

Thirsty Paradise

EHA's water experience in the Islands

UN, World Bank and global leaders have warned that the lack of water resources will lead to global crisis this century. 2.1 billion people lack access to clean drinking water; 1.4 billion live dependant on river basins that are running dry and another 1 billion lack access to potable water (SIWI)

5 Billion working days and 443 million school days are lost each year to hygiene and water related illness (WSSCC and HDR 2007)

In India corruption adds atleast 25% of irrigation contracts and the proceeds to maintain corrupt political handouts and compromised oversight (Global Corruption report 2008)

Briefly I would like to present before you few experiences that EHA had in the Islands by way of implementing the drinking water project.

Groundwater Scenario in the Islands

The project was focused on rural population. Various options were considered and one among them was to provide hand pump or bore well. But there were so many misnomers regarding bore wells such as 'bore well is not allowed in the islands', 'fresh water will not be available below mean sea level' etc. But the biggest of the hurdles was when we faced at the subsurface - the marine sediments which are clayey in nature forming an aquiclude. This prevents development of any groundwater aquifers. However some bore wells in south Andaman at rocky places are yielding water while Bore wells in North Andaman altogether failed to yield water.

As research exercise we did a GPS mapping of about 220 bore wells in different Islands, though a good number of them was located in and around Port Blair.

- A Bell-curve phenomenon can be seen; More than 50% of the bore wells lie in a depth range of 40 – 50 feet.¹
- Water table roughly follows at about 50 feet below the surface elevation²
- Not much correlation found between water table and distance from the coastline. 20% of the bore wells were less than 500m from coastline and 70% within 1000m yielding fresh water and various depths.³
- About 80% of the bore wells are used for domestic purposes and not drinking water purpose

Another starkeling phenomenon noticed was; post Tsunami because of upliftment of tectonic plates⁴ many villages in North Andaman reported their well drying up and sea water withdrawing from the creeks. Has this anything to say with the shifting of

¹ Annexure - 1

² Annexure – 2

³ Annexure – 3

⁴ Annexure - 4 – Main Shocks and aftershocks (USIMS)

water tables in North Andaman? Further research is required in this direction to explain the phenomenon.

Rainfall Scenario

There is abundant rainfall with average annual precipitation of 3,100 mm. The Southwest Monsoon (May to October) predominates, though the northeast monsoon also brings some rain. Thus it gets some eight months of rainfall. Necessary provisions are made by the administration⁵ in their building bye-laws to make installation of rain water harvesting system mandatory. It will need to be effectively implemented to recharge the groundwater. The administration had put together a rainwater harvesting tank in government building and schools however a survey done by the project shows close 100% of these structures in government schools do not function. Will artificial groundwater recharge be better option than rainwater storage? Something to be looked into!

Water Supply Scenario

The shortfall in Port Blair is 35%⁶ according to PWD however Zilla Parisad⁷ paints even grimmer picture of 45% shortage. The Administration in Andaman claims to have reached all villages in Andaman with drinking water supply during the five year plan⁸. Yet we have come across villages which do not have adequate or improved water supply systems. I am not able to understand the why or how this gap exists.

Water Quality Scenario

30% of the water supply in the inter islands is raw or untreated water. In a survey initiated by PWD - UNICEF and undertaken by Dr. B R Ambekar Government Polytechnic shows that 95% of the source is coliform contaminated in the Islands⁹. Bleaching powder used for disinfection decomposes quickly. However the shelf life of air tight HDPE drums or bags is upto one year. Owing to the time loss in transport and stocking very often expired powder is used in the supply line. Post Tsunami the administration¹⁰ with UNICEF had trained atleast 52 engineers in water testing also setup a laboratory in Mayabunder. Effectively no monitoring system is in place especially in the Inter Islands.

Seismic Zone V

In an earthquake prone zone it might be good to have decentralized supply systems. The proposal is to raise Dhanikhari dam and bring Rutland Island water to Dhanikhari dam.

