Research Terms of Reference Irrigation Management

AFG2401b Afghanistan

15 May 2025



Executive Summary 1

Country of	Afghanistan							
intervention								
Type of Emergency		Natural hazard		Con	flict	Х	Other: economic crisis	
Type of Crisis		Sudden onset		Slov	v onset	х	Protracted	
Mandating Body/	NMoF	Ā						
Agency								
IMPACT Project	02BA	02BAS						
Code								
Overall Research								
Timeframe (from	15/03	/2025 to 31/08/2025						
research design to								
final outputs / M&E)								
Research	1. Pilo	ot/ training: 18/05/2025			7. Outputs sent for validation: 3/07/2025			
Timeframe	2. Sta	art collect data: 25/05/2025			8. Outputs shared with partner: 15/07/2025			
Add planned	3. Da	ta collected: 4/06/2025						
deadlines (for first	4. Da	4. Data analysed: 18/06/2025						
cycle if more than 1)	5. Da	ta sent for validation: 21/06/2	025					
Number of	Х	Single assessment (one cy	cle)					
assessments		Multi assessment (more that	an or	ne cy	cle)			
Humanitarian	Miles	tone			Deadline (can be tentative)			
milestones		Donor plan/strategy			N/A			
Specify what will the		Inter-cluster plan/strategy			N/A			
assessment inform		Cluster plan/strategy			N/A			
e.g. The shelter		NGO platform plan/strategy	/		N/A			
cluster will use this	х	Other (Specify): ACTED TH	IRIV	Έ	15/07/2025			
data to draft its		programming						
Revised Flash								
Appeal;								
	Audie	ence type			Dissemination			

Audience Type &	□ Strategic	x General Product Mailing (e.g. mail to NGO				
Dissemination	X Programmatic	consortium; HCT participants; Donors)				
Specify who will the	X Operational	Cluster Mailing (Education, Shelter and				
assessment inform		WASH) and presentation of findings at next				
and how you will		cluster meeting				
disseminate to		\Box Presentation of findings (e.g. at HCT				
inform the audience		meeting: Cluster meeting)				
		Website Dissemination (Relief Web &				
		REACH Resource Centre)				
		x Bilateral discomination (ACTED)				
Stakabaldar	X Xoo					
mapping Has a						
manning boon						
conducted during						
research design to						
identify all actors that						
could contribute to						
and/or benefit from						
the research?						
General Objective	To provide a comprehensive, localized und	lerstanding of irrigation systems and practices,				
	including the factors influencing water use	e for agricultural purposes at the local level, among west (NW) Afghanistan, to inform programming for				
	rural communities in 5 manteqas in Northw					
	sustainable water management in these m	anteqas.				
Specific Objective(s)	 Analyze spatial trends in water us 	e efficiency across each manteqa Map local				
	irrigation systems and stakeholde	olders, including maintenance needs				
	2) Identify and assess the impact of	f knowledge, attitude and practices regarding local				
	irrigation and water conservation	1				
	3) Understand local water managem	ement capacities, maintenance and support needs				
	to , identify opportunities, challeng	enges and resilience gaps to sustainable irrigation				
	and farming practices in the 5 ma	manteqas				
Research	1. How is irrigation water and irrigati	on infrastructure managed at the manteqa level?				
Questions ¹	2. What water use practices can be	can be observed with regard to irrigation agriculture?				
	3. What factors influence how farme	ners use irrigation water?				
	4. What differences in the efficiency	v of irrigation water use can be identified within the				
	mantegas, if any?	5				
Geographic	5 mantegas in 4 provinces in NW Afghanis	tan:				
Coverage	- Alasha Wuloswali Mantega, Mark	az Hazrat-e-Sultan District, Samangan Province				
corolago	- Pump Khana Mantega, Shibergha	an District Jawzian Province				
	- Sarav Oala Mantega, Khwaja Sat	District Farvah Province				
	- Dasht-e-Laili Mantega, Andkhov [District Farvah Province				
	- Shadian Mantega, Aldkiloy I	District, Ralkh Province				
Secondary data		amony December 2010				
	- AGURA, SRUP IV EXECUTIVE SUN	nnary, December 2018 naan Brovingo, Docombor 2022				
SOUICES	- AGURA, Mantega Prolles, Sama	hyan Frovince, December 2023				
	- AGORA, Mantega Profiles, Farya	D Province: Southeast Novemberr 2023				
	- AGORA, Manteqa Profiles, Farya	b Province: North west November 2023				
	 AGORA, Manteqa Profiles, Balkh 	Province, August 2023				

¹ For an overview of the sub-questions, please refer to the <u>Methodology section below.</u>

	- AGORA, Mantega Profiles, Jawzian Province, December 2023								
	- AGORA, SRDP IV District Water User Group Mapping, December 2019								
	-	- Bob Rout. How the water flows: A typology of irrigation systems in Afghanistan.							
		2008			,	5, 5	,	5	
	-	- Hussainzada & Lee. Effect of an improved agricultural irrigation scheme with a							
		hydraulic structure for crop cultivation in arid northern Afghanistan using the Soil							
		and water Assessment 100I (SWA1). 2022 Wali et al. Manning crop types and the crop water requirements over small-sized							
		irrigated fields in the Khost Province of Afghanistan. 2020							
	-	Policy options to enhance agricultural irrigation in Afghanistan: A canal systems							
		approach. 2012							
	-	D. Salman, S.A. Amer, F	.A. V	Vard.	Prot	ecting food secu	rity	when facing uncertain	
	_	World Bank Afghanistan	Clin	nate R	Risk (Country Profile	202	1	
	-	Evaluation of the effects	of cli	mate	chai	nge on field-wate	er de	emands using limited	
		ground information: a cas	se st	udy in	Bal	kh province, Afg	han	istan. 2019	
	-	OCHA. El Nino outlook fo	or 20	24		4	م ام	fielde ene litzeliste	
	-	dissinate with precipitatio	je Uj n in	paate: mid_te	: HIS	toric precipitation	n de arv '		
	-	FAO. Handbook on clima	ate	iiiu-u	5-101	c bandary, banda	aryz	2024	
	-	FAO. Drought Strategy for	or Af	ghanis	stan	. 2019			
	-	FAO. Afghanistan Agro-e	ecolo	gical	zoni	ng atlas. 2022	_		
	-	S2AP. The KAP survey n	node	el (Kno	owle	dge, Attitude & F Profile Overview	Prac	tices)	
	-	USAID. Alghanistan wat		esoun	LES				
Population(s)		IDPs in camp				IDPs in informal sites			
Select all that apply		IDPs in host communities				IDPs [Other, S	peci	fy]	
		Refugees in camp				Refugees in in	form	al sites	
		Refugees in host communi	ties			Refugees [Other, Specify]			
	Х	Host communities	1			[Other, Specify]			
Stratification	Х	Geographical #: 5		Gro	up #	:		[Other Specify] #:	
Select type(s) and		manteqas		Pop	ulati	on size per		Population size per	
enter number of		Population size per strata		strat	ta is	known?		strata is known?	
strata		IS known? x Yes □ No			es 🗆	□ No			
Data collection	х	Structured (Quantitative)			х	Semi-structure	d (C	lualitative)	
1001(\$)	Some	ling mothod			Data collection mathed				
Structured data					Data collection method				
collection tool (s) $\# 1$	⊡ Fu	owhalling			Key Informant Interview (Target #)				
	x 2-st	age cluster sampling				Focus aroun dis		sion (Target #):	
Semi-structured data		mosive			x Key informant interview (Target #): 20				
collection tool (s) $\# 2$	⊓ Sn	owballing				Individual intervi	ew	(Target #):	
······································		· · ·······				Focus group dis	cus	sion (Target #):	
Disaggregation by	Gend	er			Aq	e		(*)	
gender and age					,				
Are you planning to	Х	Yes				Yes			
conduct sex/age		No			Х	No			
disaggregated									
analysis?									

