



Municipal Corporation, Raipur (C.G.)

Near Gandhi Chowk, New Head Office Building, Raipur
E-Mail : dc_rmc@rediffmail.com, Phone – 0771-2535780, 90 (O) 0771-2227395 (Fax)

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SECTOR WISE SLIP TEMPLATE: STORM WATER DRAINAGE

1. Assess the Service Level Gap

The first step is to assess the existing situation and service levels gaps for Storm Water Drainage (AMRUT Guidelines; para 3 & 6). This will also include existing institutional framework for the sector. AMRUT is focused on improvement in service levels. The zone wise data shall be used in identifying the gaps. These zone-wise gaps will be added to arrive at city level service gaps. While assessing service level gap reply following questions not more than word indicated against each question.

- What kind of baseline information is available for storm water drainage system of the city? Detail out the data, information, plans, reports etc related to sector. Is zone wise information available? (75 words)

Ans- Census 2011, service level benchmarking 2014 and data collected from all zone of nagar nigam Raipur.

- Have you collected data from census other sources? Are you aware of baseline survey data of MoUD? Have you correlated data from these and other sources? (75 words)

Ans- Yes we have collected census 2011 data .we are not aware of base line survey data of MoUD.

- What is existing service levels for storm water drainage in the city? What is the coverage of drains? What are the no of incidence of sewerage mixing in the drains? How many times water logging incidence happens in the city? Provide comparative information of service levels (in tabulated form) with respect to the service level bench marks prescribed by MoUD and sustainable standards for service levels under the National Mission on Sustainable Habitat (NMSH) in table 1.1

Table 1.1 Status of Storm Water Level service levels

Sr. No.	Indicators	Sustainable standards	Black (Caution for improvement)	Red (Immediate action for improvement)	Present Status
	Coverage of Storm water drainage network	100%	<75%	<50%	49%
	Incidence of sewerage mixing in the drains ¹	0%	<25%	<50%	NA
	Incidence of water logging ²	0%	<25%	<50%	2.85%

- What is the gap in these service levels with regard to benchmarks prescribed by MoUD and sustainable standards for service levels under the National Mission on Sustainable Habitat (NMSH)?(75 words)

Ans- In Raipur city covered Storm Water Drainage network is not properly laid and By increasing proper storm water drainage network prescribed bench mark level will be achieved.

Gap in coverage is 52% ,Incidence of water logging is 97%.

- What are major challenge facing the city in regard to achieving these service level benchmarks?

Ans-Number and size of drains are not adequate also choking of darins are the main reason for water logging.

- Identify gaps in capacity in managing the services efficiently and also provide an innovative solution for efficiently managing these services.

Ans- The problem causing due to throwing of solid waste into By cleaning of drains this problem can be solved by construction of drains

- Brief the ongoing drainage projects in the city. The components included in these projects, how and up to what extent it will support to the drainage system of the city. Weather it address all the issues related to drainage?

1.1 _____

¹Incidence of sewerage mixing in the drains are ratio of no of households discharging wastewater directly into the drains to the total no of households.

² No of times water logging is reported in a year, at flood prone points in the city

Ans- Some ongoing Drainage projects in the city are: Mowa,Raja Talab, Shankar nagar, etc..

Coverage of drains

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- Describe how at present, the storm water of City is drained off? How many natural and manmade drains are exists and their coverage with respect to road network?

Ans- At present the storm water of city is drained off by kucha and pucca(man made) drains. The length of Pucca drains is about 480 KM.

- What is the capacity and condition of these drains? Is sufficient to carry the peak flow of the catchment/water shed?

Ans- Capacity of drain is not sufficient In rainy season most of the drains are overflowed.

- Does city have separate storm water drainage network? If no, provide the information regarding locations of gray water mixes with the existing drains in table 1.2. In case of mixed drainage how it works in peak rainy days?

Table 1: Detail of Locations where storm water get mixed with sewer

S.No.	Location	Merging with which sewer	Reason
	NA	NA	NA
	NA	NA	NA
	NA	NA	NA

- In case of mixed drainage how it works in peak rainy days?

Ans- In rainy season most of the drains are overflowed.

Water Logging

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- Presently how the problem of water logging is handled? Is it provides the satisfactory outcome?