The administration has proposed a long term measure of raw water storage¹¹ (rainwater reservoir) at all villages to ensure availability of water for 100 days. This is a welcome move and hopefully this project is expedited and implemented through local governing bodies.

⁵ Annexure 5

⁶ Annexure 6

⁷ Zilla Parisad presentation during Island Tourism Festival 2008

⁸ Statistical Handbook on Andaman and Nicobar District 2005 - 2006

⁹ 'Water And Island's Development' - Regional Seminar 12 Mar 2008, Port Blair

¹⁰ http://www.unicef.org/rosa/media_2582.htm

¹¹ Annexure 8

We also hope adequate measures is taken to convert the Tsunami affected low lying areas into sweet water lakes

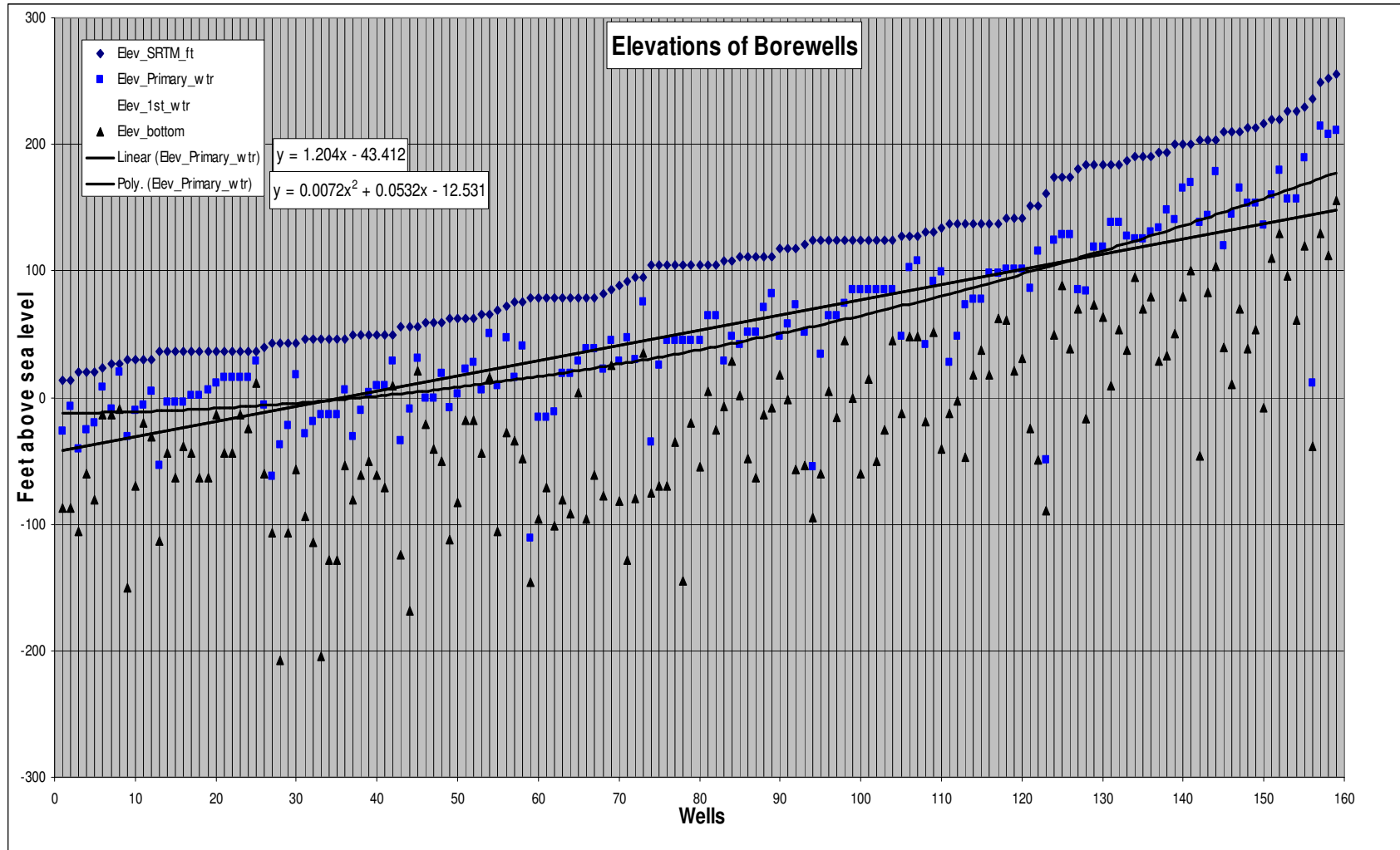
The situation is not quite different here from other parts of the country however it comes with additional set of issues like the topography and the remoteness. Nonetheless the PWD is doing a great job given the rough terrain.