Data management platform(s)	Х	IMPACT				UNHCR			
Expected ouput		Situation overview #:		Rep	ort #	# :	Х	Profile #: 5_	
type(s)		Presentation (Preliminary		Pres	enta	ation (Final) #:		Factsheet #:	
		findings) #:							
		Interactive dashboard #:_		Web	maj	p #:		Map #:	
Access		Public (available on REACH resource center and other humanitarian platforms)							
	Х	Restricted (bilateral dissemination only upon agreed dissemination list, no publicat						nation list, no publication	
		on REACH or other platforms)							
Visibility Specify	AGO	AGORA							
which logos should	Donc	Donor: Norwegian Ministry of Foreign Affairs							
be on outputs	Coord	dination Framework: NA	nation Framework: NA						
	Partn	ers: Acted							

2 Rationale

2.1 Background

In Afghanistan, surface water irrigation systems make up 86% of irrigation water (Rout, 2008). Scholars note that the main challenges for irrigation in Afghanistan are poor water management and the state of existing irrigation infrastructure, which impacts how water is distributed and affects the overall efficiency of the irrigation system in minimizing water loss and water wastage (Hussainzada and Lee 2022). Much of this irrigated land is managed informally with limited government water management or oversight, which results in an unregulated 'upstream priority' water distribution and, in turn, leads to water scarcity in downstream areas, affecting rural livelihoods (Salman, Amer and Ward 2017). IMPACT has previously conducted water management systems mappings for 25 districts in North-West Afghanistan, as well as an in-depth profiling of 84 manteqas, which has contributed to an improved understanding on district-level water management mechanisms as well as key demographic and socio-economic information on manteqas in the region. However, these assessments provide limited evidence on irrigation infrastructure and water management locally.

As part of its work with Acted on the Norwegian Ministry of Foreign Affairs (NMoFA)-funded Sustainable Rural Development (SRDP) V Programme, IMPACT is well-placed to conduct an assessment on irrigation management at the manteqa level to fill this gap. SRDP intends to address the the root causes of instability and poverty in four provinces in Northwest (NW) Afghanistan (Faryab, Jawzjan, Balkh, and Samangan) by creating a conducive environment for the active participation of local authorities and citizens in community-driven, area-based initiatives that contribute to improving basic service delivery and livelihood security. In particular, evidence from this assessment may be integrated within SRDP programming by helping shape Acted's flagship pilot THRIVE, which aims to restore degraded landscapes through landscaping, reforestation and livelihoods activities in close cooperation with affected communities. Findings from the assessment may also help build a deeper understanding of how (I)NGOS in NW Afghanistan can engage with local communities on development projects related to the management of key resources at the community level.

Target areas for the implementation of the THRIVE pilot have been identified based on secondary data from previous IMPACT assessments, as well as feedback from Acted field staff in NW Afghanistan. According to a 2023 Manteqa Profiling (IMPACT), the top three reported income sources across the five target areas were Agriculture (94.3%) Livestock (77.6%) and Daily labor (no contract) (76.1%), indicating a strong reliance on agricultural and livestock-based livelihoods, with a significant portion also depending on informal daily labor. With community buy-in being an integral part of the sustainability of land regeneration activities, this assessment aims to provide a better <u>understanding of local</u> perspectives on challenges and opportunities in irrigation water use and management, and will be closely aligned with a separate research cycle on resilience gaps in the management of rangelands and pastures which play a pivotal role for Afghanistan's livestock sector.

2.2 Intended impact

According to Acted technical staff, crop selection irrespective of available irrigation water and water wastage both due to damaged and inefficient infrastructure (i.e. -earthen canals) and overuse remain persistent challenges in irrigation agriculture at the local level, directly affecting the sustainability and profitability of rural livelihoods in NW Afghanistan. Evidence on irrigation (in)efficiencies and concrete suggestions on how to improve effective irrigation water management can support (I)NGOs and the local government to address such challenges and improve irrigation management related programming and implementation. In particular, this assessment aims to inform program design related to Acted's flagship pilot THRIVE through the ongoing IMPACT-Acted partnership under SRDP V.

3 Methodology

3.1 Methodology overview

The assessment will consist of multiple elements aimed at various dimensions of irrigation management, from individual farmers to line departments involved in water management at the district level. As such, it will consist of remote sensing elements to assess existing water resources and related irrigation methods, as well as primary data collection to provide an improved understanding of resilience gaps in irrigation infrastructure, irrigation water use, and management mechanisms in the targeted areas.

Remote Sensing/ Secondary Data

The study will include the use of satellite remote sensing to estimate actual evapotranspiration (ET) at the field or landscape scale. ET will be derived using established energy balance or vegetation index-based approaches that integrate optical, thermal, and meteorological data. This will enable spatial and temporal assessment of crop water use, irrigation performance, and water stress under varying climate and management conditions. The selected methodology will align with best practices and will be adapted based on data availability, scale, and calibration opportunities. Where possible, ET estimates will be validated using ground-based observations or compared against known irrigation schedules to assess accuracy. The approach will aim to balance spatial resolution, temporal frequency, and computational feasibility, and may use tools such as Google Earth Engine or other open-source processing environments.

