy

Articles 23 and 40 of the Law on Industrial Policy guarantee state support for cluster initiatives

6 territorial clusters are holders of the bronze mark of the European Secretariat for Cluster Analysis

## 3 Digital Agenda in Industry

The policy of digital transformation of industry through financing of industrial innovation projects is being implemented

Branch of the Center of the 4th Industrial Revolution opened in AIFC effective from 1.09.2021

# Irrigation equipment manufacturing — closer to demand and ready infrastructure

## Today in Kazakhstan

**14**

Special economic zones

**1,057**

Active players in 14 zones

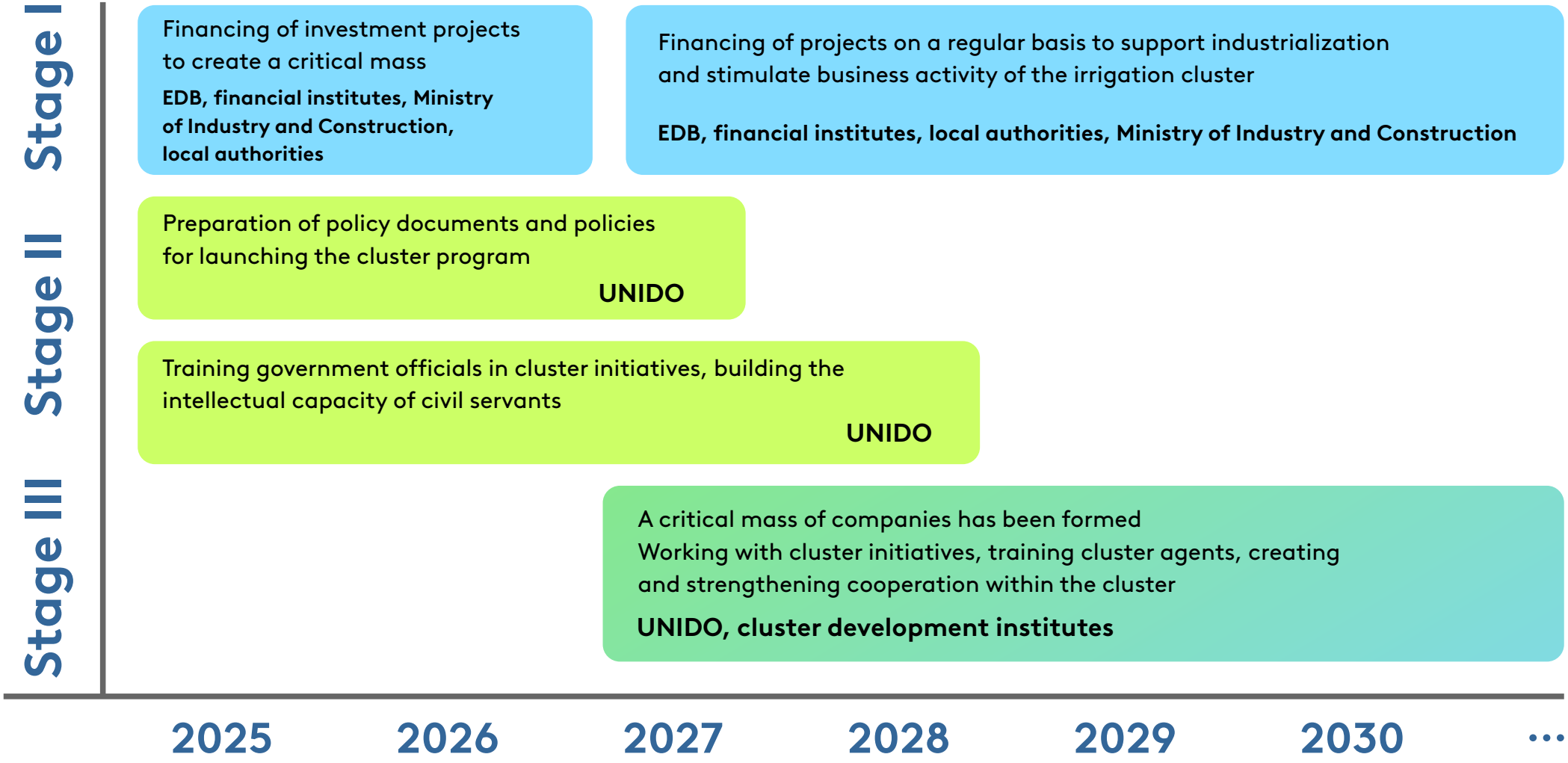
## Promising pilot site for the Cluster

### SEZ «Jibek Joly»

- Developed solid infrastructure;
- Extensive government support, including tax incentives and customs privileges;
- Strategic location in the south of Kazakhstan, close to BAM and irrigated lands of Central Asia;
- Its industrial focus on equipment and machinery manufacturing

**Due to the symbiosis of functional, solid infrastructure and favorable regulatory environment, cluster development in Kazakhstan is promising**

# Stages of forming disparate industries into a single cluster



# Stage I. Creation of a critical mass of industrial enterprises

## Potential participants in priority production expansion

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Ministry of Industry and Construction

Local authorities

Development banks and financial institutes

## Areas of activity

**Increase the number of new initiatives in irrigation equipment manufacturing**

examples of projects already in operation:

- *BNK Group's project in cooperation with the American company Nelson Irrigation for the production of sprinklers;*
- *project of Irrigator Kazakhstan together with Israeli company Metzerplus in Almaty region;*
- *a project of the Turkish company Kaz-Afko for the production of circular irrigation systems;*

