December 2009

# Evaluation Study on Accelerated Rural Water Supply Programme in Meghalaya

## Final Report

Submitted to:
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# Executive Summary

## Background

Rural drinking water supply is one of the important subjects entrusted to the States as per the Seventh Schedule of the Indian Constitution. Therefore, the drinking water supply schemes are planned and implemented by the respective State Governments. However, Government of India has been providing assistance to the states for providing adequate and safe drinking water in the villages.

Some of the key initiatives taken by the Government of India, for improving drinking water coverage in rural areas are:

- Rajiv Gandhi National Drinking Water Mission (RGNDWM)
- Bharat Nirman component of water supply
- Sector Reforms/Swajaldhara
- ARWSP

In Meghalaya, Public Health Engineering Department (PHED) is responsible for providing water supply in rural areas of the state. PHED executes the water supply schemes through 21 divisions, across the 7 districts in the state. PHED has given priority to Gravity Fed Schemes over pumping schemes due to apparent cost, operation and maintenance advantages. In areas where piped schemes are not feasible, spot sources have been implemented as a last resort.

### Purpose of the assignment

The purpose of the assignment was to review the ARWSP implementation in Meghalaya, through assessment of fulfilment of ARWSP guidelines and the benefit to the communities.

## Key findings

### Annual Action Plan

The PHED prepares a comprehensive annual action plan (AAP) for water supply and sanitation programs, covering various schemes including the centrally sponsored Accelerated Rural Water Supply Programme (ARWSP), Rajiv Gandhi National Drinking Water Mission Submission Programme, and Urban Water Supply.

The broad process followed for preparation of the Annual action Plan involves: Number of balance NC/PC habitations as per GOI 2003 survey is identified along with village wise water sources (almost 1-2 years prior to planning year). The Concerned divisions make project reports for each scheme along with financial estimates and submit these to the head office through respective circles, by May and July (in some cases also by December) of the planning year. Subsequently, the Additional Chief Engineers for the respective zones review and technically approve the proposed project estimates. Such approved projects are then submitted to the State Water and sanitation committee, headed by the Chief Secretary, for final approval. The State Water and Sanitation committee normally meets towards October- November to approve the proposed schemes. After approval of the schemes, these are processed by the head office by the planning and finance divisions, which take almost a month, and subsequently administrative approvals are issued to the concerned divisions for implementation of these schemes.

## Implementation at state and districts

The state's physical progress in terms of implementation of new water supply schemes and population covered under AWRSP shows increasing trend during 2004-05 to 2006-07. The reported financial expenditure including central and state shares during the implementation period 2004-05 to 2007-08 indicate a decreasing trend in proposed outlay as well as reduction in % expenditures. Implementation of water supply schemes by the divisions/ districts over the last four years (2004-05 to 2007-08), indicates out of a total of 2408 schemes implemented in the state, the highest number, 544 water supply schemes (22% of total) have been implemented in West Garo Hills. Three districts of West Garo Hills, West Khasi Hills and Jaintia Hills account for 1314 schemes (54% of total).

The types of schemes implemented by the state PHE department broadly fall into two categories, being spot source schemes and piped water schemes. The number of schemes implemented during 2004-05 to 2007-08 show, maximum schemes implemented under ARWSP being Gravity fed scheme at 879 (35% of total schemes). However, spot source schemes including spring tapped chamber, ring well, dug well, tube well, rain water harvesting and hand pumps in total include 1498 (60%) of total 2480 schemes implemented under ARWSP during 2004-05 to 2007-08 in the state

## Community participation

There were very few instances of any organised body for monitoring drinking water supply. In some of the villages where these committees existed, they lacked capacities for managing the water resources and supply related issues. These village water committees lacked a system of regular meetings. However, under the total sanitation campaign, the village sanitation committees are being formed in the villages, which could be used for drinking water monitoring as well.

The participation of women in decision making for water supply areas including location of community stand post/ spot sources in the villages seemed negligible. The village water committees where ever existed, lacked any women members.