Primary Data Collection

Key Informant Interviews

Given the geographical spread of the manteqas across four districts, REACH will conduct a total of 5 KIIs with the respective local (district-level) departments of the Ministry of Agriculture, Irrigation and Livestock to provide a deeper understanding of local governance approaches regarding (irrigation) water management. With Community Development Councils (CDCs) no longer officially functional under de-facto authority rule, REACH will also conduct three KIIs per manteqa with local water managers, or in manteqas where such roles do not exist, other community representatives such as e.g. village elders or religious leaders that oversee water management to capture more local water governance perspectives.

HH survey

To provide a better understanding of how irrigation water is used and what factors influence water use locally, REACH will conduct a quantitative Knowledge, Attitudes, and Practices (KAP) survey at household level in the 5 targeted manteqas. With communities in rural NW Afghanistan relying on both irrigation and dryland agriculture, this assessment and in particular its primary data collection tools will be aligned with the research cycle on pasture management.

Alignment with Pasture Management Research Cycle

The table below provides an overview of the planned alignment of the irrigation and pasture management research cycles.

Alignment with Pasture Management assessment						
Irrigation Management	Pasture Management	Purpose				
Remote Sensing (map estimated evapotranspiration)	Remote Sensing (map pasture health)	Map resilience gaps				
Quantitative KAP survey, representative	(95/10) at manteqa level	HH level data on irrigation and pasture use practices				
5 Semi structured KIIs with line ministry	staff at district level (1 per manteqa)	Policy-related/ district level data on water and pasture management				
15 Semi structured KIIs with Mirab Bashi/ Chakbashi local water managers (2-3 per manteqa) ²		Manteqa level data on water management				
	5 Semi structured KIIs with herders or livestock farmers.	Information on pasture use in manteqa				
Total Primary Data Collection						
20 Klls	5 Klls					
782 HH surveys	·					

Methods summary

Research questions	Data collection method
1. How is irrigation water and irrigation infrastructure managed at the manteqa level?	
a. What coordination mechanisms (Water User Associations, Mirab, etc) exist in the manteqa?	KII
b. How are decisions on the allocation of water made?	KII
c. How is the infrastructure maintained?	KII
2. What water use practices can be observed with regard to irrigation agriculture?	

² In Afghanistan, shared canal networks are traditionally managed by community leaders/ water managers that ensure their assigned sections are usable (e.g. free of sediment) and that water is appropriately distributed to community members. In this context, a *mirab bashi* is usually the primary authority over a wider canal network, managing multiple *mirabs* that look after a smaller, village-level canal section. Water canals that lead directly onto fields (*chak*) are managed by *chakbashis*.

a. What is the area of irrigated farmland?	Secondary data
b. What are the most commonly reported types of irrigation water sources?	HH survey
c. What is the state of the existing infrastructures?	KII
D. What challenges , opportunities and gaps do local water management stakeholders identify?	KII
3. What factors influence how farmers use irrigation water?	
a. What is the availability of irrigation water for households?	HH survey
b. What factors decide crop selection?	HH survey
c. What concerns about irrigation systems and available water do farmers have, if any?	HH survey
d. What improvements to existing irrigation systems do farmers consider necessary?	HH survey
4. What differences in the efficiency of irrigation water use can be identified within the manteqas, if any?	RS (ET)
a. What is the rate of evapotranspiration in irrigated cropland?	RS
b. What crops are commonly cultivated?	Secondary data

3.2 Population of interest

Targeted areas

In contrast to formal administrative divisions used in Afghanistan, manteqas cover areas smaller than districts, and are based entirely on a shared, local understanding of manteqa boundaries based on geographic features, shared natural resources, or other socio-geographic factors. As part of SRDP V, IMPACT has previously mapped and profiled 84 manteqas across Jawzjan, Faryab, Balkh and Samangan provinces in NW Afghanistan through Mapping Focus Group Discussions and Key Informant Interviews (IMPACT Manteqa Profiles, 2023).

A **manteqa** is a geographic area containing a number of villages and is identified by both its inhabitants and the other inhabitants of the district under one common regional name. It is thus the basic reference point for the village population in the area. The manteqa boundaries are usually clearly defined by natural geographical features such as rivers, watersheds etc. IMPACT and Acted previously mapped and profiled Manteqa in Northwest Afghanistan and found that, beyond geographical boundaries, the existence of each of the assessed manteqa in the minds of its inhabitants stems from a feeling of belonging and attachment towards it, itself borne out of geographical proximity, common history, economic, social and tribal/ethnic ties, and the solidarity derived from the community management of some of the resources upon which rural livelihoods depend. The customary governance structures that were found to exist at various levels within the manteqa play an important role in community resilience and resource management.

The 5 manteqas targeted in this research are part of SRDP V implemented by Acted and IMPACT in Northwest Afghanistan. These manteqas were selected based on key informants' reports on soil erosion, forest degradation and

pasture degradation, availability of communal land, access, and reliance on agricultural livelihoods, complemented with Acted field teams' knowledge of the area.

The 5 manteqas are:

- Shadian Manteqa, Nahr-e-Shadi District, BalkhProvince
- Alasha Wuloswali Manteqa, Markaz Hazrat-e-Sultan District, Samangan Province
- Pump Khana Manteqa, Shiberghan District, Jawzjan Province
- Dasht-e-Laili Manteqa, Andkhoy District, Faryab Province
- Saray Qala Manteqa, Khwaja Sabz Posh District, Faryab Province

Population

The assessment will target stakeholders engaged in the management of (irrigation) water resources for the 5 manteqas, as well as manteqa residents that rely on irrigation water for agriculture. Members of the latter group, i.e. farmers engaged in irrigation agriculture, will be interviewed using a structured tool to assess irrigation practices and irrigation-related knowledge and attitudes at the household level. Water management stakeholders will be interviewed as Key Informants to provide a contextual understanding of existing water management systems for each manteqas, as well to triangulate findings from the HH survey. These population groups can be situated in a Social Water Management framework identified by a 2017 Acted study in Northwest Afghanistan as follows:

1) Water Managers:

- a) Ministries
- b) Community-level councils
- c) Mirabs

2) Water Users:

- a) Agricultural Industry
- b) Private farmers (individual or cooperatives)
- c) Families



Figure 1: Water Stakeholder Overview (Acted SWM Study 2017)

The assessment will therefore aim to capture both water management and water user stakeholder perspectives through primary data collection with relevant Key Informants from communities (1b, 1c) and relevant line department technical staff (1a), as well as through a quantitative survey at household level (2b).