**Preferential realization of projects on the industrial site of SEZ "JIBEK JOLY"**

**Strengthening scientific and technological cooperation with local production**

# Stage II. Strengthening industrial cluster policies (1/2)

## PERIODS OF CLUSTER DEVELOPMENT PROGRAMS IN KAZAKHSTAN:

### 1 PERIOD 2003-2005

Cluster development as advised by M. Porter

*7 promising clusters*

### 2 PERIOD 2005-2012

Government Resolution “On Approval of Plans for Creation and Development of Pilot Clusters in Priority Sectors of the Economy”

- *Republican pilot pharmaceutical cluster in Karaganda city;*
- *Medical services cluster on the basis of new medical centers in Astana city*

### 3 PERIOD C 2013

Concept of formation of perspective clusters of the Republic of Kazakhstan until 2020 and after the inclusion of the clustering program in the law “On industrial policy".

*6 pilot territorial clusters*

**The main program base has been formed in the region: state support and financing of industrial projects is provided**

# Stage II. Strengthening industrial cluster policies (2/2)

**Interaction with state authorities and quasi-public sector**

**Improvement of the cluster approach and training of experts**

**Development of cluster initiatives**

**CLUSTER POLICY MODERNIZATION**


**Stages I and II can be implemented in parallel to maximize the effect of clustering in irrigation production.**

# Stage III. Promoting cluster formation and strengthening synergies between enterprises

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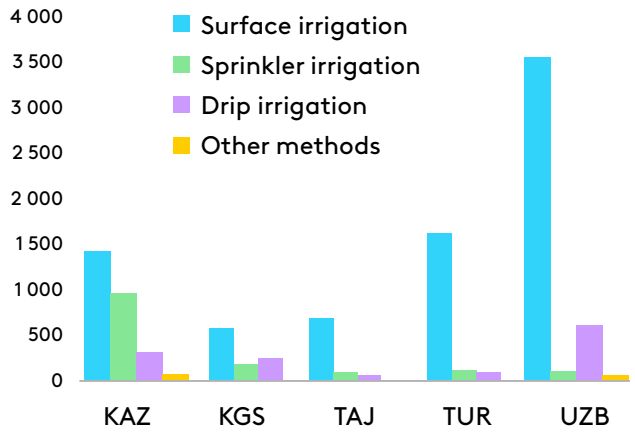
- Organization of confidence-building activities within the cluster
- Strengthening cluster governance mechanisms by changing patterns of interaction between cluster members
- Strengthening institutions capable of leading and coordinating joint actions within the cluster
- Establishment and/or support of business networks
- Facilitating dialogue between cluster members and government agencies and organizations
- Technical assistance to financial and non-financial service providers (development agencies, vocational schools, etc.)

