Hardware components for Water Stressed and Water Quality affected Habitations

Projects under *Jalaswarajya* – II

Groundwater Surveys & Development Agency

Projects Envisaged

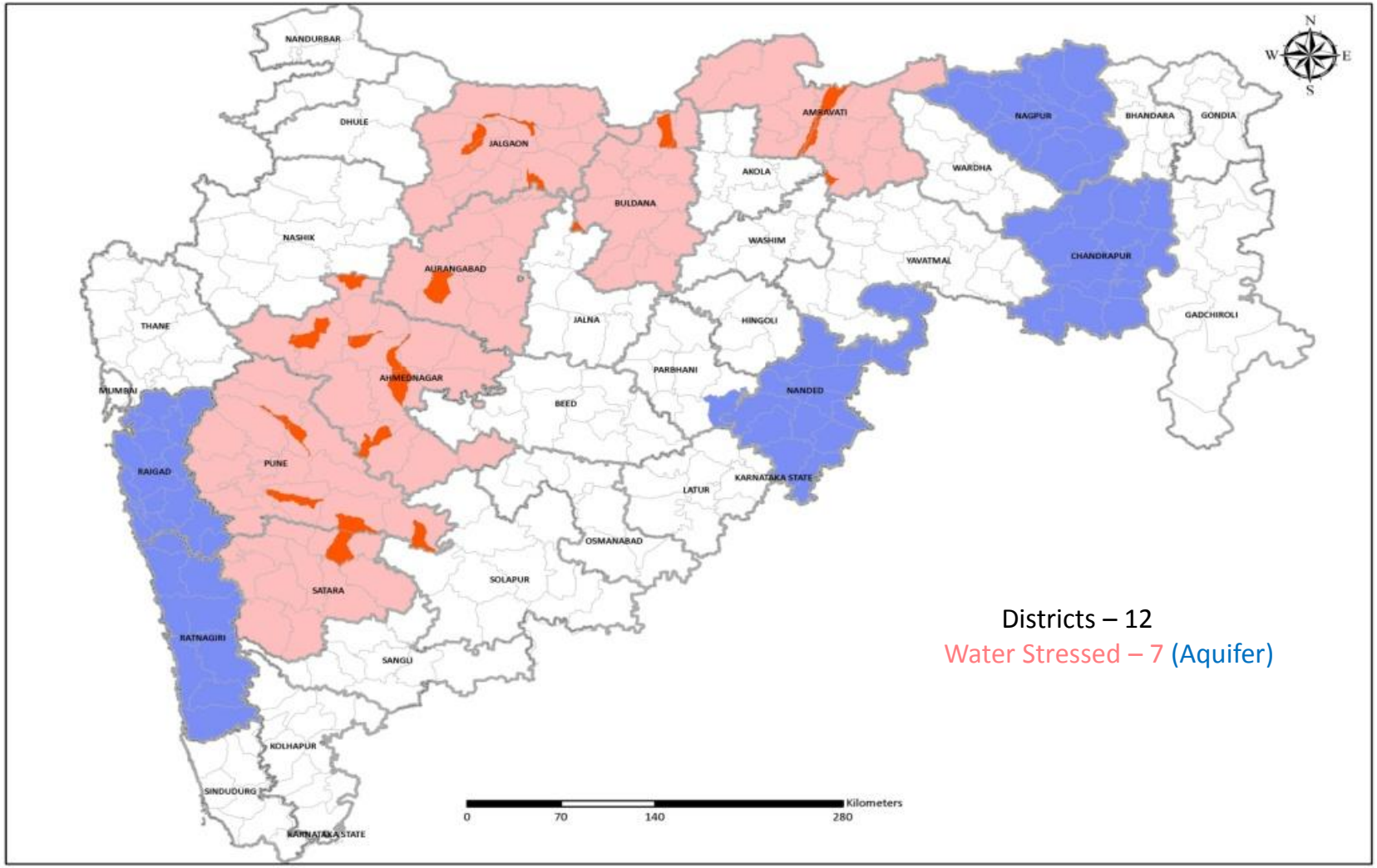
1. **Aquifer Mapping and Community based Aquifer level Groundwater Management**
2. **Measures for Water Quality affected habitations**
3. **Strengthening of Water Quality laboratories**
4. **Groundwater Level Monitoring Network**
5. **Real Time Groundwater Level Monitoring**
6. **Strengthening of Hydro-meteorological stations**