In Andaman one of the painful images I see is when the common man is satisfied with far less quality of drinking water. He is not aware that he is entitled to clean water! Some quick thoughts that come to my mind; Is it because he is poor man that he need to be satisfied with the poor quality or less water or is it because they are few in number (hundreds) that they do not deserve it or do we prefer rich sorry urban over poor.

There are eminent people present in this forum who will try and address these issues both technically and socially. I dream of a paradise where water abounds where the rich and the poor – powerful and the weak are served with equality. Will that be Andaman! Will you dare to dream with me? Jai Hind!

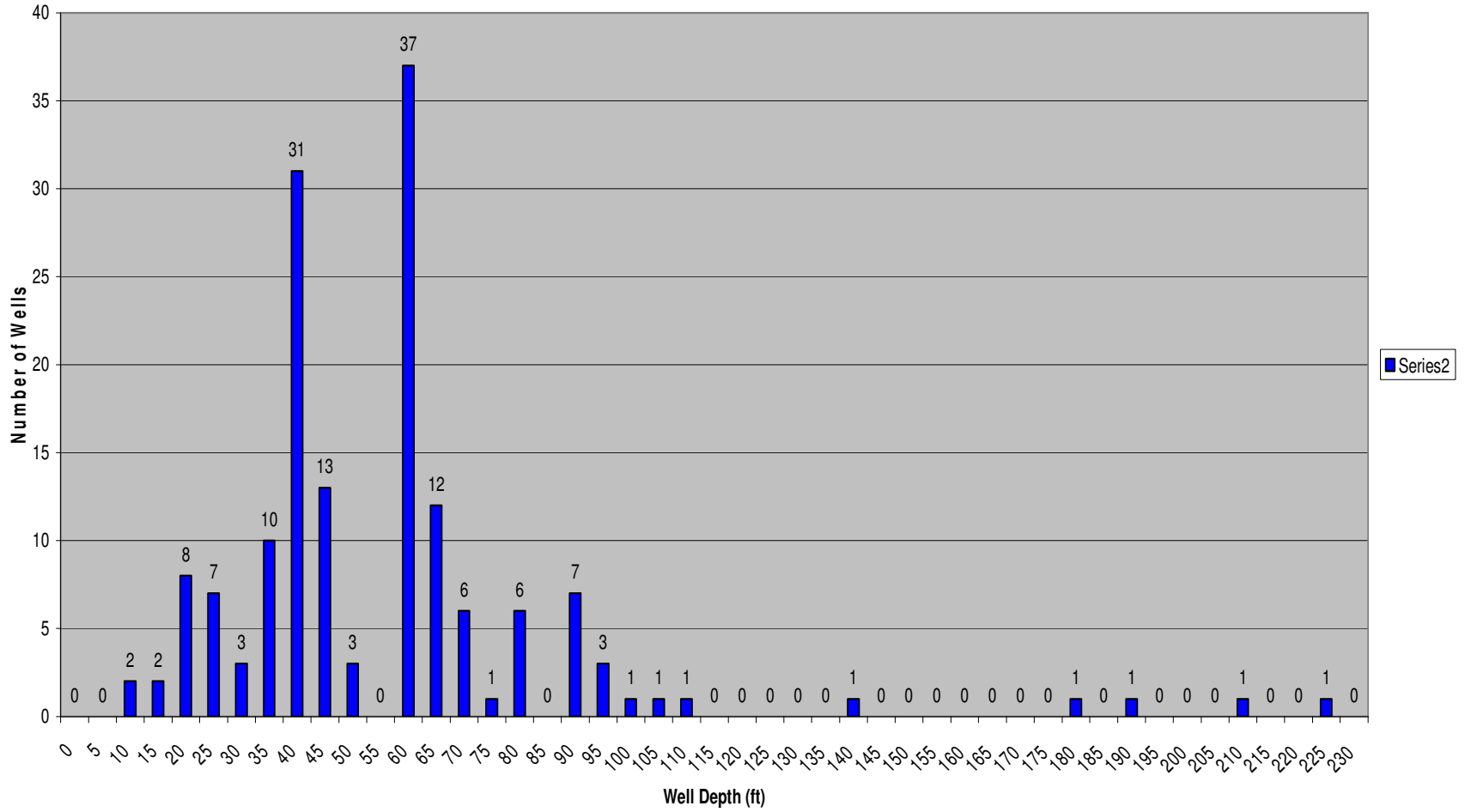
- Abraham Dennyson
Program Manager, Andaman Water Project
Emmanuel Hospital Association