**Once an optimal level of "readiness" has been achieved, UNIDO can facilitate the formation of a fully-fledged cluster**

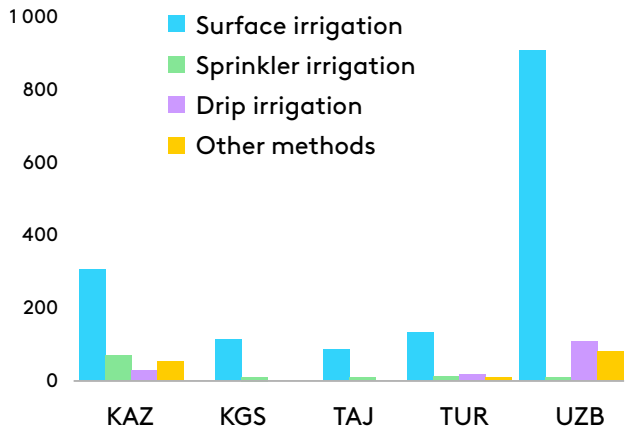
# Introduction of new irrigated land in CA by 2040 will boost demand for irrigation equipment

*based on state program documents

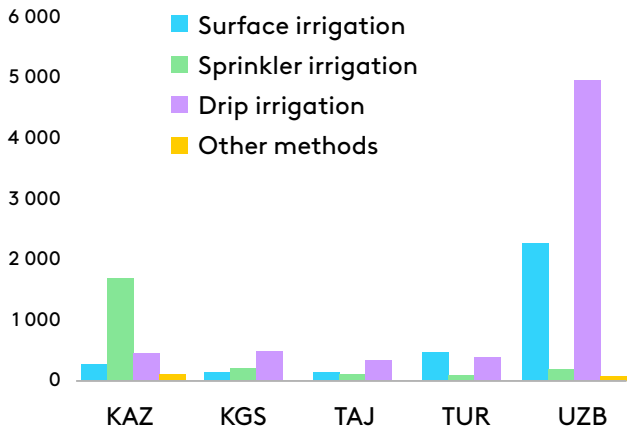
**Forecast of mechanized irrigation application by 2040,** 1,000 hectares




**Forecast of demand for technical means and equipment for irrigation up to 2040,** 1,000 units




**Estimation of investments in improvement of crop irrigation techniques and methods in CA till 2040,** mln USD



# Significant production potential through localization of irrigation equipment

| SURFACE IRRIGATION | SPRINKLER IRRIGATION | DRIP IRRIGATION | OTHER METHODS |
|---|---|---|---|
|  |  |  |  |
| **1 525** *thousand units* | **102.5** *thousand units* | **180.5** *thousand units* | **142.4** *thousand units* |
| • irrigation fittings;<br>• portable mobile means of water redistribution on the irrigated area;<br>• laser-controlled earth-moving and planning machines;<br>• automated short-base planners | • wide-catchment sprinklers;<br>• hose reel sprinklers;<br>• shut-off and regulating hydraulic fittings;<br>• head and flow regulators, booster pumps and pumping-power equipment | • drip tubes and tapes with pressure compensated and non-pressure compensated drippers;<br>• sets of connection fittings;<br>• Layflat flexible pipelines;<br>• irrigation control and automation systems | • special equipment for fertilizer application with irrigation water;<br>• computerized irrigation control systems;<br>• machinery and equipment for operational and repair works against sediment and shrub vegetation |

**Up to $426 million in production could be organized annually by localizing irrigation equipment**

# Objectives of the development of irrigation equipment production in Central Asia

## Objective 1

Addressing challenges
in irrigation and efficient water
resources management

Incentivize reduction of water losses

**to 25% by 2030**

*(50% coverage today)*

Increasing the coverage of water infrastructure with digital technologies

**up to 40% by 2030**

*(today coverage is less than 5%)*

## Objective 2

Development into a promising
segment of industrialization
and improvement
of industrial capabilities

Localization of high value-added production facilities up to more

**than $400 million**

*(annually)*

Promoting industrial development to achieve Kazakhstan's GDP of

**$450 billion**

*(by 2029)*

*RoK example*

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# Thank you for your attention!

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