

# *Adapting agricultural water use to climate change in a post-Soviet context: challenges and opportunities in southeast Kazakhstan*

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**Adapting agricultural water use to climate change in a post-Soviet context: challenges and opportunities in Southeast Kazakhstan**

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**Table A1. Challenges to water use in agriculture in Koram and Karaoi.**

Study site	Challenge	Problem area	Mentions in individual cards (Exercise 1)	Total mentions in group cards (Exercise 2)	Small holders		Middle and large holders		NGOs and agrobusinesses		Scientists		State structures	
					Ranking	Mentions positions	Ranking	Mentions positions	Ranking	Mentions positions	Ranking	Mentions positions	Ranking	Mentions positions
Koram	Inadequate water supply	Water supply	9	2	-	-	1	4	1	3	-	-	-	-
	Untimely water supply		11	4	2	1, 5	2	1, 5	-	-	-	-	-	-
	Water supply rules		11	3	1	3	-	-	-	-	-	-	2	2, 4
	Poor infrastructure/maintenance		20	3	-	-	1	2	-	-	1	2	1	1
	No/bad consumption measurement		8	3	1	2	-	-	1	5	-	-	1	3
	High water prices		4	3	1	4	1	3	1	2	-	-	-	-
	Bad soil cultivation		1	1	-	-	-	-	-	-	1	5	-	-
	Climate change		2	1	-	-	-	-	-	-	-	-	1	5
	Irrigation practices		3	-	-	-	-	-	-	-	-	-	-	-
	Lack of knowledge		6	-	-	-	-	-	-	-	-	-	-	-
	Lack of irrigation technology		2	-	-	-	-	-	-	-	-	-	-	-
	Land use		4	-	-	-	-	-	-	-	-	-	-	-
	Little penetration of new crops		1	1	-	-	-	-	-	-	1	4	-	-
	No problem		2	-	-	-	-	-	-	-	-	-	-	-
	No science-user connection		1	1	-	-	-	-	-	-	1	3	-	-
	Other		5	-	-	-	-	-	-	-	-	-	-	-
	Reducing water stock		2	1	-	-	-	-	-	-	1	1	-	-
	Salinisation		1	-	-	-	-	-	-	-	-	-	-	-
	Water losses		5	2	-	-	-	-	2	1, 4	-	-	-	-
	Water quality		2	-	-	-	-	-	-	-	-	-	-	-
Karaoi	Inadequate water supply	Water supply	16	4	-	-	3	1, 2, 3	-	-	1	3	-	-
	Poor infrastructure/maintenance		21	5	1	1	-	-	1	2	1	2	2	1, 3
	Lack of irrigation technology		7	3	1	5	-	-	-	-	-	-	2	4, 5
	Climate change		2	1	-	-	-	-	-	-	1	4	-	-
	Corruption		1	-	-	-	-	-	-	-	-	-	-	-
	High water prices		3	1	-	-	-	-	-	-	1	1	-	-
	Irrigation practices		3	-	-	-	-	-	-	-	-	-	-	-
	Labour intensity		1	-	-	-	-	-	-	-	-	-	-	-
	Lack of financial resources		1	-	-	-	-	-	-	-	-	-	-	-
	Lack of knowledge		1	-	-	-	-	-	-	-	-	-	-	-
	Lack of technical personnel		2	1	-	-	-	-	1	5	1	5	-	-
	Land use		2	-	-	-	-	-	-	-	-	-	-	-
	Loss of Soviet irrigation system		1	1	-	-	1	5	-	-	-	-	-	-
	No/bad consumption measurement		2	1	-	-	-	-	1	4	-	-	-	-
	Non rational water use		1	1	-	-	-	-	1	1	-	-	-	-
	Other		3	-	-	-	-	-	-	-	-	-	-	-
	Water supply rules		11	2	1	2	-	-	1	3	-	-	-	-
	Untimely water supply		1	1	1	4	-	-	-	-	-	-	-	-
	Water losses		2	2	1	3	-	-	-	-	-	-	1	2
	Water quality		3	1	-	-	1	4	-	-	-	-	-	-