



## Central Asia Hydrometeorology Modernization Project (P120788)

EUROPE AND CENTRAL ASIA | Central Asia | Social, Urban, Rural and Resilience Global Practice Global Practice | IBRD/IDA | Investment Project Financing | FY 2011 | Seq No: 14 | ARCHIVED on 18-Dec-2018 | ISR34925 |

Implementing Agencies: Tajikhydromet, Ministry of Finance, Ministry of Finance, Executive Committee of the International Fund for Saving the Aral Sea (EC-IFAS), EC-IFAS Regional Center of Hydrology (RCH), Ministry of Emergency Situations

### Key Dates

#### Key Project Dates

Bank Approval Date: 26-May-2011

Effectiveness Date: 11-Nov-2011

Planned Mid Term Review Date: 06-Oct-2014

Actual Mid-Term Review Date: 17-May-2014

Original Closing Date: 31-Aug-2016

Revised Closing Date: 31-Mar-2021

### Project Development Objectives

Project Development Objective (from Project Appraisal Document)

The objective of the Central Asia Hydrometeorology Modernization Project (CAHMP) is to improve the accuracy and timeliness of hydromet services in Central Asia, with particular focus on Kyrgyz Republic and Republic of Tajikistan.

Has the Project Development Objective been changed since Board Approval of the Project Objective?

No

### Components

Name

Component A: Strengthening regional coordination and information sharing and services:(Cost \$12.20 M)

Component B: Strengthening of Hydromet Services in Kyrgyz Republic:(Cost \$11.00 M)

Component C: Strengthening of Hydromet Services in Republic of Tajikistan:(Cost \$16.00 M)

### Overall Ratings

Name	Previous Rating	Current Rating
Progress towards achievement of PDO	● Satisfactory	● Satisfactory
Overall Implementation Progress (IP)	● Satisfactory	● Satisfactory
Overall Risk Rating	● Substantial	● Substantial

### Implementation Status and Key Decisions

**CAHMP has played a key role in enhancing collaboration, information sharing and capacity building among four NMHSs in Central Asia.**

The project has made substantial progress in strengthening regional collaboration and institutional capacity of the four involved NMHSs. Through joint capacity building such as forecaster training, NMHS technical staff have developed operational relationships for collaboration, mutual support and recognition of the regional and national benefits of data sharing. The Project has also provided a management-level platform for Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan to closely collaborate, build consensus on forward-looking enhancements and agree the aspects of weather/climate and hydrological information services that need to be managed with a regional dimension. For example, the four countries are collaborating on establishing operational regional numerical weather prediction, to be operated on behalf of the region by the RSMC Tashkent



(Regional Specialized Meteorology Center hosted by Uzhydromet). Under the Additional Financing, Turkmenistan has now joined the Project, and extra efforts are being undertaken to ensure its rapid integration in the Project and the related regional systems.

**KyrgyzHydromet and TajikHydromet are improving their services and therefore their utility for government ministries, partners and the public.** Within KyrgyzHydromet and TajikHydromet, mindsets and perceptions have gradually shifted from a traditional government scientific agency approach focusing on technical activities, to a more user-oriented service provider approach, increasingly focusing on understanding and meeting user information needs. Promoting this cultural shift, the Project has supported activities such as preparation and subsequent approval of business development plans for KyrgyzHydromet and TajikHydromet, which have further improved the potential for sustainability. In both cases, the statuses and budgets of these agencies have increased during project implementation, indicating improved recognition by government, in response to improved performance. In addition, KyrgyzHydromet and TajikHydromet are now able to contribute more information and expertise to regional efforts, for example leading the identification of regional capacity building needs for certain themes under the Bank's Strengthening Early Warning of Mountain Hazards in Central Asia (P158373) technical assistance project.