Annexure -1

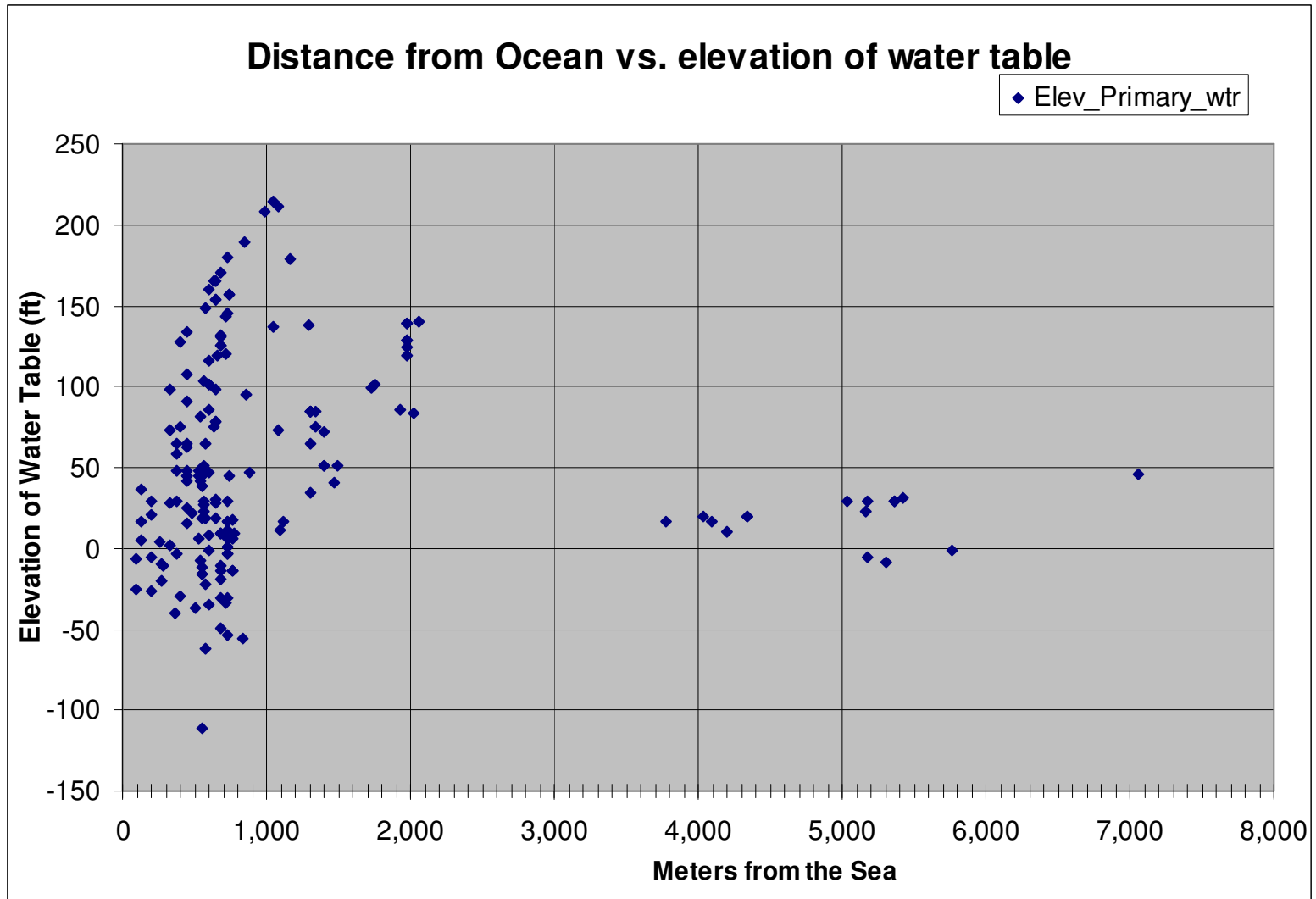


Annexure 2

