

Assessing Water Security in Central Asia through a Delphi Approach

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INTRODUCTION

Water security challenges in Central Asia* (CA):

- transboundary river systems
- interconnected infrastructure assets
- water allocation disputes



How do policymakers and water professionals perceive water security in CA?

METHODOLOGY

The Delphi method - two rounds of survey:

- to identify the commons and differences with the literature review findings, and to reach agreement among experts in water security issues
- 417 international and regional water professionals were invited
- Water security trends and priorities from [Xenarios et al. \(2020\)](#)
- Clustering analysis: Euclidean distances were calculated between two sets of questionnaire answers. These pairwise distances were averaged across all questions for both rounds in cluster categories: age, experience and origin.

DELPHI RESULTS

	1st round		2 round	
Completed responses	112		118	
	agreement (%)	agreement (%)	disagreement (%)	neutral (%)
Water security dimensions				
1 st Economic activities				
2 nd Urban & household facilities				
3 rd Natural hazards				
4 th Environmental aspects	58.75	79.05	19.05	1.9
Water security priorities				
AF: improvement of drinking water use in rural and urban areas	44	65.05	6.8	28.15
KZ: improvement of river basin management plans	44	73.33	10.48	16.19
KG: Improvement of hazard plans for landslides	27	48.62	25.69	25.69
TJ: Improvement of irrigation management for agriculture	35	60.2	23.3	16.5
TM: Improvement of drinking water use in rural and urban areas	46	46.54	18.81	34.65
UZ: Improvement of irrigation management for agriculture	53	84	6	10

CLUSTERING RESULTS

Cluster: Age			
	18-34	35-54	55-Older
18-34		2.45	1.95
35-54			2.08
			1.84
55-Older			
			1.92
			1.53

Cluster: Experience (years)			
	Up to 5	6-15	Over 15
Up to 5		2.11	2.03
6-15			2.06
			1.90
Over 15			
			2.22
			1.45

Cluster: Origin			
	CA Upstr	CA Downstr	Other
CA Upstr		2.18	1.53
CA Downstr			2.39
			1.63
Other			
			2.05
			2.07

DISCUSSION & CONCLUSION

We reached a higher rate of agreement among experts on water security priorities in CA.

The Delphi results shows that experts' views differ from similar analyses in the literature review on water security trends.

Average pairwise distances/ variability scores reveal:

- there is convergence between the two rounds across all cluster groupings,
- there is less variability for older participants,
- there is less variability for participants' answers from upstream CA countries as compared to downstream CA countries.

Experts suggest improving water security dialogue in the CA region.

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