3.3 Secondary data review

During the first weeks of implementation, a thorough secondary data review will be conducted by the IMPACT Senior Assessment Officer in order to build on and complement existing data and tools. This will include data from previous assessments under SRDP in NW Afghanistan, as well as publicly available secondary literature to inform the methodology of the planned assessment. It is expected that the following Key Sources will be consulted:

Secondary Source	Purpose of Source
How the water flows: A typology of irrigation systems in Afghanistan. Bob Rout. 2008	 Contextual understanding of irrigation systems in Afghanistan Key definitions and typologies of irrigation systems Description of irrigation methodologies and their merits and challenges Insights into irrigation efficiency and potential improvements
Effect of an improved agricultural irrigation scheme with a hydraulic structure for crop cultivation in arid northern Afghanistan using the Soil and Water Assessment Tool (SWAT). 2022. Hussainzada & Lee.	 Contextual understanding of irrigation challenges in northern Afghanistan Verification/triangulation of primary data on water allocation and management practices Methodology for using SWAT to assess irrigation practices
Mapping crop types and the crop water requirements over small-sized irrigated fields in the Khost Province of Afghanistan. 2020. Wali et al.	 Contextual understanding of crop water requirements in Khost Province Verification/triangulation of primary data on crop types and water usage Methodology for estimating crop water requirements using remote sensing
Policy options to enhance agricultural irrigation in Afghanistan: A canal systems approach. 2012	 Contextual understanding of policy options for irrigation management Key definitions and concepts related to irrigation policy Methodology for assessing the impact of policy solutions on irrigation efficiency
Protecting food security when facing uncertain climate; opportunities for Afghan communities. D. Salman, S.A. Amer, F.A. Ward, 2017.	 Contextual understanding of water sharing systems and their economic impact Verification/triangulation of primary data on water trading and proportional sharing Insights into the challenges and opportunities for improving water management
World Bank – Afghanistan Climate Risk Country Profile. 2021	 Contextual understanding of climate risks in Afghanistan Key definitions and projections related to temperature, precipitation, and natural hazards Verification/triangulation of primary data on climate impacts on agriculture and water resources
Evaluation of the effects of climate change on field- water demands using limited ground information: a case study in Balkh province, Afghanistan. 2019	 Contextual understanding of climate change impacts on water demands

Secondary Source	Purpose of Source
	 Verification/triangulation of primary data on crop water requirements and irrigation needs Methodology for projecting future water demands using climate models
El Nino outlook for 2024. OCHA	 -Contextual understanding of El Nino impacts on precipitation and temperature Verification/triangulation of primary data on precipitation patterns and water availability
FEWS NET Key Message Update: Historic precipitation deficits are likely to dissipate with precipitation in mid-to-late January, January 2024	 Contextual understanding of precipitation trends and their impact on water resources Verification/triangulation of primary data on precipitation deficits and recovery
FAO handbook on climate	 Contextual understanding of climate information needs for farmers Key definitions and concepts related to agrometeorological analysis Methodology for interpreting climate data for agricultural decision-making
FAO Drought Strategy for Afghanistan 2019	 Contextual understanding of drought impacts and management strategies Key definitions and concepts related to drought risk management Verification/triangulation of primary data on drought impacts and mitigation measures
FAO. 2022. Afghanistan Agro-ecological zoning atlas	 Contextual understanding of agro-ecological zones and their suitability for crops Verification/triangulation of primary data on crop yield potential and irrigation requirements
S2AP. <u>The KAP survey model (Knowledge, Attitude & Practices)</u>	Methodology for KAP survey
USAID. Afghanistan Water Resources Profile Overview	Contextual understanding
FAO. Climate Smart Agriculture Sourcebook	 Key definitions and concepts related to sustainable agricultural practices

3.4 Primary Data Collection

Qualitative Data Collection:

Given the focus of the assessment on specific local areas identified for the THRIVE pilot under SRDP V, KI sampling will be entirely purposive. Key Informants from relevant line departments involved in irrigation water management, as well as community leaders from the 5 targeted manteqas will be identified with the help of IMPACT's partner Acted. KII will be conducted using a semi-structured tool that will be developed by the IMPACT Senior Assessment Officer following a Secondary Data Review.

Quantitative Data Collection:

The Household Interviews will be conducted using a structured tool using the Kobo Collect data collection platform. The survey will be designed using indicators knowledge, attitudes and practices surrounding the use of water for irrigation agriculture at the household level.

For this, the Senior Assessment Officer will develop a Knowledge, Attitudes and Practices (KAP) survey that will aim to capture information on how irrigation water is used locally. The tool design will be informed by secondary data on methodological considerations for KAP surveys, as well as on best practices for irrigation management as per Acted's documentation on the THRIVE methodology and the FAO Climate-Smart Agriculture Sourcebook.

Household Interviews with Heads of Household in 5 Manteqas

The HHI will use a two-stage stratified cluster sampling methodology based on the population size. REACH divided the total population per settlement by 7 (the average household size in Afghanistan) and then took a population sample of 95% Confidence level with a 10% Margin of Error for each Manteqa, and the buffer was set at 10%.

A trainer-of-trainer methodology will be applied, where REACH Senior Field Officers are trained in Kabul and then return to their regional basis in order to train the enumerators on the tools, a process that takes approximately 2 weeks. Enumerators will be trained at REACH's regional base in Mazar-e Sharif.

Sampling strategy

The total displaced population for each settlement is derived from the World Pop Database, and divided by 7 (the average household size in Afghanistan and the standard for the humanitarian community) to estimate the number of households at settlement level.

The household (HH) tool utilised a random **two-stage stratified cluster sampling** method using data from secondary sources. The strata are the **5 Manteqas**, and the settlements as clusters. The two-stage stratified cluster sampling approach is as follows:

- The first stage uses the random stratified cluster sampling of settlements. A minimum of 6 households will be interviewed per settlement (cluster) to qualify for random selection based on the required number of interviews at the manteqa (strata) level.
- The second stage entails the random sampling of households within each settlement that was selected in the first stage.