Ans- The problem of water logging handle manually and machines. No it doesn't provides satisfactory outcome.

- Provide details of flood points/areas prone to frequent water logging with special focus on Key road intersections, along roads (50 mt length or more) and Locality (affecting 50 HH or more) in the Table 1.2.

Table 1.2: Flood prone points in the city

S.No.	Area	No of points	No of times water logging reported in a year (stagnant water for more than four hours of a depth more than 6")
1	Key road intersection	NA	NA
2	Along roads (50 mt length or more)	11	2-3 times
3	Locality (affecting 50 HH or more)	NA	NA

Chocking of drains

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- Are drains prone to chocking due to dumping of solid wastes in them? If yes, Provide details of locations prone to chocking of drains due to solid waste in the Table 1.2

Table 1.2: Detail of Locations prone to chocking of drains due to solid waste

S.No.	Location	Stretch Length Affected	Reason
	NA		

- How presently the problem is addressed?

Institutional Framework

Please provide information in 150 words on the above responding to (however not limited to) following questions.

- Define role and responsibilities in terms of O&M, policy planning, funding, service provision in table 1.3. Is it in accordance with the AMRUT guidelines (Clause 8.1)?

Table 1.3: Functions, roles, and responsibilities

Planning and Design	Construction/ Implementation	O&M
ULB	ULB	ULB

- How city is planning to execute projects?

Ans- To execute project the city is divided into 8 zone. headed by zone commissioner . all problem related to drains are solved at zone level.

Shall the implementation of project be done by Municipal Corporation? If no, whether resolution has been passed by the Municipal Corporation and accordingly, a tripartite Memorandum of Understanding (MoU) between State Government, Municipal Corporation and Parastatal has been signed? Please refer para 8.1 of AMRUT guidelines.

2.1 Ans- Yes implementation of project is done by Raipur Municipal Corporation.

2. Bridge the Gap

Once the gap between the existing Service Levels is computed, based on initiatives undertaken in different ongoing programs and projects, objectives will be developed to bridge the gaps to achieve universal coverage. (AMRUT Guidelines; para 6.2 & 6.3, Annexure-2; Table 2.1). Each of the identified objectives will be evolved from the outcome of assessment and meeting the opportunity to bridge the gap.

- List out initiatives undertaken in different ongoing programs and projects to address these gaps. For this provide details of ongoing projects being carried out for sector under different schemes with status and when the existing projects are scheduled to be completed? Provide information in Table 1.4

Table 1.4: Status of Ongoing/ Sanctioned

S. No.	Name of Project	Scheme Name	Cost	Month of Completion	Status (as on ddmm 2015)
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		JnNURM/ JICA/ ADB etc			
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- How much the existing system will be able to address the existing gap in storm water drainage system? Will completion of above improve the coverage of network; eliminate the choking of drains and water stagnation problem? If yes, how much. (100 words)

• **Ans- No ongoing projects is there to fill the gap project will be planned under mission Amrut.**

- Does the city require additional infrastructure to improve the services? What kind of services will be required to fulfill the gap?

Ans-Yes. By Construction of additional drains and cleaning of drains.

- How does the city visualize to take the challenge to rejuvenate the projects by changing their orientation, away from expensive asset replacement programs, to focusing on optimum use of existing assets?

Ans-By cleaning of drains and construction of additional drains.

- Has city conducted assessment of O&M cost of drains and potable pumps? if yes, what is it? Is city planning to reduce it?

Ans-NO

- Based on assessment of existing infrastructure and ongoing / sanctioned projects, calculate existing gaps and estimated demand by 2021 for Rejuvenation of existing drains, construction of new primary and secondary drains, construction of pump house with pumping machinery, covering of drains. Gaps in Storm water drainage service levels are provided as per Table 1.5.

Table 1.5 . Demand Gap Assessment for Storm Water Drainage Sector

Component	2015			2021	
	Present	Ongoing projects	Total	Demand	Gap
Major Drains					
Network requirement to provide proper drainage to all identified water stagnant point, flooding points up to the end discharge point (in Km)					

Network length where households discharging wastewater directly into the drains					
Rejuvenation of existing primary nallahs and primary drains including covering and installation of filter					

- Whether these gaps presented in measurable/ execution able ways considering all the ongoing projects? (75 words)

Objectives

Based on above, objectives will be developed to bridge the gaps to achieve universal coverage. While developing objectives following question shall be responded so as to arrive at appropriate objective.

