Springshed Management: Field based approaches for effective Implementation

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Spring Management Consortium,
Uttarakhand
Establishment: Taking forward the recommendation of Niti Aayog Springshed management Consortium constituted on 2nd November, 2018

Objective: State wide Springshed Management in Uttarakhand

Outreach: Uttarakhand

Structure: 20 members, line department, NGOs, civil society, experts, etc.

Plan for FY 2019-20:

• Vulnerability Assessment
• Spring Inventory
• On line portal-SMC
• Hydrogeological Survey
• DTR preparations
• Implementation
• M &E
• R&D on Forest Hydrology
Springs in Uttarakhand

• With 71 percent of the state’s geographical area categorized as forest area, the recharge zones of most of the springs are located in forest areas.

• The forest department is undertaking elaborate measures for rainwater conservation through working plan in view of undertaking elaborate measures for groundwater recharge and aquifer management which is essential for spring-shed management.

• Out of 39,202 habitations/villages in Uttarakhand, only 21,363 habitations/villages have drinking water facility. For the rest 17,839 villages, there is a water shortage either due to the dried up water sources or the failed drinking water projects.

• As per the guidelines of Jal Jeevan Mission, restoration and strengthening of springs should be done through Compensatory Afforestation Fund Management and Planning Authority (CAMPA).

• To ensure proper springshed management in the state, the Forest department has formed a springshed management consortium.
Forest Types of Uttarakhand
Catchment Map of Major Rivers

Legend
- Forest Division Boundary

<table>
<thead>
<tr>
<th>CATCHMENT</th>
<th>WS</th>
<th>SWS</th>
<th>MWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaknanda</td>
<td>4</td>
<td>22</td>
<td>207</td>
</tr>
<tr>
<td>Bhagirathi</td>
<td>2</td>
<td>18</td>
<td>160</td>
</tr>
<tr>
<td>Ganga- A</td>
<td>1</td>
<td>5</td>
<td>56</td>
</tr>
<tr>
<td>Ganga- B</td>
<td>2</td>
<td>12</td>
<td>87</td>
</tr>
<tr>
<td>Kali</td>
<td>3</td>
<td>16</td>
<td>239</td>
</tr>
<tr>
<td>Kosi</td>
<td>4</td>
<td>13</td>
<td>117</td>
</tr>
<tr>
<td>Ramganga</td>
<td>3</td>
<td>11</td>
<td>85</td>
</tr>
<tr>
<td>Yamuna</td>
<td>4</td>
<td>19</td>
<td>160</td>
</tr>
</tbody>
</table>

Total 23 116 1111

WS- Watershed
SWS- Sub-watershed
MWS- Micro-watershed
Watersheds of Uttarakhand
Gokarneshwar Gad MWS in Pithoragarh
Slope Map of Gokarneshwar Gad MWS
## Recharge Estimates

<table>
<thead>
<tr>
<th>SN</th>
<th>Line item</th>
<th>Structure code</th>
<th>Size of Structure</th>
<th>Location and Recharge area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Earthen Works</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Length (m)</strong></td>
<td><strong>Width (m)</strong></td>
</tr>
<tr>
<td>1</td>
<td>Staggered contour trenches</td>
<td>SCT-1</td>
<td>2.0</td>
<td>0.60</td>
</tr>
<tr>
<td>2</td>
<td>Staggered contour trenches</td>
<td>SCT 2</td>
<td>2.0</td>
<td>0.45</td>
</tr>
<tr>
<td>3</td>
<td>Staggered contour trenches</td>
<td>SCT 3</td>
<td>2.0</td>
<td>1.00</td>
</tr>
<tr>
<td>4</td>
<td>Recharge pond</td>
<td>RP</td>
<td>3.0</td>
<td>2.00</td>
</tr>
<tr>
<td>5</td>
<td>LBCD</td>
<td>LBCD</td>
<td>Optimum Dimension and design</td>
<td>30°21'34.36&quot;N 78°19'0.25&quot;E 30°21'32.68&quot;N 78°18'54.70&quot;E 30°21'39.94&quot;N 78°18'43.87&quot;E</td>
</tr>
<tr>
<td>6</td>
<td>Gully plug</td>
<td>GP</td>
<td>Optimum Dimension and design</td>
<td>30°21'30.07&quot;N 78°18'56.75&quot;E</td>
</tr>
</tbody>
</table>
Spring discharge behaviour with Groundwater recharge (2002-2019), Chureddhar village of Tehri district of Uttarakhand

Groundwater Recharge in Cubic Meters

Water Demand Vs Availability In Chureddhar Village (2002-2018)

Recharge Interventions (2009)
Recharge Interventions /Desilting (2012)
Desilting (2018)
Recharge Interventions (2019)
Discussion on participatory springshed management.
Community contribution for springshed management
Social Mapping
Resource Map
Identify critical springs (VWSP)
Water Resource Time line/ Time Trends
Springshed Management Data Sheet

<table>
<thead>
<tr>
<th>State</th>
<th>District</th>
<th>Block</th>
<th>Gram Panchayat</th>
<th>Village</th>
<th>Spring Name</th>
<th>Spring ID</th>
</tr>
</thead>
</table>

Spring Coordinate (GPS Survey):

<table>
<thead>
<tr>
<th>Date of measurement</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Elevation</th>
</tr>
</thead>
</table>

Household dependence:

Spring water use? (Please Tick)
- Domestic
- Irrigation
- Community water supply
- Others

Approximate distance of source from the habitat: \[ \text{m} \]

Other Alternate Source type:

Land use pattern in spring catchment area (Please Tick)
- Agriculture
- Forest
- Barren land
- Pasture
- Others
Agriculture / Forest / Barren land/ Pasture/ others

Spring recharge area Land ownership? (Please Tick)

- Community land
- Individual
- Government
- Others

Community Response for implementation: - Good/Average/Nil

Land owner’s name in the recharge area if individual /clan?

Seasonality of spring: Seasonal/Perennial (Please Tick)

If seasonal, what are the months of flow?

Variation in discharge: - Yes/No (Please Tick)

From Last (Time period):-

Discharge measurement (Litres per minute):

<table>
<thead>
<tr>
<th>Date</th>
<th>Time of measurement</th>
<th>Discharge in litres per minute</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dimension of Collection Chamber If Available

(length × breadth × Depth) (if any):
Rough sketch of the springshed:

Other characteristics:

Water Quality Parameters

pH:  TDS:  Faecal Coliform: Presence / Absence  Turbidity: Yes/ No

Quality Related Issues: -
If Yes:  From Last..........................

Information compiled by:

Date:
Brushwood dam, Check dam and gabion structure in the recharge area
Contour trenches, recharge pits and pond digging by community in the recharge area
Community participation in different activities of springshed management
Data collection at village level
Capacity building