Major Physical Investments

Other Physical Investments

Software Investment

Project Districts

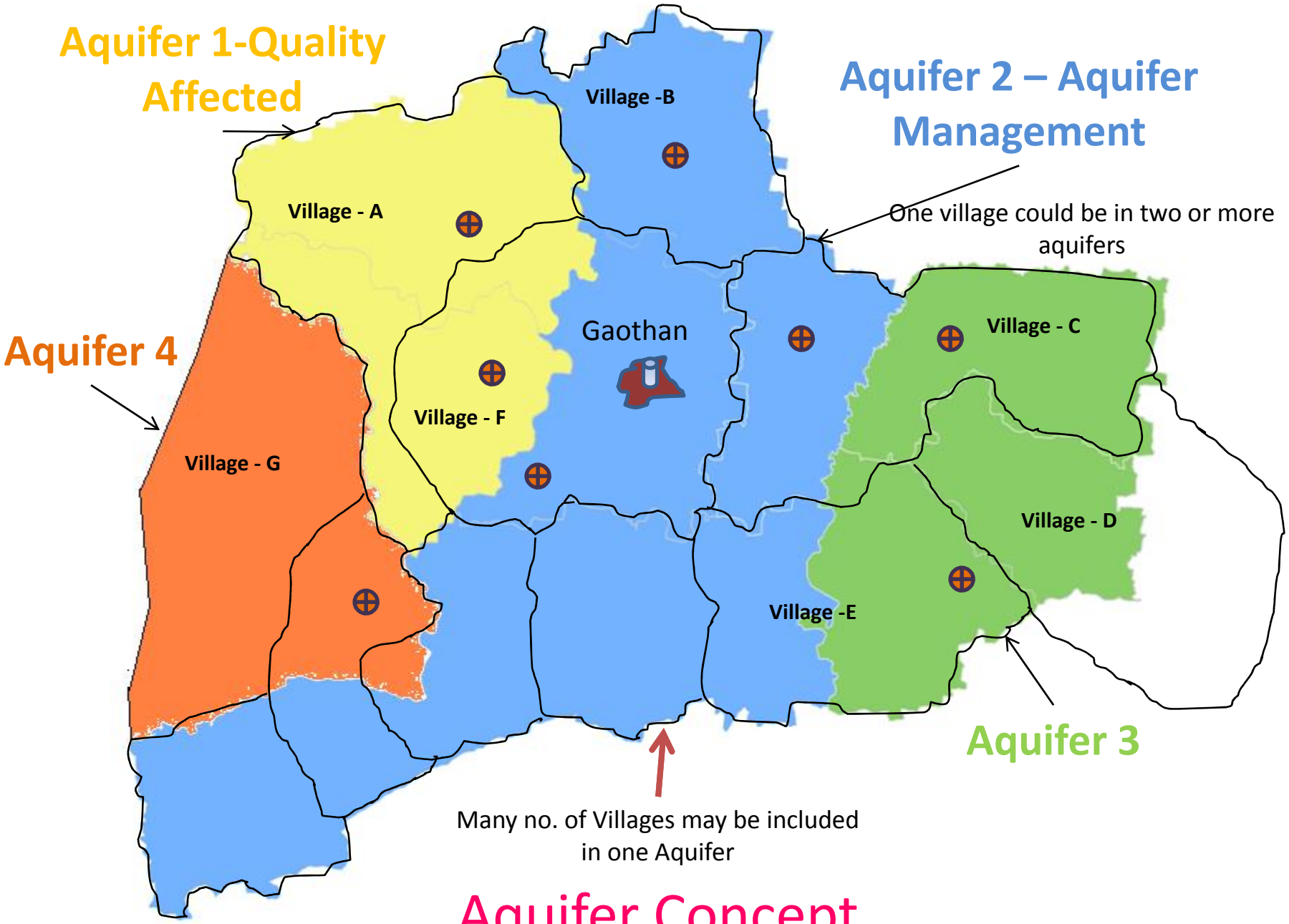


Physical and Financial Allocations

Jalswarajya II Component	GSDA Project	Physical Target	Million $	Cr. Rs. (@ 60 Rs/$)
Major Physical Investment	Aquifer level GW Management in OE areas	30 Aquifers	19.59	117.54
	Measures for Water Quality affected habs	330 habitations	17.28	103.68
Other Physical Investment	GSDA Lab strengthening	6 Regional Level Labs	1.95	11.7
Software Investment	HMS, OBW & Real time		3.17	19.02
Total			41.99	251.94

Water Supply and Sanitation Department, GR JSP-1213/PR200/PAPU-11 dt 4.1.2014

Aquifer Mapping & Community Based Aquifer Level Groundwater Management


Aquifer 1-Quality Affected
Aquifer 2 – Aquifer Management
One village could be in two or more aquifers
Aquifer 4
Village -B
Village - A
Gaothan
Village - C
Village - F
Village - G
Village - D
Village -E
Aquifer 3
Many no. of Villages may be included in one Aquifer
Aquifer Concept