Once the sampling has been determined, in the field, to ensure randomisation of household selection, enumerators will be provided with the sample size for each population group (households engaged in irrigated farming, and households relying on pasture for livestock) in the settlement (PSU) they are visiting. They will then approach the centre of the village, pick a random direction (by dropping a pen and following the direction it points) and then walk in that direction to the edge of the village, counting either the number of minutes or number of houses passed. The minutes or number of houses will then be divided by the number of interviews to be completed, with the enumerator approaching every n-number house for data collection. If the household identifies as one of the target population groups in the PSU, the interview will be completed, and the enumerator will carry on to the next n-number house. If the household is not one of the target population groups in the PSU, the enumerator will then return to the original location (village centre) and continue the randomisation process in a new direction determined by the drop of a pen. This will ensure that all households are randomly selected, to produce a representative household analysis for each of the 5 Manteqas. In each settlement, it is anticipated that a satisfactory sample of population group (households engaged in irrigated farming (50%), and households relying on pasture for livestock (50%)) will be included at the Manteqa level during the data collection. This will enable the generation of indicative findings for each population group.

Enumerators will carry a smartphone with the pre-installed Kobo tool, introduce themselves and the purpose of the data collection, and ensure informed consent as well as the majority of age of the respondent. The Kobo tool will feature a question with selection criteria for each specific population group, based on which enumerators will administer either of the two questionnaires (pasture or irrigation management) until the respective quotas of 50% have been met for each settlement.

In addition, the possibility to access female household members will be informed by the accessibility list developed by REACH, which includes the mapping of female access to determine the most inclusive and safest option for reaching female respondents. For the targeted districts, interviews with female respondents will be carried out by female enumerators, following the approach outlined above.

In the two targeted districts where the female respondents can not be accessed, female enumerators can conduct interviews remotely only (no in-person access). A male enumerator will visit the target settlement in-person seek consent to provide a phone to an adult, knowledgable female household member to be interviewed by a female enumerator working from her home. Based on this approach, IMPACT will aim to interview a minimum of 20% female respondents.

For an overview of the HH surveys to be conducted, please refer to the table below:

No	Stratification (Manteqa)	# HH surveys	# units (villages) to assess	Cluster size
1	Alsha Wuloswali	168	16	10.5
2	Dasht-e-Laili	186	13	14.31
3	Pump Khana	156	19	8.21
4	Saray Qala	162	16	10.12
5	Shadian	110	4	1
Total		782	68	

3.5 Data Processing & Analysis

Qualitative Data

As audio recordings for quality assurance purposes are not currently feasible in the context of Afghanistan, qualitative primary data will be collected by taking detailed notes. Debriefs will be held with facilitators after each KII to identify possible data quality issues (misunderstood questions, off-target answers, missed questions). Facilitators will share notes with the Senior Project Officer in Mazar. Using a data saturation grid, a content analysis will be conducted for each manteqa. While addressing the research questions, the aim is to identify themes, patterns and relationships. Data processing and analysis follows the IMPACT Minimum Standards for Semi-Structured Data Processing and Analysis.

Quantitative Data

All data will be checked and cleaned on a daily basis through a circular process according to the <u>IMPACT Data Cleaning</u> <u>Minimum Standards Checklist</u>: The REACH Data team will receive the data that was uploaded from the field team's smart phones on a daily basis. This data will be checked by the Assessment Officer, who will feed it back to the Programme Officer in Kabul who will then follow up with the Regional Senior Field Officers, who will inform enumerators of the feedback. Interviews will be checked for 1) Time length (to check if enumerators are rushing), 2) logic of responses (to ensure that enumerators are thinking answers through) and 3) Other responses (to ensure that text-based responses are not already included as options). In the case that responses were incorrect or require a change in the response, the field teams will feed those responses back through the SFOs and Programme Officers, who will make the changes to the data in a cleaning log. At the end of data collection, a final check of the cleaning log will be done to standardize all responses, and then the data team will clean that data by running both the data and a cleaning log through an R script. A data analysis plan, developed by the Assessment Officer, will then be used by the data analysis team to analyse the data in R. This will be used to produce a dataset that can be plugged into InDesign to produce the site profiles.

3.6 Limitations

As part of one of three research cycles on the same targeted areas, this assessment will be closely aligned with an assessment focusing on pasture management. To avoid assessment fatigue, the sampling for the household-level data collection has been designed to avoid the possibility of visiting the same households twice for these assessments. As a result of this, findings from this data collection exercise will be representative at the manteqa level, but indicative for the population of interest engaged in irrigation agriculture.

Limited Access to female respondents: Prior to data collection, REACH Regional Field Managers, in consultation with Acted security, compiled an accessibility list for all 5 districts. This list indicates that in 3 districts, in-person interviews with female respondents are feasible; and remote data collection with female respondents via phone is possible in 2 districts.

4 Key ethical considerations and related risks

The proposed research design meets / does not meet the following criteria:

The proposed research design	Yes/ No	Details if no (including mitigation)
Has been coordinated with relevant stakeholders to avoid unnecessary duplication of data collection efforts?	X	
Respects respondents, their rights and dignity (specifically by: seeking informed consent, designing length of survey/ discussion while being considerate of participants' time, ensuring accurate reporting of information provided)?	x	
Does not expose data collectors to any risks as a direct result of participation in data collection?	x	
Does not expose respondents / their communities to any risks as a direct result of participation in data collection?	x	
Does not involve collecting information on specific topics which may be stressful and/ or re-traumatising for research participants (both respondents and data collectors)?	X	
Does not involve data collection with minors i.e. anyone less than 18 years old?	X	
Does not involve data collection with other vulnerable groups e.g. persons with disabilities, victims/ survivors of protection incidents, etc.?	X	
Follows IMPACT SOPs for management of personally identifiable information?	x	

5 Roles and responsibilities

Task Description	Responsible	Accountable	Consulted	Informed

Research design	SAO	SAO	Associate Research Manager (ARM)	Country Coordinator
Supervising data collection	SPO	AO/SAO	ARM	CC
Data processing (checking, cleaning)	DBO	AO/SAO	ARM	CC
Data analysis	DBO	Data Specialist	SAO	ARM
Output production	AO	SAO	ARM	CC
Dissemination	Acted	Acted	ARM	CC
Monitoring & Evaluation	Associate Research Manager	CC	Impact Research Team	Acted PD Team
Lessons learned	Associate Research Manager	CC	Impact Research Team	Acted PD Team