An approach seeking close user involvement in maintaining the schemes, water quality and looking at other aspects like hygiene and deforestation is yet to be adequately addressed. The Village Durbar/ water committees lacked any training and capacity building to impart this knowledge among the user community has been neglected in the state.

## Sustainability of resources

There were instances of water supply schemes being abandoned after a couple of years of functioning due to drying up. Less recharge of aquifers, check dams, rainwater harvesting, etc is depleting the ground water table in Meghalaya. The vegetative cover of Meghalaya is under continuous pressure due to uncontrolled shifting (jhum) cultivation and commercial exploitation in the dominantly private forests (which is not under forest department). This creates acute water scarcity over the hills and siltation problem.

limestone quarrying (to feed cement factories) and coal mining (in Jaintia and parts of Shohra block) are ruining the ecology of Meghalaya hills. The mining processes they resort to are risky. Besides, post mining the area is left open and the sulphur from coal dissolves in underground water thereby making it acidic and polluted.

## Water quality testing

At present the state has a network of state and districts level water quality testing laboratory. However, given the number of water supply schemes and the geographical spread of these, it is clear that the present capacities are insufficient for undertaking regular testing and monitoring of water

quality from various schemes under ARWSP and MNP. Under central scheme, the state has begun providing, portable water testing kits at villages for regular testing of water quality. These water testing kits are yet to reach most villages. The department has just begun training of community for water testing through the testing kits, in a staggered manner.

## Key issues, options & recommendations

## Key Issues

### Inadequate Community Participation

The community participation in water supply schemes is largely limited to jointly identifying the water sources and selection/ possession of site for development of water supply scheme, and planning for location of stand posts.

A water monitoring committee is generally lacking in most villages. Due to non existence of water monitoring committee, there limited user involvement in management and upkeep of water supply schemes at the villages. In cases where the water monitoring committees existed, they seemed to have limited involvement in management of water supply schemes. The water monitoring committee members lacked skills as well as resources for water management. However, under the total sanitation campaign, Village Water and Sanitation Committees (VWSC) are being formed, but their functioning is largely limited to management of sanitation program at the villages.

The involvement of women in planning for the water supply schemes, and in particular while decision making for location of stand posts in the villages, is very limited. The process followed for community dialogue for identification and planning for the water supply schemes largely involved village council/ village durbar, where women are not necessarily represented. A formal process of consultation with women was not evident, even while planning for stand posts, or monitoring of the scheme completion.

### Low attention to water quality testing

Water quality in Meghalaya is affected by both point and non-point sources of pollution, wherein the non point sources like coal mining, quarrying, etc. are more likely to impact the ground water quality, than point sources (open defecation near the source of water). Water quality testing is yet to take off in Meghalaya. The water quality testing is quite negligible, even while commissioning of water supply schemes supply schemes are not tested even at the time of commissioning (only 3 out of 816 water supply schemes were tested during commissioning in 2007-08). This is clearly an area of concern, as not testing of the water quality of the schemes would render the consumers vulnerable to any water borne diseases that may be caused due to poor quality of water. This problem may be very severe in areas where rampant mining has been continuously leading to depletion of resources, as well as pollution of water resources.

A system of concurrent testing of water quality is also urgently needed, for which under central assistance a beginning has been made for providing water testing kits to community. The water testing kits are in the process of being procured and supplied to the community. However, the critical areas that require urgent focus are: adequate training to concerned persons (government/ PHED officers) and community members in using the testing kits, identification of persons responsible for maintaining water testing kits and regular testing of water through these kits, and a system of replenishment of components (reagents, litmus paper, etc.).

## Low sustainability of water sources/ schemes

Less recharge of aquifers, check dams, rainwater harvesting, etc. is reported to be rapidly depleting the ground water table in Meghalaya. The vegetative cover of Meghalaya is under continuous pressure due to uncontrolled shifting (jhum) cultivation and commercial exploitation in the dominantly private forests (which is not under forest department), leading to water scarcity, and siltation problem.