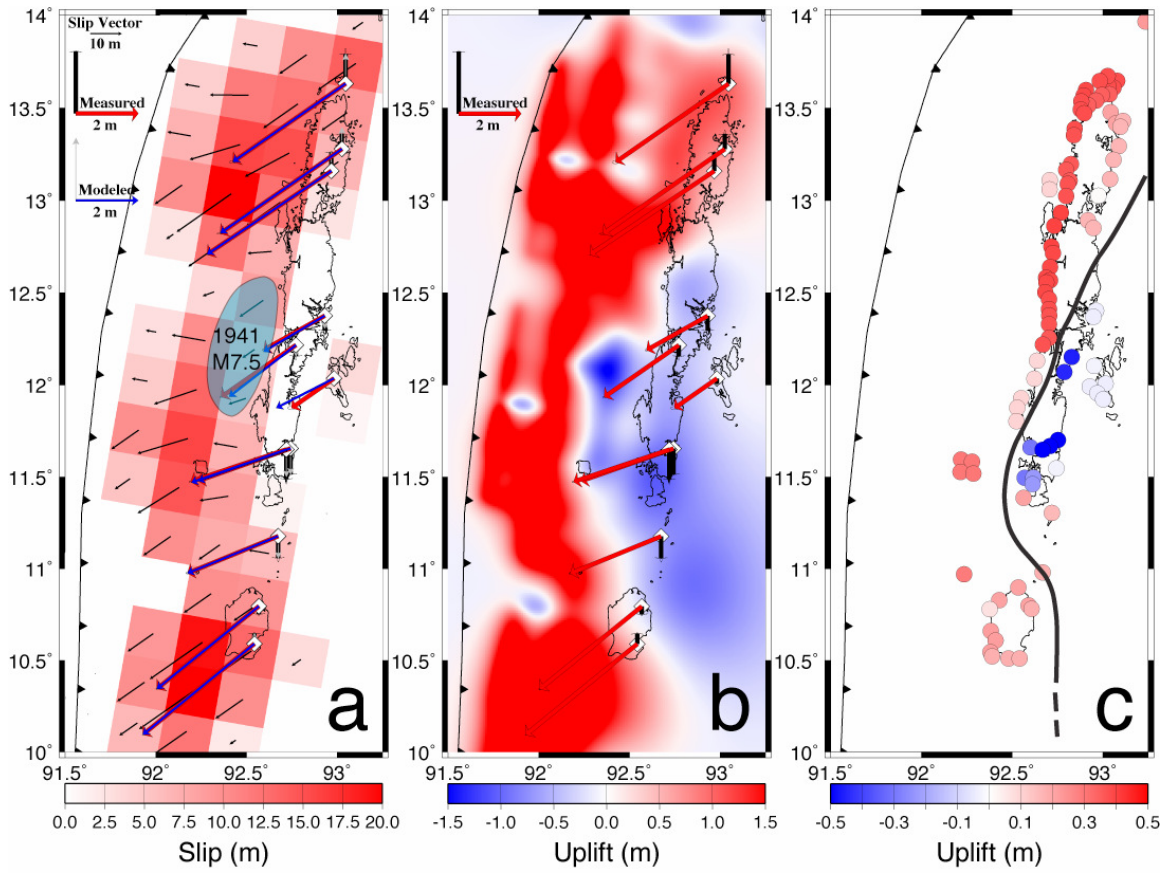
Depth of Water Table (5' intervals)