- Does each identified objectives will be evolved from the outcome of assessment?

Ans- YES.

- Does each objective meet the opportunity to bridge the gap?

- **Ans- YES.**

- Does objectives clearly address all these gaps /solution to all the problems related to storm water drainage of the city?

Ans-By cleaning of drains and construction of additional drains

Please provide List out objectives to meet the gap in not more than 150 words.

3. Examine Alternatives and Estimate Cost

The objective will lead to explore and examine viable alternatives options available to address these gaps. These will include out of box approaches. (AMRUT Guidelines; Para 6.4 & 6.8 & 6.9). This will also include review of smart solutions. The cost estimate with broad source of funding will be explored for each. While identifying the possible activities, also examine the ongoing scheme and its solutions including status of completion, coverage and improvement in O&M. Please provide information on the above responding to (however not limited to) following questions.

- Does all these gaps clearly identified and addressed? (75 words)
- What are the possible activities and source of funding for meeting out the objectives? (75 words)

Ans- AMRUT and state governments.

- How can the activities be converged with other programme like JICA/ ADB funded/SBM/Smart city mission projects in the city etc.? (i.e. convergence with other schemes)(100 words)

Ans- N.A

- What are the options (financial alternatives) of completing the ongoing activities specially ongoing JnNURM projects? (75 words)

- **Ans- No ongoing project under Jnnurm.**

- What are the lessons learnt during implementation of similar projects? (100 words)

- Have you analyzed best practices and innovative solutions in sector? Is any of the practice be replicated in the city?(75 words)

Ans- No

- What measures may be adopted to recover the O&M costs?(100 words)

- Whether reduction in O&M cost by energy efficient pumps etc be applied?(75 words)

- **Ans- No**

- Are different options of PPP such as Design-build-Operate-Transfer (DBOT), Design Built Finance Operate and Transfer (DBFOT) are considered?(100 words)

The alternative activities to meet these activities be defined as per Table 1.6

Table1.6 Alternative Activities To Meet Objectives

Sr. No.	Objective	Activities	Financing Source
1.	SEWERAGE AND DRAINAGE	UNDER SCHEME PREPARATION	Amrut

4. Citizen Engagement

ULBs will organize and conduct city level citizen consultation and receive feedback on the suggested alternatives and innovations. Each alternative will be discussed with citizens and activities to be taken up will be prioritized to meet the service level gaps. ULB will prioritize these activities and their scaling up based on the available resources. (AMRUT Guidelines; Para 6.6, 6.7 & 7.2). Please explain following questions in not more than 200 words detailing out the needs, aspirations and wishes of the local people.

- Has all stakeholders involved in the consultation?
• **Ans- YES**
- Has ward/ zone level consultations held in the city?
• **Ans- YES**
- Has alternative proposed above are crowd sourced?
• **Ans- YES**
- What is feedback on the suggested alternatives and innovations?
• **Ans- Feedback is taken for identification of problem area.**
- Is any new potential alternative is received? If so, how it is addressed?
• **Ans- YES.**
- Has alternative taken up for discussions are prioritized on the basis of consultations?
• **Ans- YES.**
- What methodology adopted for prioritizing the alternatives?
Ans- Public opinion and assessments of problem and gaps.

5. Prioritize Projects

Based on the citizen engagement, ULB will prioritize these activities and their scaling up based on the available resources to meet the respective objectives. While prioritizing projects, please reply following questions in not more than 200 words.

- What are sources of funds?
 - **Ans- AMRUT and state governments.**
- Has projects been converged with other program and schemes?
 - **Ans- N.A**
- Has projects been prioritized based on “more with less” approach?
 - **Ans- YES**
- Has the universal coverage approach indicated in AMRUT guidelines followed for prioritization of activities?
 - **Ans- YES.**

6. Conditionalities

Describe in not more than 300 words the Conditionalities of each project in terms of availability of land, environmental obligation and clearances, required NOC, financial commitment, approval and permission needed to implement the project.