Along with jhum cultivation, limestone quarrying (to feed cement factories) and coal mining (in Jaintia and parts of Sohra block) are adding to depletion of the water resources. Rampant quarrying and mining, especially in privately owned lands, has led to a situation where unplanned mining, has caused water sources getting eliminated and also heavily polluted. The mining process involves open surface mining, and post mining the area is left open and the sulphur from coal dissolves in underground water thereby making it acidic and polluted. Mining is rampant in Jaintia district, especially in Jowai block.

The water sources and water supply schemes are very often in private lands, where the landowner/ nokma has provided the land either for free, or for compensation. However, maintenance of the water sources, including the protection of the catchment areas is very difficult. In several instances, the water has dried up causing the habitation to slip back, largely because of factors like deforestation around the catchment area/ creation of fishing ponds upstream, etc.

## Insufficient operation and maintenance of WSS

PHED have enforced a temporary freeze on fresh recruitment of muster roll workers, leading to shortage of manpower to maintain the schemes at grass root level. This has led to a situation where, one existing muster roll worker is responsible for maintaining schemes across 5-10 villages, there by causing some of the villages/ schemes to get neglected.

River pumping schemes in the state are generally planned for areas/ habitations where gravity schemes are not possible, as it provides soft surface water. However, there are various problems related to operation and maintenance of these schemes:

- In some districts (e.g. South Garo), there is acute electricity problem (at times there are power cut for several days at stretch), leading to non-functioning of the scheme for the period. At times even if the power is available, low voltage causes the scheme to be non functional.
- In many cases, the pump operator post lies vacant/not sanctioned in the scheme

## Lack of IEC/ Awareness

IEC/ awareness are a largely neglected area with regards water supply schemes in the state. There are large scale jhum cultivations, deforestation causing depletion and in cases complete drying up of water sources. At the user level, in many villages there were instances of taps in the stand posts being deliberately left open. This has led to a situation where, water continuously flowed from the stand posts, and accumulated around the stand post, making the entire areas around the stand post muddy, and also causing mosquitoes to breed around the stand posts, thereby causing health risks.

In case of ring wells, the wells were open type without any top cover. This in cases also led to contamination of the ring wells.

Water quality testing is another area where, apart from training and required logistical support for providing and replenishing consumables in the water testing kits, it would be a considerable challenge to make the community aware of the need for regular water quality testing and required follow up.

### Weak planning and monitoring

The AAP preparation and approval process has some shortcomings:

- The AAP preparation begins with preparation and submissions of schemes by the divisions by May to July of the planning year, and ends with communication of administrative approval for implementation of sanctioned schemes by the concerned divisions by December to January. This process leaves very little time for actual implementation of the schemes by the concerned divisions. As a result, a schemed approved for implementation in a planning year is normally completed in the subsequent year.
- The AAP does not does not provide the breakup of proposed water supply schemes, in terms of types of schemes and district/ division wise distribution of schemes. Hence it is not possible to make out district/ division wise number of schemes proposed.
- A work plan for implementation of these schemes is also lacking.

## Options and Recommendations

In order to address the above key issues, the following recommendations need to be considered:

### Strengthen planning and monitoring

- The Annual Action plan cycle could be made shorter, from the present 8-9 months long planning cycle. This leaves very little time for implementation in the financial year. This all the more relevant, given the climatic conditions in the state, where in many regions, there is medium to heavy rainfall for almost 6-7 months, where civil constructions are normally not done. The plan for a financial year should be formulated in the previous year so that it is approved and sanction orders issued by the beginning of the financial year.
- The Annual Action Plan should have a clear listing of proposed schemes during the plan year, each district/ block wise. This would enable greater transparency in the plan and issuance of the water supply schemes as well as improved monitoring of the schemes. The AAP should also have an indicative work plan for implementation of the approved/ sanctioned schemes. The districts/ divisions could have more detailed work plan for implementation of the proposed schemes.
- The water supply schemes are planned/proposed based on the gaps identified in the Indian Habitation Survey 2003. The gap identification should also take into consideration, the changes in existing situation (slipped back habitations, new habitations), post 2003. For this the PHE could commission a rapid survey every year, or alternatively can also have a concurrent system of updating the current situation in each habitation/ block/ division through community feedback, field visit by PHE officers.
- The monitoring of the schemes is primarily quantitative. The qualitative aspects of the schemes need to be captured on monthly/ quarterly basis.