6 Data Analysis Plan

6.1 Research questions addressed with <u>Semi-structured</u> tool

Research questions	SUBQ#	Sub-question	Questionnaire QUESTION	Probes	Data collection method	Key disaggregations (Group types)
(icebreaker)			Can you tell me a little about your role or involvement with irrigation in this manteqa, and how long you have been engaged in this work			
	1.1	What coordination mechanisms (Water User Associations, Mirab, etc) exist in the manteqa?	Who manages irrigation water in the manteqa, and how do these water managers interact?	Coordination betweenvillages/ water managers? Conflicts over water? Are there mirabs? Are there other bodies that manage water in the villages? Always been like this?	KI	Informal management (village or individual level; ad-hoc) Formal management (Mirab, council or government)
How is irrigation water and irrigation infrastructure managed at the manteqa level?	1.2	How are decisions on the allocation of water made?	What factors influence how water is allocated in the manteqa?	How do you calculate water limits? In drought years? difference between villages? Laws on water use? Difference within villages? Always been like this? Change in available water?	KI	Informal management (village or individual level; ad-hoc) Formal management (Mirab, council or government)
	1.	How is the infrastructure maintained?	Who takes care of the existing irrigation infrastructure in the manteqa?	What infrastructures exist? Financial resources? Always been like this? Differences between villages?	KI	Informal management (village or individual level; ad-hoc) Formal

				Ownership of irrigation infrastructure?		management (Mirab, council or government)
			What are the main tasks to maintain irrigation agriculture in your manteqa?	Describe process? What coordination is needed for this and with whom? Are there differences between villages/ canals?	KI	Extensive coordination (e.g. multiple stakeholders/ actors) No coordination needed (e.g. single actor)
What agricultural practices are supported by existing irrigation	2.1	What is the state of the existing infrastructures?	How could the existing irrigation infrastructure be improved?	What materials are currently used in your irrigation system, and how well are they holding up over time?" How often is maintenance done on the irrigation infrastructure, and who is responsible for organizing it?" Are there challenges with sediment buildup or breakdowns in the system?	KI	material needs (level of disrepair, maintenance needs) immaterial needs (efficiency, coordination)
irrigation systems?	2.2	What challenges , opportunities and gaps do local water management stakeholders identify?	What do you think are the biggest challenges or opportunities in irrigation water management?	Changes over time? Coordination within and between manteqas? Adequacy of existing infrastructure?	KI	Management- related challenges and opportunities (e.g. insufficient coordination) Infrastructure- related challenges and opportunities (e.g. new canals)

6.2 Research questions addressed with <u>Structured</u> Tool

Research questions	IN #	Data collection method	Indicator/ Variable	Questionnaire Question	Questionnaire Responses	Single or Multiple Response	Data collection level
Disaggregation/ Selection	D.1.1		Respondent selection criteria		Primarily irrigation agriculture Primarily livestock agriculture (interview stops) Primarily cultivating rainfed land (interview stops) No (interview stops)	agriculture Primarily livestock agriculture (interview stops) Primarily cultivating rainfed land (interview stops) No (interview stops)	
	D.1.2	Gender		Please specify your gender.	Female Male	Single	НН
	D.1.3		Age of respondent	How old are you?	Enter number (adult)	N/A	HH
	D.1.4	Disability		Do you or any members of your	Difficulty seeing even if wearing glasses	Multiple	HH

		household have a lot of difficulty with or	Difficulty hearing even while using a hearing		НН
		cannot do any of the following (choose all	aid Difficulty walking or		
		that apply)	climbing steps		НН
			and concentrating		HH
			Such as washing all		
			over or dressing) Difficulty communicating		
			when using the		
			language (for example		НН
			understood) no		
			(None of my household		
			members has a difficulty)		
			I don't know/I don't want		нн
		le this leastion the	aloud)	Cincle	
D.1.5	Host HH	area of origin for the	res	Single	нн
		majority of household members?	No		
		Have the majority of household members	Yes	Single	
D.1.6	Returnee HH	including you been forcibly displaced			
		and fled to another	No		
		years?		Cincle	
		the household	Yes	Single	
		forcibly displaced			
D.1.7	IDP HH	from their homes and fled to another			
		province or district in Afghanistan in the	NO		
		past 5 years?	Less than 6 months	Single	
			6 months to		
			2 years		
			Solid/ finished		
D.1.8	Length of displacement	If yes, how long have you been displaced?	apartment Unfinished/ non		НН
			enclosed building Tent		
			Makeshift shelter		
			Don't know		
			Shadian	Single	
	Montogo	What manteqa is	Alasha Woluswali Pumpkhana		ш
ש.ו.ש	wanteqa	your household in?	Saray Qala Dasht-e Laili		
		What settlement is	Other	Single	
D 1.10	Settlement	your HH in?	settlement list		HH
D.1.11	HH size	How many people live in your HH?	Enter #	Single	НН

				Hint: Please do not count (prior) members of your household that do not live with you at the moment.			
RQ 3. What factor	ors influence ho	ow farmers use	irrigation water	?			1
				What is the main	River/ stream Spring	Single	
	A 1.0	HH survey	Main source of irrigation water	source of the irrigation water your	Big canal Local canal		НН
				HH uses?	Groundwater (borewell)	•	
	A. 1.1	HH survey	Land area owned	How much irrigated agricultural land does your HH cultivate, in ieribs?	Enter #	N/A	
		HH survey	Limit on availability	Is there a limit on how much irrigation water your HH can use?	By water manager (e.g. Mirab) By community members Only if water dries up By cooperative	Single	НН
	A.1.1	HH survey	Limit on availability		Not limited, I set my own limits 0-30 min 30-60 min	Single	
				(If yes) What is this limit?	60-90 min () 270-300 min Other		HH
	A 1 2	HH survey	Sufficiency of	Is Has the irrigation water your HH has had access to been	Fully sufficient Partially sufficient	Single	
			water	generally sufficient for your needs over the past 5 years?	Don't know		
a. What is the availability of			Seasonal	Is the availability of irrigation water the same throughout the year?	Yes No Don't know	Single	НН
irrigation water for households?					1 2 3	Multiple	
	A.1.3	HH survey	variation of water availability	If no, select in which	4 5 6	•	
				months there is usually less water	7 8	•	НН
					9 10 11 12	-	
	A.1.4	HH survey	Long-term variation in Water availability	Has the availability of irrigation water changed in the past 5 years?	The limit has increased There has been no change The limit has decreased The limit changes in some years There is no limit, but more water is available	Single	НН
					now There is no limit, but less water is available now	-	