Groundwater Scenario of Project Districts

Sr.No.	District	Assessment Unit (Watershed) as per 2011-12 Report				
		Over-exploited	Critical	Semi-critical	Safe	Poor Quality
1	Ahmednagar	13		11	56	
2	Akola				37	1
3	Amravati	8	1	4	47	3
4	Aurangabad	1		3	48	
5	Beed			1	47	
6	Bhandara			1	24	
7	Buldhana	2		7	48	
8	Chandrapur				58	
9	Dhule			2	43	
10	Gadchiroli				83	
11	Gondia				33	
12	Hingoli				23	
13	Jalgaon	10	2	12	42	
14	Jalna	1		4	47	
15	Kolhapur			1	39	
16	Latur	7		3	29	
17	Nagpur			2	52	
18	Nanded				49	
19	Nandurbar				29	
20	Nashik	11		14	55	
21	Osmanabad	3		5	33	
22	Parbhani				33	
23	Pune	7		12	52	
24	Raigad				17	
25	Ratnagiri				20	
26	Sangli	5	1	5	27	
27	Satara	1		7	42	
28	Sindhudurg				11	
29	Solapur	7		6	51	
30	Thane				34	
31	Wardha				39	
32	Washim				35	
33	Yeotmal				64	
	Total	76	4	100	1347	4

Objectives

1. **Up-scale the community driven groundwater management tool in groundwater stressed areas of the State.**
2. **To make the groundwater resource sustainable for drinking and irrigation**
3. **Make the villages tanker free by using the community based groundwater management tools**
4. **To test and implement the Maharashtra Groundwater (Development and Management) Act 2009 and to evolve the region specific approaches.**

Shortlisted Areas

Sr. No.	District	Name of Watersheds	No. of Notified villages	Total no. of Villages
1	Ahmednagar	BM-29, GV-107, GV-109, GV-110, GV-123, GV-125, GV-31B, SA-2	65	145
2	Amravati	PT-2, PT-20, WRB-2	49	69
3	Aurangabad	GV-41	19	52
4	Buldhana	GPD-2, PT-11	39	73
5	Jalgaon	TE-15A, TE-18, TE-41	33	76
6	Pune	BM-18, BM-59, BM-75, BM-77	52	109
7	Satara	BM-85	13	43
	Total	**22 Watersheds**	**270**	**567**

567 villages within 22 watersheds are expected to give at least 30 Aquifers

Activities

Sr. No.	Component	FY 2014-15				FY 2015-16			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Selection of Aquifers	Completed							
2	Data Collection								
3	Baseline Survey (Aquifer Mapping & Delineation)								
4	Social Assessment								
5	Water Account								
6	Installation of Rain gauge & establishment of GW level Monitoring network								
7	Rainfall & Groundwater level monitoring								
8	Water Quality monitoring								
9	Preparation of GWMAP by community & up-dation of GW use plan								
10	Capacity building of the Village & Aquifer level committee Members								

Proposed Institutional Arrangement

1. At Village Level- VWSC
2. At Aquifer Level - Villages falling in one aquifer shall be federated into Aquifer Level Groundwater Management Association (AWMA)
3. At District Level – CEO headed Committee with District Senior Geologist as member secretary & Technical Support Group (TSG) comprising of all district level technical officers.
4. Regional Level technical support from Regional Deputy Director, GSDA
5. At Directorate/State Level – Over co-ordination and Technical Support & Technical Review Committee (TRC)

Measures for
Water Quality Affected Habitations

Scope

- Project intends to focus only on habitations where drinking water sources are contaminated either by fluoride or/and by Total Dissolve Solids (TDS)
- Project to be implemented in 330 habitations / Villages in the State. Number may be increase in future.

Objectives

As per data provided by WSSO, as on June 2013, 7112 drinking water sources in 3149 habitations from 12 Districts are predominantly affected by F and TDS.

- To identify the needs for long term remedial measures to improve the drinking water quality before it gets further deteriorated.
- To identify the precise prescription for removal of TDS and F contamination for bringing down the level of contamination to potable limits.
- To implement appropriate and cost effective measures.
- The choice of methodology/ option for most suitable solution will be decided by the CEO level committee based on technical inputs from GSDA , health Department and ZP.
- Community participation in understanding the causes and active participation in implementation of measures is very important.

Short listing of Villages

- **Data collection**
- **Prioritization of villages / Habitations:** The District Level CEO headed committee, will finalize the list of habitations from the authentic data on actual population dependency on the contaminated source, provided by WSSO/Executive Engineer, Zilla Parishad.
- In case, more habitations are available then along with Level of contamination & population dependency, technical feasibility criteria will be used for prioritization

Proposed Criteria for Village Selection

- The villages will be shortlisted by arranging the extent of problem in descending order and population dependency i.e. the village where sources having highest level of contamination due to Fluoride and TDS and maximum no of population using the contaminated water source will get top priority.
- Only those villages will be selected where only sources are contaminated and other components of the scheme are functioning well.
- The short list villages will be finally approved by the DWSMC for implementation of appropriate mitigation measures.
- The short list villages will be surveyed by the Sr. Geologist for adopting the appropriate Technical options as mentioned in the Programe manual.
- The Sr. Geologist GSDA, after completing the through Geo-Hydrological survey, will suggest the technical Option among the options, mentioned in the programe manual.