### Foster greater community ownership

- Community to be more closely involved in planning, approval, implementation including monitoring of implementation of water supply schemes, and operation and maintenance of these schemes.
- The relative roles of government agencies (PHED/ other development departments) and community for implementation of water supply schemes to be: Government to be primarily responsible for bulk transfer of water, its treatment and distribution up to the village. Inside the

village, the village water and sanitation committee/ community should be responsible for planning for installation of stand posts, its use, and the operation and maintenance of the scheme.

- The community/ village water and sanitation committees should be empowered for effectively discharging their role as village level management and operation and maintenance of schemes. The village water and sanitation committee members should be trained in operation and maintenance issues as also part of O&M budget should be devolved to these committees for operation and maintenance of the schemes.

### Improve water quality testing and follow up

- Water quality testing needs to be given adequate thrust. For this the training of community members in using and maintaining the water testing kits should be done on a priority basis. The selection of community members should be done based on certain criteria (e.g. their interest levels, academic qualifications, etc.)
- Post training, a detailed plan for handholding support for these trained persons in using the testing kits and follow up in case of detection of quality issues, will have to be developed and rigorously followed.
- A system of regular visits and feedback from PHED staff, to ascertain the regular use of the testing kits by the community members, and retraining them will be required to enable the continuous use of water quality testing kits by all villages/ habitations.
- A system of replacement of damaged water testing kits, and replenishing the consumable items (e.g. reagents, etc.) also need to be established.

### Focus on IEC/ raising awareness levels

- IEC is an important tool for addressing behavioural issues for judicious water uses, better community participation in management of water supply schemes, water testing and follow up, and conservation of water sources.
- The PHED should develop a comprehensive IEC strategy, after a detailed formative research for identifying problem areas, and related behavioural issues.
- The IEC strategy should detail out target groups, key messages, media vehicles and monitoring plan, which should be implemented in right earnest. As this is a very specialized area, PHED could consider using services of a specialized agency from public/ private sector for this.

# Introduction

## Background

Water is the most essential requirement of human life. Clean and adequate supply of water is crucial to livelihood opportunities, environmental stability, and maintenance of ecosystems as well as public health. India being among the 191 countries, who have given their commitment to Millennium Development Goals (MDG), the Government of India is supplementing the efforts of the State Governments for providing all citizens with adequate water for drinking, cooking and other domestic basic needs on a sustainable basis.

### Role of Government in Rural Drinking Water Supply

Rural drinking water supply is one of the important subjects entrusted to the States as per the Seventh Schedule of the Indian Constitution. Therefore, the drinking water supply schemes are planned and implemented by the respective State Governments. However, Government of India has been providing assistance to the states for providing adequate and safe drinking water in the villages. The Government of India introduced Accelerated Rural Water Supply Program (ARWSP) as a centrally sponsored scheme during 1972-73, for assisting the States and Union Territories towards speedier implementation of rural water supply schemes in problem villages.

Some of the key initiatives taken by the Government of India, for improving drinking water coverage in rural areas are:

- *Rajiv Gandhi National Drinking Water Mission (RGNDWM)*

  To supplement the effort of the State Governments in providing drinking water, Technology Mission for drinking water was set up in 1986 by Government of India to establish area based projects for sustainable supply of safe drinking water and to establish a sub-mission of scientific source finding of water, control of fluorosis, eradication of guinea worm, removal of excess iron and control of brackishness. In 1991, the Technology Mission was renamed as Rajiv Gandhi National Drinking Water Mission [RGNDWM] with the broad objective of providing sustainable safe drinking water to all uncovered/ no source villages and creating awareness among the rural people about the hazards of using unsafe water.

- *Bharat Nirman component of water supply*

  Under Bharat Nirman programme (introduced in 2005–06 to 2008–09 for building rural infrastructure), 55067 uncovered habitations and about 3.31 lakh slipped-back habitations were targeted to be covered and 2.17 lakh quality-affected habitations were to be addressed.