## Risks

### Systematic Operations Risk-rating Tool

Risk Category	Rating at Approval	Previous Rating	Current Rating
Political and Governance	--	● Moderate	● Moderate
Macroeconomic	--	● Moderate	● Moderate
Sector Strategies and Policies	--	● Substantial	● Substantial
Technical Design of Project or Program	--	● Substantial	● Substantial
Institutional Capacity for Implementation and Sustainability	--	● Substantial	● Substantial
Fiduciary	--	● Moderate	● Moderate
Environment and Social	--	● Low	● Low
Stakeholders	--	● Substantial	● Substantial
Other	--	--	--
Overall	--	● Substantial	● Substantial

## Results

### PDO Indicators by Objectives / Outcomes

Accuracy of hydrometeorological forecasts improved				
▶ Increased accuracy of river flow forecasts (Text, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	KgHM 62% TjHM 64%	KgHM: 83% TjHM: 75%	KgHM: 87% TjHM: 80%	KgHM: 85% TjHM: 80%
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021
▶ Increased accuracy and timeliness of basic weather forecasts (Text, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	76% for KgHM and 66% for TjHM	KgHM: 94.7% TjHM: 85%	KgHM: 94.7% TjHM: 85%	KgHM: 85% TjHM: 85%
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021
Increased user satisfaction, including regarding timeliness, with hydrometeorological services				



► Increased user satisfaction with hydrometeorological services (Text, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	KgHM: 2.80	KgHM: 3.81	KgHM: 3.81	KgHM: 4.3
	TjHM: 2.90	TjHM: 4.26	TjHM: 4.26	TjHM: 4.3
Date	17-Jun-2016	01-Dec-2017	01-Dec-2018	31-Mar-2021

### Intermediate Results Indicators by Components

Component A: Strengthening regional coordination and information sharing.				
► (Comp A: EC-IFAS, IRI 1): Improved access to national and regional numeric weather prediction products to all CA countries (Text, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	100x250 km transmitted every 12 hours	<p>13 x 13 km every 6 hours</p> <p>The calculation results based on ftp are being transmitted for the regional grid of resolution 13.2x13.2 km using the adapted COSMO technology in Uzhydromet and other NHMS CAs.</p> <p>The system of local calculations for COSMO-CentralAsia-2 with a resolution of 2x2 km is organized.</p> <p>The COSMO-CA-2 technology software was developed for further installation at Uzhydromet. Installation of dedicated high powered computing facilities is currently under way at UzHydromet.</p>	<p>Central Asia NMHS community has access to global numerical products from ECMWF, Roshydromet, CMA, JMA and KMA.</p> <p>SWFDP-CA Website/Portal (<a href="http://swfdp-ca.meteoinfo.ru">http://swfdp-ca.meteoinfo.ru</a>) is operational.</p> <p>Uzhydromet, Kyrgyzhydromet and Tajikhydromet have licensed COSMO software and maintenance for the WMO RSMC (Tashkent).</p> <p>COSMO-CA model at 13 km resolution, producing forecasts every 6 hours, is currently in testing mode.</p>	<p>7x7 km every 6 hours for all of Central Asia</p> <p>2x2 km every 6 hours for the mountainous region of Central Asia</p>
Date	10-Dec-2015	01-Dec-2017	01-Dec-2018	31-Mar-2021
► (Comp A: EC-IFAS, IRI 2): Established platform for integration of four NHMSs in CA (Text, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Lack of agreed regional approaches on knowledge exchange	Common methodology to verify hydromet forecasting accuracy developed and used.	Common methodology to verify hydromet forecasting accuracy developed and used.	Regional approach adopted in hydromet forecasting and decision-making