Annexure 3



Annexure 4



Annexure -5

LOK SABHA STARRED QUESTION NO 270 ANSWERED ON 19.11.2007

WATER CRISIS IN ANDAMAN AND NICOBAR ISLANDS

270. SHRI MANORANJAN BHAKTA

Will the Minister of **WATER RESOURCES** be pleased to state:-

- (a) whether there is serious crisis of water supply in the Union Territory of Andaman & Nicobar Islands;
- (b) if so, the details thereof alongwith reasons therefor; and
- (c) the programme undertaken by the Government for providing water in the said Union Territory?

ANSWER

MINISTER OF THE STATE IN THE MINISTRY OF WATER RESOURCES (SHRI JAI PRAKASH NARAYAN YADAV)

(a) to (c) As per the information received from the Andaman & Nicobar Administration, shortage of water supply is felt to some extent, during the dry season. The reasons for shortage have been stated as increase of population, increase in tourist flow and commercialization. The programmes for overcoming the shortage include supply augmentation measures.

RAJYA SABHA STARRED QUESTION NO 477 ANSWERED ON 08.05.2007

INSTALLATION OF RAIN WATER HARVESTING SYSTEM.

MP : Shri N.R. Govindarajar

Topic : Installation of Rain Water Harvesting System

Will the Minister of **WATER RESOURCES** be pleased to state:-

- (a) whether the Central Government insisted that the State Governments constitute mandatory rules to make compulsory installation of rain water harvesting system in all newly and existing constructions, buildings and Government offices;
- (b) if so, the details of feedback from the States and how many States have made rules for compulsory installation of rain water harvesting systems in the new constructions; and

(c) the annual grant during the last year made by the Central Government to the States to improve numbers in installation of rain water harvesting system in all States?

ANSWER

THE MINISTER OF WATER RESOURCES
(PROF. SAIF-UD-DIN SOZ)

(a) to (c) A Statement is laid on the Table of the House.
STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (c) OF RAJYA
SABHA STARRED QUESTION NO. 477 (Priority No. 17) FOR REPLY ON
08.05.2007 REGARDING INSTALLATION OF RAIN WATER HARVESTING
SYSTEM

(a) The Union Ministry of Water Resources has requested all the State/UT Governments for making provision for construction of roof top rain water harvesting structures in all the Government buildings. In addition, the Model Bill circulated by the Ministry of Water Resources to "Regulate and Control the Development and Management of Ground Water" to all the States/Union Territories contains a chapter on 'Rain Water Harvesting for Ground Water Recharge'. The Model Bill also provides for imposition of stipulated conditions by the Municipal Corporations or other local authorities for providing roof top rain water harvesting structures in building plan in an area of 100 sq.mt. or more, while according approval for construction.

(b) As per the information received from the State/UT Governments of Andhra Pradesh, Daman & Diu, NCT. Delhi, Goa, Gujarat, Haryana, Kerala, Himachal Pradesh, Karnataka, Lakshadweep, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Puducherry, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal, Arunachal Pradesh, Andaman & Nicobar, Orissa, Municipal Corporation of Ludhiana and Improvement Trust, Jalandhar(Punjab), Ranchi Regional Development Authority(Jharkhand) and Mussoorie Dehradun Development Authority (Uttarakhand) have made necessary provision in their building bye-laws to make installation of rain water harvesting system mandatory.