					There is no limit, but in		
					some years more or		
					less water is available		
				D	I don't know	0: 1	
				Do you know if your	Always know	Single	
			Predictability	HH's yearly irrigation	Sometimes know		
	A.1.5	HH survey	of irrigation water	water will be enough at the beginning of the year/ planting season?	Never know		HH
					Water manager tells me	Multiple	-
			0	How do you learn	Community members		
			Source of	about the availability	(e.g. Neighbours, other		
	A.1.6	HH survey	Information to	of irrigation water at	farmers)		HH
			availability	the beginning of the	Weather forecast		
			availability	year/ planting season	From experience		
					Don't know		
				Does this influence	Yes	Single	
	Δ17	HH survey	Influence on	how your HH plans	No		нн
	A.1.7	Throuvey	agriculture	agricultural activities?	l don't know		1111
					Yes	Single	
	A.1.8	HH survey	Reliability of irrigation water	Have you or other members of your HH had to change your agricultural activities to adapt to the availability of irrigation water in the	No		НН
				past 5 years?	l don't know		
	A 1.9	HH survey	Change in agricultural activities	Can you describe the changes that you or other HH members had to make?	Changed to crops that use less water (some years) Changed to crops that use less water (all years) Changed to crops that use more water (some years) Changed to crops that use more water (all years) Cultivated less land (some years) Cultivated less land (all years) Cultivated more land (some years) Cultivated more land (all years) Used fertilizer (some years) Used fertilizer (some years) Used fertilizer (all years) Stopped cultivating crops (some years) Stopped cultivating crops (all years) Don't know Other	Multiple	H
b. What	A.2.1	HH survev	Reasons for	Does you r HHfarm	Exclusively for the	Single	HH
tactors decide	•		tarming	tor nome	market		

crop selection?				consumption or to sell products on the market for income?	Primarily for the market with some home consumption Primarily for home consumption, marketing surplus Exclusively for home consumption		
					Don't know		
	A.2.2	HH survey	Reasons for crop selection	How does your HH select crops?	Affordability of seeds Estimated income Grow what is commonly eaten locally Advice from community members or relatives Advice from NGOs or international organizations	Multiple	НН
					Read about it Always grow the same		
					Crops Other:		
					Don't know	-	
			Change in	Has your HH	In some years	Single	ЦЦ
	A.2.3	HH survey	crop choice	changed your crops	In every year		HH
					Actual water availability Predicted water	Multiple	
					availability		
			Reasons for		Advice from others		
	A.2.4	HH survey	change in	If changed, for what	other crops		HH
			crop choice	16030113 !	Change in seed prices		
					Other (e.g. Plant disease)		
					Weather patterns		
					Weather forecast	Cinalo	
			Access to information about water	(If water availability), How did your HH know about the water	members	Single	
					Water manager tells me		
	A.2.5	HH survey			Visibly less water (e.g.		HH
			availability	availability?	canals or borewells)	ļ	
					I don't know	O in al	
				Have you or other HH members had to	res	Single	
	A.2.6	HH survey	Reliability of income from agriculture	change your agricultural activities to receive sufficient income/ yield in the past 5 years?	Don't know		НН
				Has someone in your	Yes, in some years	Single	
			0 (7)	HH had to take up additional work	Yes, in all years		
			Sufficiency of income from	because the income	INO		
	A.2.7	HH survey	agricultural	trom agriculture was			HH
			livelihoods	not enough to sustain your	Don't know		
				5 years?			
1	A.2.8		Predictability	Do you know if your	Always know	Single	
		2.8 HH survey of in fror agr	from	HH's yearly income (agricultural) will be enough at the	Sometimes know		HH
			agriculture		Never know		

				beginning of the			
				year?		0: 1	
			Influence of	Does this influence	Yes	Single	
	A.2.9	HH survey	predictability	your HH's	No	_	НН
		5	of income on agriculture	activities?	l don't know		
			Turne of	What type of	Drip	Multiple	
	A 2 1		Type of	irrigation system does your	Surface, e.g. Canal		
	A.3.1	пп survey	ingation		Sprinkler		пп
			System	HHcurrently use?	Other: specify		
				Llow optiofied and	Very satisfied	Single	
			Satisfaction	How satisfied are	satisfied		
	A.3.2	HH survey	with irrigation	you with your HHS	Neutral		HH
			system	system?	Dissatisfied		
				System	Very dissatisfied		
					Maintenance issues	Multiple	
					High costs		
					Inefficiency		
					Water wastage		
			0	What are the main	Lack of technical		
			Concerns	challenges you face	support		
	A.3.3	HH survey	about	with your HH's	Limited water		HH
			system	current irrigation	Risk of danger by		
			System	system?	natural hazards (e.g.		
					flood, earthquake)		
					No challenges		
					Don't know		
					Other: specify		
					Drip	Single	
				Has your HH ever	Surface, e.g. Canal		
			Change in	used a different	Sprinkler		
	A.3.4	HH survey	irrigation	irrigation system in	Borewell		НН
c. What		,	system	the past, for at least	No		
concerns				one season or more?	l don't know		
about					Other: specify		
irrigation			Ostisfastian	(If we a) I have a stic first	Very satisfied	Single	
systems and			Satisfaction	were you with your	satisfied		
available	A.3.5 H	HH survey	with past		Neutral		HH
farmers have		-	ingation	nn s past inigation	Dissatisfied		
if any?			System	System:	Very dissatisfied		
ii airy .				(If no) Has your HH	Drip irrigation	Single	
					Surface, e.g. Canal		
					Sprinkler		
				to a different	Borewell		HH
			Potential	to a different	No		
	A 3 6	HH SURVAV	change in	inigation system :	Don't know		
	A.0.0	Thrisulvey	irrigation		Other: specify		
			system		Easier to use	Multiple	
					More efficient water use		
				If yes, why?	Better crop result	-	
					More reliable	-	
					Don't know		
					From other community	Multiple	
					members	-	
			Knowledge	How did you or HH	From community		
	A.3.7	HH survey	about	members learn about	leaders	-	НН
			irrigation	different irrigation	From the government	-	
		1	systems	systems?	From NGUS	-	
					From the media	4	
					Don't know	0.	
				What is the	Public	Single	
		1		ownership of the	Private (own)	-	
	A.3.8	HH survev	Ownership of	water source vour	Private (someone		HH
	_	HH survey	water source	Water source your HH uses for irrigation	else's)	-	
		1		water?	Private (paid)	-	
					Public		

