Theme	Water Utilization
Application	**Irrigation Management**
Use Case	Command Area
Use Case ID	IM-CA-02
Other linked Use cases	Digital Hydro Infrastructure, Forecasted availability, Current Availability, Command area demand, New schemes, Crop production, Irrigation modernization plans, Benchmarking of Irrigation projects, Performance Evaluation Studies, Waterlogging and Salinity, Mobile App for Irrigation Management.
Description	Irrigation project comprises of the head works (storage or diversion dam), canal and distribution network in the command area for irrigation supplies to the command farmers. The size of the command area is worked out on the basis of water availability and water demand based on the cropping pattern approved by the agronomist, which varies from project to project. Efforts are make to optimise to give higher production and to maximise production per drop of water. The boundary of the command area is fixed based on the topography and other factors.
Used by	Planners, Decision makers, State WRDs, CWC, Farmers Associations
Priority	**High Priority:** This use case is the base for proper implementation of irrigation management for enhancing the food production in the country. Command Area component of an irrigation project governs the irrigation potential. Therefore, higher the coverage of command areas, higher will be the irrigation potential and more will be the enhancement in food security scenario.
Phase	Phase 2: DSS Development of IWCIMS
Business Problem	**Issue:**During planning and formulation of any irrigation project, the command area so available has to be nearer to the project headworks (i.e., source of water) and has also to be suitable for sustained irrigation. **Approach:**It is necessary to carry out soil survey and agrometeorological studies in the command area to establish the soil suitability and land irrigability classifications at the project planning stage itself so that the farmers can cultivate various types of crops accordingly to derive maximum benefits.
Output	Command area Details- GCA, CCA
Outcome	Command Area Map/Soil Map/ Climate Zone Map.
Visualization	1. Name of Irrigation Projects/states/Districts 2. Command Area Map on scale 1;50,000 ➢ Gross Command Area (GCA) • Left Bank (GCA) (ha): • Right Bank (GCA) (ha): • Total GCA (ha): ➢ Culturable Command Area (CCA) • Left Bank (CCA) (ha): • Right Bank CCA (ha): • Total CCA (ha) ➢ Ratio of GCA to CCA (%): 3. Soil Survey Map of Command Area on Scale 1:50000 ➢ Type of Soils: ➢ Land Irrigability Classifications

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- Class I Land (%):
- Class II Land (%):
- Class III Land (%):
- Class IV Land (%):

➢ Command Area Slope (%):

➢ Ground Water Table

- Pre Monsoon (m):
- Post Monsoon (m):

Up-dation Frequency	No updation is required
Measures of Success (KPIs)	All canals and canal structures provided in the command area function normally as per design which needs regular monitoring.
Input	
Data Required	

Data	Unit	Type	Source
1. Command area maps		Map	Project Authorities
2. Salient features of these structures		Text	
3. Canal Network Map			
• Length of canal	Km		
• Width of canal	m		
• Lined/unlined status of the canal	Lined/Unlined		
• PIN/ UGPN	Km	Decimal	
• Discharge through canal	M^3/sec	Number	
4. Count of conservation structure		Decimal	
5. Type of structure	No.	Number	
6. Volume (Capacity) of structure		Text	
	MCM		
	MCM		
	MCM	Decimal	
7. Salient features of the conservation structures		Number	
8. Catchment area		Text	
9. Command area spatial layer (GIS, Maps from NRSC, India WRIS, State WRD); Hard Copy maps from State WRD/ Climatic Zone Map.	Km2	Gross Capacity Live Capacity Dead Storagre	
10. Name of command			
11. Type of project (Major/Medium/Minor)		Text	
12. Type of project(Storage or Reservoir/Diversion/Lift		Decimal	
13. River Name/ Basin transfer.	Major/Medium/Minor	Number	
14. Status		Map	
15. Name of the state involved	Storage		
16. Construction under scheme	Reservoir/Diversion/Lift		
17. Area			
18. Gross command area			
19. Cultivable command area		Text	
20. Tribal Sub-plan/ SC Sub- Plan.		Text	

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	21. Year of start 22. Cost of development 23. AIBP structure like canal etc 24. AIBP Command Area 25. Division of Schemes (head/middle/tail) 26. Command area under Micro-irrigation. 27. No. Of WUA formed.	 Hectare Hectare Hectare Hectare HeadMiddleTail	 Text Text Text Decimal Number Decimal Number Decimal Number Text YYYY Decimal Number Text Decimal Number Text	
Process				
Algorithm/Tool (Process flow along with the algorithm)	1. Topographical survey to prepare Command areas map on 1:50000 scale showing contours at 0.5 m interval. 2. Marking Blockwise GCA/CCA boundaries on Command Area map 3. Soil map of command area to be prepared based on detailed or semi-detailed soil survey. 4. Information on data points of this use case needs to be provided by the project authorities and loaded in the software.			
Data Validations	Pe-validation data from irrigation project authorities will be used. No additional validation required.			
Software Requirement (specific if any)	ArcGIS/ArcGIS Enterprise			
Dependencies & Risks	Data availability and permission from concerned project authority/state WRD			
User Acceptance Testing (UAT) By	CWC, State Water Resources Depth and concerned project authority			
Development Responsibility	HARSAC			
Reference material				

Approved
10/XI/2023

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This is to certify that the above BSR has been vetted and found satisfactory.
Details of Domain Organization SPOC and SME for Verification and Approval of above BSR
 **(Signature of SPOC)** **SPOC Name:** **SPOC Designation:** **Organization:**