Interventions in Water Quality affected Habitations

- Differentiated water usage through dual supply – with safe water for drinking and polluted water for other purposes; will be first priority,
- Augmentation and dilution of water from polluted sources through various measures including rain water harvesting,
- Providing Technological options such as installation of Reverse Osmosis Systems (RO), Nano Technology, any other relevant, effective and proved technology,
- A distant safe source will be selected and scheme will be implemented drawing water from such source.

The Structure of CEO level Committee

- **Chief Executive Officer, ZP:** **Chairman**
- Deputy CEO, (Grampanchyat), ZP: Member
- Executive Engineer, ZP :- Member
- District Senior Geologist, GSDA :- Member
- District Health Officer, ZP :- Member
- Assistant Chemist, Regional office, GSDA:- Member
- **Deputy CEO (Water Supply), ZP** **Member Secretary**

CEO level Committee

- The committee will approve the short listed habitations prioritized for detailed survey and monitor the timely completion of survey work.
- Committee will review the completed village / habitation wise survey reports presented by District senior Geologist.
- The committee will discuss in details all the suggested and available options and decide the final option based on the technical and least cost solution norms.
- If required the committee can also take the opinion of outside sector experts.
- The committee shall instruct the concern department to take up the implantation work.

Target For Water Quality affected habitations proposal

Sr. No.	District	Total Contaminated habitations (as on June 2013)	Target
1	Raigarh	87	9
2	Ratnagiri	17	2
3	Pune	218	23
4	Satara	21	2
5	Ahmadanagar	159	17
6	Jalgaon	318	33
7	Aurangabadü	173	18
8	Nanded	372	39
9	Amravati	108	11
10	Buldhana	298	31
11	Nagpur	673	71
12	Chandrapur	705	74
	Total	**3149**	**330**

Quarterly physical activity plan – Water Quality affected habitations

Sr. No.	Component	2013-14				2014-15				2015-16				2016-17				2017-18				2018-19			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	**Selection of Habitations**																								
3	**Data Collection**																								
4	**Hiring of Manpower**																								
5	**Technical Trainings**																								
6	**Procurement of Equipments**																								
7	**Hydro-geological Survey**																								
8	**Social Assessment Questionnaire**																								
9	**Installation of Rain gauge & establishment of GW level Monitoring network**																								
10	**Rainfall & Groundwater level monitoring**																								
11	**Water Quality monitoring**																								
12	**Implementation of measures for recharge for groundwater**			100		400				229															
13	**IEC**																								
14	**Impact Evaluation**																								
15	**Final Report Submission**																								
16	**O & M and Exit**																								

Laboratory Strengthening

Sr. No.	Region	Proposed Construction area (sq. m)
1	Nashik	366.96
2	Aurangabad	280.24
3	Amravati	271.36
4	Nagpur	*As per actual*

Software Investments

Sr. No.	Activity	Details of Activity	Time lines	Estimated Cost Rs in Lakhs
1	Observation Well Network- Fixation and monitoring	One existing well in each village will be year-marked	Oct 14 onwards	1170.00
2	Strengthening of Hydro-meteorological Stations	Two in each region i.e. 12	April 2014 to Mar 2016	124.00
3	Real Time Groundwater Level Data Monitoring	Monitoring of groundwater levels on real time basis through SMS in two pilot districts	Oct 2014 onwards	361.00

Recruitment of post for project period at Directorate level

Sr. No.	Name of Post	No. of Posts sanctioned for GSDA	No. of Posts to be filled by Directorate	Nature of post	No. of applications received	Remarks
1	**Deputy Director**	1	1 **	**Deputation**	8	
2	**Hydro-geologist**	1	1 **	**Deputation**	25	
3	**Geologist**	14	14 **	**Deputation**	78	
4	GIS expert	8	1 **	Contractual	49	**Remaining 7 will be filled by respective ZP committee**
5	M & E assistant	1	1 **	Contractual	32	
6	Data entry operator	8	1 **	Contractual	44	**Remaining 7 will be filled by respective ZP committee**
7	Khalasi	7	0	Contractual	9	**All posts will be filled by respective ZP committee**

**** The Scrutiny Committees are constituted vide this office order no. 193/2014, dated 06.03.2014.**

Thank you