<p>and emergency procedures</p>	<p>Installation of the Distance Learning System (DLS) is completed (Almaty, Bishkek, Dushanbe and Tashkent).</p> <p>Guidelines and approaches to regional procedures for emergency prevention agreed by CA NHMS in 2014.</p> <p>In Cholpon-Ata Lake Observatory of Kyrgyzhydromet, a new regional training center on lakes and water reservoirs was established for CA specialists.</p> <p>By December 2016, all activities related to creation of the regional system to access to online information products based on satellite data in Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan was completed.</p> <p>Implementation of the cascading method of severe weather forecasting (SWFDP-CA) is ongoing - it is operational and currently being transitioned from Moscow (RosHydromet) to Tashkent (UzHydromet).</p>	<p>Partial modernization of the WMO Regional Specialized Meteorological Center (RSMC) Tashkent completed.</p> <p>System of access to online information products based on satellite data in Kazakhstan, Kyrgyz Republic, Tajikistan and Uzbekistan established.</p> <p>Guidelines and approaches for regional emergency warning procedures communicated to CA NHMSs for operational use.</p> <p>Regional training center on lakes and water reservoirs established for CA specialists based at Cholpon-Ata Lake Observatory of Kyrgyzhydromet.</p> <p>Distance Learning System (DLS) installed in RCH EC IFAS, Kyrgyzhydromet, Tajikhydromet and Uzhydromet. DLS branches are currently being launched in Astana (Kazakhstan), Osh (Kyrgyzstan) and Bokhtar (Tajikistan).</p> <p>Supply and installation of training equipment for NWP at national and regional levels (4 CA NHMSs) is completed in WMO RSMC (Tashkent).</p> <p>Supply and installation of training equipment for CA NHMSs to support re-training and capacity development of observation units completed (RCH EC IFAS, Kyrgyzhydromet,</p>	<p>mechanism for regional issues formalized among the four NHMSs in CA</p>
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			Tajikhydromet and Uzhhydromet).	
Date	10-Dec-2015	01-Dec-2017	01-Dec-2018	30-Jun-2018
►(Comp A: EC-IFAS, IRI 3): Improved access to landslide, mudflow and snowmelt guidance for all CA countries (Text, Custom)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	CARFFGS provides only flash flood guidance products across the region	same as baseline	same as baseline	CARFFGS provides flash flood, landslide, riverine routing and snowmelt guidance products across the region
Date	02-Mar-2018	--	01-Dec-2018	31-Mar-2021

**Component B: Strengthening of Hydromet Services in Kyrgyz Republic.**

►(Comp B: Kyrgyz Republic, IRI 1) Improved status of hydrometeorological observation networks (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	13% of meteostations gauging main meteo parameters	100% of meteostations gauging main meteo parameters.	100% of meteostations gauging main meteo parameters.	100% of meteostations gauging main meteo parameters
Value	44% of stream gauges reporting operational data	100% of stream gauges reporting operational data.	100% of stream gauges reporting operational data.	93% of stream gauges reporting operational data
Value	70% stream gauges measuring discharges	95% stream gauges measuring discharges.	95% stream gauges measuring discharges.	87% stream gauges measuring discharges
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021

►(Comp B: Kyrgyz Republic, IRI 2) Better transmission of data to global telecommunication system (GTS) (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	86.00	85%	99.85%	100.00
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021

►(Component B: Kyrgyz Republic, IRI 3) Historical data archiving (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	2,125,000 pages scanned	2,125,000 pages scanned	800,000
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	30-Jun-2018

►(Comp B: Kyrgyz Republic, IRI 4) Increased institutional strength and sustainability of Kyrgyzhydromet (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Existing legal structure, operating procedures	KgHM prepared a list of operational guidelines	KgHM prepared a list of operational	New regulations developed.





	<p>and staffing are inadequate to meet KgHM mission#s needs.</p> <p>Investment and O&amp;M needs far exceed KgHM budgets.</p>	<p>necessary for operations in light of modernized infrastructure; the terms of reference to draft these is being developed.</p> <p>“Fee-for-service” arrangements have been piloted in few sectors, resulting in a 7% increase in the special account funds. The Marketing Department has initiated regular quality survey assessments of users, and is implementing simplification of the payment system for KgHM services.</p> <p>KgHM budget is now sufficient to cover O&amp;M needs of regular operations.</p>	<p>guidelines necessary for operations in light of modernized infrastructure; the terms of reference to draft these is being developed.</p> <p>“Fee-for-service” arrangements have been piloted in few sectors, resulting in a 7% increase in the special account funds. The Marketing Department has initiated regular quality survey assessments of users, and is implementing simplification of the payment system for KgHM services.</p> <p>KgHM budget is now sufficient to cover O&amp;M needs of regular operations.</p>	<p>New standard operating procedures developed.</p> <p>New business plan developed.</p> <p>Budget significantly increased.</p>
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021

**Component C: Strengthening of Hydromet Services in Republic of Tajikistan.**

►(Comp C: Tajikistan, IRI 1) Improved status of hydrometeorological observation networks (Text, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	19% of meteostations gauging main meteo parameters	100% of meteostations gauging main meteo parameters	100% of meteostations gauging main meteo parameters	90% of meteostations gauging main meteo parameters
	16% of stream gauges reporting operational data	50% of stream gauges reporting operational data	50% of stream gauges reporting operational data	50% of stream gauges reporting operational data
	49% stream gauges measuring discharges	60% stream gauges measuring discharges	61% stream gauges measuring discharges	71% stream gauges measuring discharges
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021