Ans- We have available land and no environmental approval required and financial commitment from state government .

7. Resilience

Required approvals will be sought from ULBs and competent authority and resilience factor would be built in to ensure environmentally sustainable storm water drainage scheme. Describe in not more than 300 words regarding resilience built in the proposals.

Ans- Approval from ULB general body and state government will be required and we assure we will get it.

8. Financial Plan

Once the activities are finalized and prioritized after consultations, investments both in terms of capital cost and O&M cost has to be estimated. (AMRUT Guidelines; para 6.5) Based on the investment requirements, different sources of finance have to be identified. Financial Plan for the complete life cycle of the prioritized development will be prepared. (AMRUT Guidelines; para 4, 6.6, 6.12, 6.13 & 6.14). The financial plan will include percentage share of different stakeholders (Centre, State and City) including financial convergence with various ongoing projects. While preparing finance plan please reply following questions in not more than 250 words

- How the proposed finance plan is structured for transforming and creating infrastructure projects?
 - **Ans- State government through AMRUT**

- List of individual projects which are being financed by various stakeholders?
 - **Ans- NIL**

- Has financial plan prepared for identified projects based on financial convergence and consultation with funding partners?
 - **Ans- NA**

- Is the proposed financial structure is sustainable? If so then whether project has been categorized based on financial considerations?
 - **Ans- Yes.financial structure is sustainable .**

- Have the financial assumptions been listed out?
 - **Ans- first line estimates**

- Does financial plan for the complete life cycle of the prioritized development?
 - **Ans- yes.**

- Does financial plan include percentage share of different stakeholders (Centre, State, ULBs and)
 - **Ans- yes.**

- Does it include financial convergence with various ongoing projects?
- **Ans- NA**

- Does it provide year-wise milestones and outcomes?
- **Ans- YES.**

Details in financial plan shall be provided as per Table 1.7,1.8,1.9,1.10 and 1.11. These tables are based on AMRUT guidelines tables 2.1, 2.2,2.3.1,2.3.2, and 2.5.

Table 1.7 MasterPlan of Storm Water Drainage Projects for Mission period
 (As per Table 2.1 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No.	Project Name	Priority number	Year in which to be implemented	Year in which proposed to be completed	Estimated Cost
1	Storm water drainage	1	2016-2020	2020	1191.00
2					
Grand Total					

3.1

Table 1.8 Master Service Levels Improvements during Mission Period

(As per Table 2.2 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No.	Project Name	Physical Components	Change in Service Levels			Estimated Cost
			Indicator	Existing (As-Is)	After (To-be)	
1	Storm water drainage	Single component	100%	49%	51%	1191.00

4.1

Table 1.9 Annual Fund Sharing Pattern for Storm Water Projects
(As per Table 2.3.1 of AMRUT guidelines)

(Amount in Rs. Cr)

Sr. No.	Name of Project	Total Project Cost	Share				Total
			GOI	State	ULB	Others	
1	Storm water drainage	1191.00	393.03	797.97			1191.00
	Total						

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Table 1.10 Annual Fund Sharing Break-up for Storm Water Drainage Projects

(As per Table 2.3.2 of AMRUT Guidelines)

Sr. No.	Project	Gol	State			ULB			Convergence	Others	Total
			14 th FC	Others	Total	14 th FC	Others	Total			
1	Storm water drainage	393.03	797.97							1191.00	
2											
3											
4											
5											
	Total										

(Amount in Rs.Cr)

Table 1.11 Year wise Plan for Service Levels Improvements

(As per Table 2.5 of AMRUT guidelines)

Proposed Projects	Project Cost	Indicator	Baseline	Annual Targets (Increment from the Baseline Value)					
				FY2016		FY	FY	FY	FY
				H1	H2	2017	2018	2019	2020
Storm Water Drainage									
Storm water drainage	1191.00	Coverage of Storm water drainage network	49%	0	49	65	80	90	100
		Incidence of sewerage mixing in the drains ³	NA	0					
		Incidence of water logging ⁴	2.85%	0	2	0			

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³Incidence of sewerage mixing in the drains are ratio of no of households discharging wastewater directly into the drains to the total no of households.

⁴ No of times water logging is reported in a year, at flood prone points in the city