(c) The Ministry of Water Resources has not released any grant to States for improving the numbers in installation of rain water harvesting system in States. However, Central Ground Water Board provides technical guidance to State Governments, NGOs, educational institutes, private entrepreneurs and individuals and also undertakes mass awareness and training programmes on water conservation, rain water harvesting and artificial recharge to ground water.

Annexure - 6

➤ PORT BLAIR (URBAN)

Population as on 2007	1.61 Lac
Demand	27.18 MLD
Source (Water bodies)	05 Nos.
Availability	17.79 MLD
Shortfall	(-)9.39 MLD

NAME OF THE LOCALITY	SOURCE	PROJECTIONS FOR 2007			
		POPULATION (IN LAKH)	DEMAND @ 135 LPCD (IN MLD.)	WATER AVAIL-LABLE (MLD)	EXCESS /SHORT FALL
Port Blair Municipal Area including Minibay, School Line, Part of Austinabad.	Dhanikhari	1.32	22.28	17.79	-9.39
Junglighat, Prem Nagar, Vijay Baugh, Part of Dairy Farm area.	Jawahar Sarovar, Lamba Line Diggi,	0.12	2.02		
Raj Niwas area	Dilthaman	0.13	2.20		
Nayagaon	Nayagaon & Chakkargaon Diggi	0.03	0.51		
Chakkargaon		0.01	0.17		
Total		1.61	27.18	17.79	-9.39

Status of Water Supply in A & N Islands
by APWD, Port Blair

Annexure - 7

ACTION PLAN FOR PORT BLAIR (URBAN & RURAL AREAS)

DEFICIENT AREA	ADDITIONAL STORAGE PROPOSED UPTO 2012	SCHEMES	CAPACITY (IN MLD)	EXP. COMMISSIONING DATE	COST (Rs. In crore)
PORT BLAIR (URBAN & RURAL)	41.30 MLD	Desalination Plant at Port Blair	14.00	12/2009	90.00
		Procurement of Barges	5.00	03/2009	40.00
		Sweet water Lake at Sippighat	5.60	12/2009	5.00
		Raising the height of Dhanikhari dam by 5 Mtrs.	13.50	03/2012	20.00
		Tylerabad weir	0.20	12/2008	2.00
		Indira Nallah- Development of 14mtrs. high Earthen Dam.	2.00	03/2011	20.00
		Karupaswamy Nallah, Bimblitan	1.00	12/2010	10.00
		Total	41.30		187.00

Annexure - 8

ACTION PLAN FOR OTHER RURAL AREAS

DEFICIENT AREA	ADDITIONAL STORAGE PROPOSED UPTO 2012	SCHEMES	CAPACITY (IN MLD)	EXP. COMMISSIONING DATE	COST
RURAL AREAS	11.34 MLD	Dam across Kamsrat Nallah - 14mtrs. high	1.61	12/2010	10.00
		Dam across Koila Nallah - 13mtrs. high	0.87	12/2012	9.00
		Mithakhari	3.00	12/2012	8.00
		Providing Reservoir for 100 day storage	5.86	12/2012	650.00
		Total	11.34		677.00

Status of Water Supply in A & N Islands
by APWD, Port Blair

Annexure - 9

YEAR WISE REQUIREMENT OF FUNDS FOR SHORT, MEDIUM AND LONG TERM SCHEMES

(Rs. In Crores)

SCHEME	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
Short Term Measures	6	2	0	0	0	0	0	0	0	0	0
Medium Term Measures	1	65	55	20	18	10	0	0	0	0	0
Long Term Measure	50	130	220	220	220	220	220	130	130	130	130
Total	57	197	275	240	238	230	220	130	130	130	130
GROSS PROJECTED COST OF Rs.1977											

Status of Water Supply in A & N Islands
by APWD, Port Blair