►(Comp C: Tajikistan, IRI 2) Better transmission of data to global telecommunication system (GTS) (Percentage, Custom)

	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	70.00	95.00	96.60	100.00



Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021
<b>►(Comp C: Tajikistan, IRI 3) Increased sustainability and strengthened performance of Tajikhydromet operations (Text, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Existing legal structure, operating procedures and staffing are inadequate to meet TjHM mission needs.  Investment and O&M needs far exceed TjHM budgets.	New regulations and operational guidelines developed in line with new concept, modernized observation infrastructure and technologies are fully functioning.  "Fee-for-service" arrangement piloted in few sectors, in particular energy, agriculture, housing and transportation. For 10 months of 2017, 9 contracts were signed for about US\$5000.  In April 2017 TjHM requested the Environmental Protection Committee to submit the draft budget of Tajikhydromet to the Finance Ministry of taking into account the allocation of additional funds for the O&M of the upgraded observation network. Currently, no additional funds for O & M are needed.	Overall concept of Tajikhydromet business plan is now under implementation.	New regulations developed.  New standard operating procedures developed.  New business plan developed.  Budget significantly increased.
Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	31-Mar-2021
<b>►(Component C Tajikistan, IRI 4): Historical data archiving (Text, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	0.00	1,130,500 pages - scanning of data is complete	1,130,500 pages - scanning of data is complete	800,000
Date	31-Aug-2011	28-Oct-2016	01-Dec-2018	30-Jun-2018
<b>►(Comp C: Tajikistan, IRI 5) Increased reliability of climate data (Text, Custom)</b>				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Information on climate limited and of inadequate quality	Ability to downscale local scales for at least 90% of the country	Ability to downscale local scales for at least 90% of the country	Ability to downscale to local scales for at least 90% of the country



Date	31-Aug-2011	01-Dec-2017	01-Dec-2018	30-Jun-2018
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## Data on Financial Performance

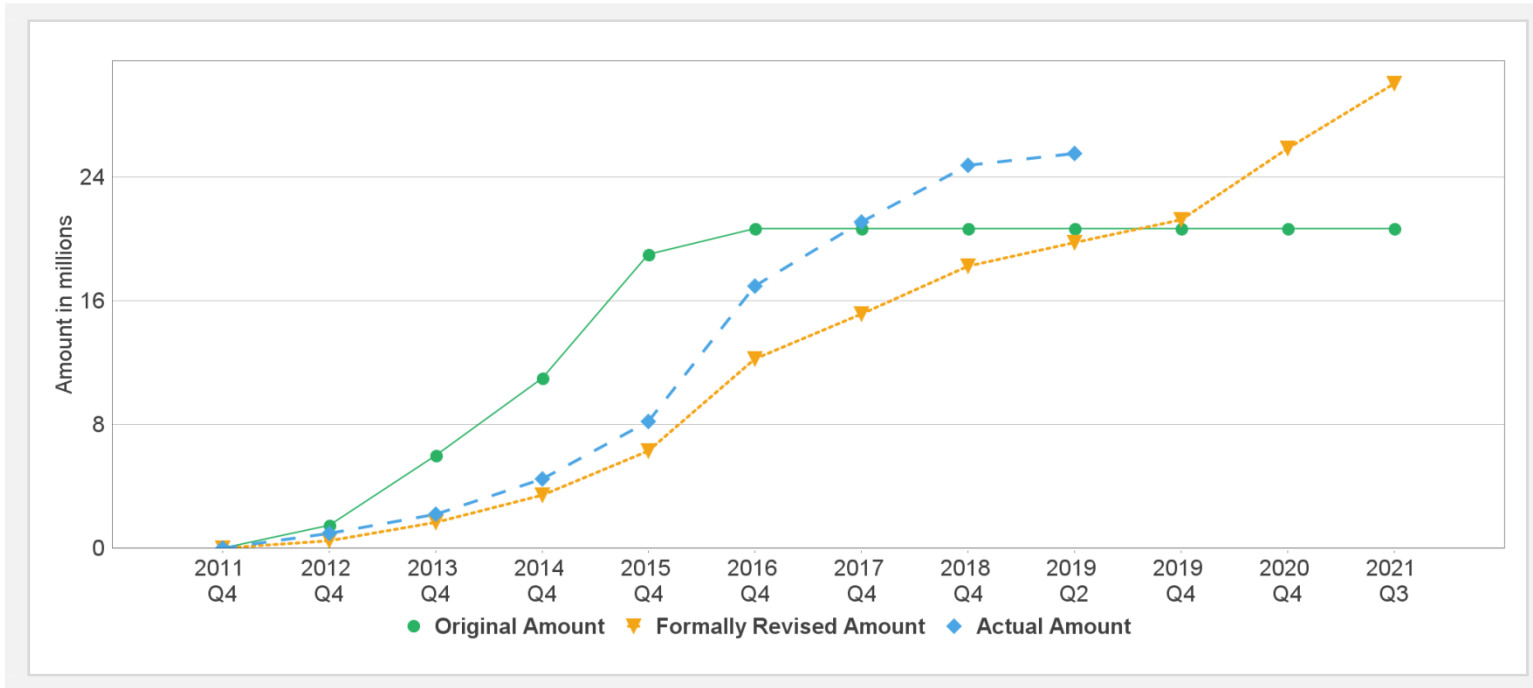
### Disbursements (by loan)