					Don't know		
					Water manager	Multiple	
					Community members		
					(e.g. Neighbours, other		
				Do you or other HH	farmers)		
	A.3.9	HH survey	Coordination	members consult	Cooperative		HH
				anyone to use this	Relatives		
				water source?	I decide by myself		
					Owner		
					Don't know		
			Satisfaction	How actisfied is your	Very satisfied	Single	
			with	HH with the	satisfied		
	A.3.10	HH survey	availability of	availability of	Neutral		HH
			irrigation	irrigation water?	Dissatisfied		
			water		Very dissatisfied		
					Water wastage	Multiple	
			Concerns	What are the main	Disagreements over		
			about	challenges vour HH	water		
	A.3.11	HH survey	availability of	faces with irrigation	Limited water (seasonal)		НН
			Irrigation	water?	Limited water (always)		
			water		No challenges		
			Concorno		Von	Single	
			about future	Is your HH	Somowhat	Siligie	
	A 3 12	HH survey	availability of	concerned about the	Not at all		нн
	A.J. 12	TITSUIVEy	irrigation	availability of water in			
			water	the future?	I don't know		
				you are you/ HH	Very	Single	
			Satisfaction	with state of the irrigation	Somewhat		
	A.4.1	HH survey	irrigation		Not at all		HH
			infrastructure	infrastructure in your mantega?	l don't know		
					Expansion	Multiple	
			Suggested	What improvements	Repairs		
	A 4 0	1.0.1	improvements to irrigation	would the irrigation	Maintenance	-	
	A.4.2	nn sulvey		mantega benefit	Better management		нн
			infrastructue	from?	Other:		
				il Olli :	l don't know		
					Increased crop yield	Multiple	
			Potential	How would these improvements impact	Reduced water usage		
					Lower operational costs	-	
d What	Δ <i>1</i> 3	HH survey	improvements		Improved crop quality		нн
improvements	7.4.0	Throuvey	to agricultural	your HH's farming	Other (please specify)		
to existing			activities	operations?	Less conflict about		
irrigation					Water		
systems do					Don't know		
farmers					Financial constraints	Multiple	
consider					Lack of access to		
necessary?				Are there env	lechnology		
			Barriers to	harriers to	or training		
	A.4.4	HH survey	improvement	implementing these	Insufficient coordination		HH
				improvements?	between community		
					members		
					Don't know		
					Other (please specify)		
				Does your HHplant	Yes	Single	
	A.4.5	HH survey	Soil health	crops to improve the	No		HH
	ļ			quality of the soil?	I don't know	NA 111 1	
			lles of	Deserver	Synthetic	iviuitiple	
	A.4.6	HH survey	USE OT	Loes your HH use	Nanure		HH
			ierunzers	ieitilizers?	Don't know		
		,	Access to			Multiple	
	A.4.7	HH survey	fertilizers	If no, why?	Not available	multiple	HH
	1	1	101012010	1			1

					No need		
					Don't know		
			lles of		Yes	Single	
	A.4.8	HH survey	Use of	Does your HH grow	No		HH
			polyclops	more than one crop?	Don't know		
					No land	Multiple	
			Decesso for		Seeds not affordable		
	A.4.9	HH survey	Reasons for	If no, why?	No water	1	HH
		monocropping	-	No need	1		
					Don't know		
					Limited water assigned	Multiple	
					by water manager	-	
					Weather conditions		
			Reasons for		(current)		
	A.4.10	HH survey	limited water	If no water, why?	Weather forecast		НН
			availability		Irrigation source dried		
				up			
					Saving water for future		
					Don't know		
				1			

7 Monitoring & Evaluation Plan

IMPACT Objective	External M&E Indicator	Internal M&E Indicator	Focal point	Tool	Will indicator be tracked?
	Number of	# of downloads of x product from Resource Center	Country request to HQ		x Yes
Humanitaria	humanitarian organisations	# of downloads of x product from Relief Web	Country request to HQ		□ Yes
n stakeholders	IMPACT	# of downloads of x product from Country level platforms	Country team	l Isor Io	□ Yes
are accessing IMPACT	Number of	# of page clicks on x product from REACH global newsletter	Country request to HQ	g	□ Yes
products	accessing IMPACT	# of page clicks on x product from country newsletter, sendingBlue, bit.ly	Country team		□ Yes
	Services/products	# of visits to x webmap/x dashboard	Country request to HQ		□ Yes
IMPACT activities contribute to better program implementati on and	Number of humanitarian organisations utilizing IMPACT	# references in HPC documents (HNO, SRP, Flash appeals, Cluster/sector strategies)	Country team	Referen ce_log	[List here relevant HPC-documents to be monitored: E.g. Iraq HNO 2018, Iraq Flash Appeal Mosul, Shelter Cluster strategy] [List here relevant agency-documents to
coordination of the humanitaria n response	services/products	# references in single agency documents			be monitored: E.g. UNHCR Country Strategy, UNICEF WASH Response Strategy]
	Humanitarian actors use IMPACT evidence/product	Perceived relevance of IMPACT country-programs			[Outline here the usage survey to be implemented for this research cycle
	s as a basis for decision making,	Perceived usefulness and influence of IMPACT outputs			E.g. Usage survey to be conducted in
Humanitaria n stakeholders	aid planning and delivery Number of	Recommendations to strengthen IMPACT programs	Country	Usage_ Feedba ck <i>and</i> Usage_	November 2017, following the release of x outputs, targeting at least 10 partners
IMPACT products	humanitarian documents	Perceived capacity of IMPACT staff Perceived quality of	louin	Survey templat	E.g. Usage survey to
products	cluster/agency strategic plans, etc.) directly informed by IMPACT products	Recommendations to strengthen		C	be conducted at the end of the research cycle related to all outputs, targeting at least 20 partners]

Humanitaria n	Number and/or percentage of humanitarian organizations	# of organisations providing resources (i.e.staff, vehicles, meeting space, budget, etc.) for activity implementation			□ Yes
stakeholders are engaged in IMPACT	directly contributing to IMPACT	# of organisations/clusters inputting in research design and joint analysis	Country	Engage ment_lo	□ Yes
programs throughout the research cycle	programs (providing resources, participating to presentations, etc.)	# of organisations/clusters attending briefings on findings;	Call	g	□ Yes