- *Sector Reforms/Swajaldhara*

  Under this programme up to 20 per cent of the total allocation under ARWSP was set aside to promote decentralised demand driven community managed rural water supply programme to bring in sustainability in the sector. However, as per revised principles in 2007-08, implementation of new rural water supply schemes under ARWSP on Swajaldhara principles is to be decided by the States and quantum of funds to be allocated for this purpose out of ARWSP funds as well as quantum of community contribution is left to the discretion of the States.

- *ARWSP*

Taking into account the magnitude of the problem and to accelerate the pace of coverage of problem villages, the Central Government introduced the Accelerated Rural Water Supply Programme (ARWSP) in 1972-73 to assist the states and the Union territories with grants in aid varying from 100% (DDP areas) to 50:50 (ARWSP Normal- recently changed to 90:10) for implementing water supply schemes in such villages.

As per the ARWSP guidelines (Refer Annexure 1) the following priorities should be adopted while providing safe water to the community:

- Coverage of No Safe Source (NSS) habitations. Among these priority to be given to the ones inhabited exclusively by SC/ST or having larger SC/ST population enumerated in the Status Report of 1994 (Survey) and resurveyed in 1996-97.
- Coverage of quality affected habitations with acute toxicity first and the others later.
- Up gradation of source level of safe source habitations which get less than 40 lpcd water to the level of 40 lpcd.
- Coverage of schools and Anganwadis where safe drinking water sources could not be provided under the outlays allocated by the Tenth Finance Commission.

Besides, improving coverage and supply of water, GOI has taken measures to improve the quality of water being supplied to the rural areas.

## ARWSP in Meghalaya

Public Health Engineering Department (PHED), in Meghalaya is responsible for providing water supply in rural areas of the state. PHED executes the water supply schemes through 21 divisions, across the 7 districts in the state. PHED has given priority to Gravity Fed Schemes over pumping schemes due to apparent cost, operation and maintenance advantages. In areas where piped schemes are not feasible, spot sources have been implemented as a last resort.

# Purpose of the Assignment

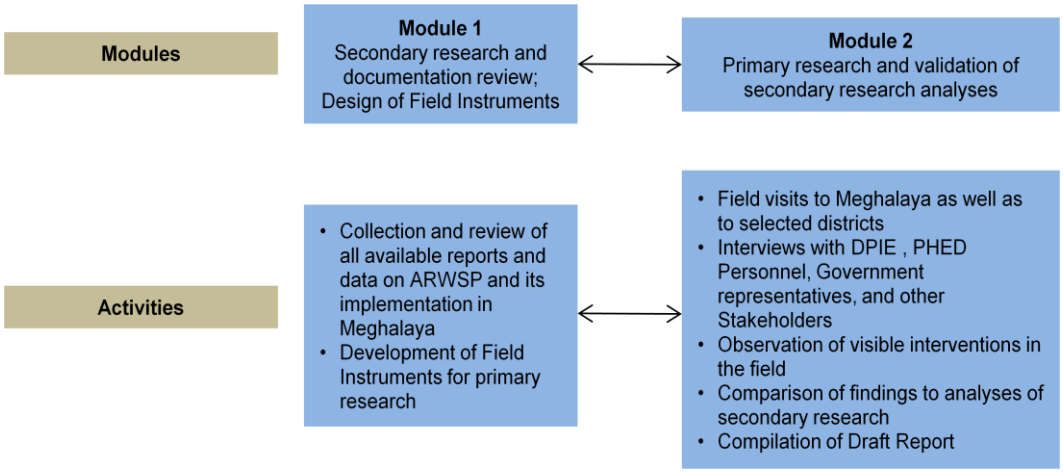
The purpose of the assignment was to review the ARWSP implementation in Meghalaya, through assessment of fulfilment of ARWSP guidelines and the benefit to the communities.