Project	Loan/Credit/TF	Status	Currency	Original	Revised	Cancelled	Disbursed	Undisbursed	% Disbursed
P120788	IDA-49340	Effective	USD	5.10	5.10	0.00	4.62	0.07	99%
P120788	IDA-62940	Not Effective	USD	2.50	2.50	0.00	0.00	2.52	0%
P120788	IDA-D3520	Not Effective	USD	2.50	2.50	0.00	0.00	2.52	0%
P120788	IDA-D3560	Not Effective	USD	3.50	3.50	0.00	0.00	3.50	0%
P120788	IDA-D3620	Not Effective	USD	3.00	3.00	0.00	0.00	3.08	0%
P120788	IDA-H6770	Effective	USD	8.70	8.70	0.00	7.50	0.47	94%
P120788	IDA-H6780	Effective	USD	0.90	0.90	0.00	0.87	0.00	100%
P120788	IDA-H6790	Effective	USD	6.00	6.00	0.00	5.55	0.00	100%
P120788	TF-99848	Effective	USD	7.00	7.00	0.00	7.00	0.00	100%

### Key Dates (by loan)

Project	Loan/Credit/TF	Status	Approval Date	Signing Date	Effectiveness Date	Orig. Closing Date	Rev. Closing Date
P120788	IDA-49340	Effective	26-May-2011	23-Aug-2011	03-May-2012	31-Aug-2016	31-Mar-2021
P120788	IDA-62940	Not Effective	01-Aug-2018	--	--	31-Mar-2021	31-Mar-2021
P120788	IDA-D3520	Not Effective	01-Aug-2018	--	--	31-Mar-2021	31-Mar-2021
P120788	IDA-D3560	Not Effective	01-Aug-2018	--	--	31-Mar-2021	31-Mar-2021
P120788	IDA-D3620	Not Effective	01-Aug-2018	--	--	31-Mar-2021	31-Mar-2021
P120788	IDA-H6770	Effective	26-May-2011	12-Jul-2011	12-Jan-2012	31-Aug-2016	31-Mar-2021
P120788	IDA-H6780	Effective	26-May-2011	23-Aug-2011	03-May-2012	31-Aug-2016	31-Mar-2021
P120788	IDA-H6790	Effective	26-May-2011	13-Jul-2011	11-Nov-2011	31-Aug-2016	31-Mar-2021
P120788	TF-99848	Effective	13-Jul-2011	13-Jul-2011	11-Nov-2011	31-Aug-2016	31-Dec-2018

### Cumulative Disbursements



### Restructuring History

Level 2 Approved on 28-Jan-2016 ,Level 2 Approved on 23-Mar-2018

### Related Project(s)

P164780-Central Asia Hydrometeorology Modernization Project (CAHMP) Additional Financing