## Methodology and Limitations of the Study

### Methodology

The study was undertaken in a participative manner and comprised of two modules. The overall methodology of conducting the study is presented below:

**Module 1**




As shown above, Module 1 primarily comprised data collection, review, and analyses of secondary data. Data and reports available with the PHED were collected during the Inception visit to Meghalaya. The information and data collected were supplemented with the Online Monitoring Systems of the Department of Drinking Water Supply, Government of India web site (Selected bibliography at Annexure 2).

Based on review of the secondary data as well as the discussions held during the Inception visit, protocols for primary data collection were developed and refined (Detailed Checklist for filed visit at Annexure 3).

**Module 2**

Module 2 comprised visits to Meghalaya for primary data collection, interaction with service providers and community. For this purpose, IMaCS team of consultants visited Meghalaya covering all 7 districts, with 2 blocks, and a sample of 2 water supply schemes in each block (Details of water supply scheme visited at Annexure 4). The focus was primarily to cover ARWSP schemes, but water supply schemes under MNP were also reviewed in addition to ARWSP schemes, primarily to assess common issues and community satisfaction levels. Detailed discussions with PHED functionaries at all levels and community members at scheme villages (Itinerary and list of persons met is at Annexure 5)

A range of issues related to implementation, community awareness, infrastructure development, household initiatives and community participation in O&M systems were analysed during the primary visit and stakeholder consultations.

## Limitations of the study

The study was primarily for reviewing ARWSP schemes in Meghalaya. The field visits were also planned for mainly covering the village having water supply schemes under ARWSP. Though, efforts were made to also cover some MNP water supply schemes on random basis, but the reported performance, key issues and community satisfaction is primarily based on review of ARWSP water supply schemes. The study was primarily intended to be a management review and therefore field visits were limited to a sample of schemes (refer to the methodology), identified based on discussions with PHED officers at state, circles and divisions. The community level interactions were limited to the community members in the concerned scheme villages. The performance of the water supply schemes, identification of key issues related to the schemes, and community satisfactions level were assessed based on review of these schemes. Therefore a statistically valid sample of schemes/ community members was not assessed for the study. The review of secondary data was limited to the data provided by the state PHED, and IMIS website of Department of Drinking Water Supply, Government of India.

## Purpose and Structure of the Report

The draft report is organised into key findings in terms of planning and implementation, community participation, sustainability of resources, quality testing of drinking water and monitoring; key issues options and recommendations.

# The Findings

## Background

Meghalaya with a population of 23.18 lakhs (Census 2001) is organised into 3 autonomous district councils, further sub divided into 7 districts, and 39 blocks. The total number of villages as per 2001 census is 6026, consisting of 4.2 lakh households. Rural population in the state comprises 80.4% of total population; the population density is quite low at 103 persons per square kilometre. The state has largely ST population comprising 85.9% of total population, while SC population comprises only 0.5%.

As per GOI survey conducted in 2003, out of total 9325 habitations, 4191 were fully covered (FC), 2849 were partially covered (PC) and 2285 were not covered (NC) habitations. During the period of Rajiv Gandhi National Drinking Water Mission from 2005-06 to 2008-09, the state's reported progress is shown below (see Table 1).

**Table 1: Proposed Targets and Reported Progress of the State during 2005-06 to 2008-09 (Source: PHED Meghalaya Annual Action Plan 2008-09)**

| Type of habitation | No. of habitations planned to be covered as on 1-04-2005 | Progress against target in 2005-06 | | Progress against target in 2006-07 | | Progress against target in 2007-08 | | Progress against target in 2008-09 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Target | Achievement | Target | Achievement | Target | Achievement | Target | Achievement |
| Uncovered | 251 | 190 | 117 | 65 | 88 | 45 | 31 | 15 | 14 |
| Slipped back | 4341 | 98 | 328 | 605 | 995 | 1502 | 1151 | 1867 | 480 |
| Quality affected | 160 | 60 | 27 | 30 | 35 | 11 | 104 | 0 | 8 |
| Total | 4752 | 348 | 472 | 700 | 1118 | 1558 | 1286 | 1867 | 502 |

The overall progress of the state during the 4 years, as compared to the proposed number of habitations to be covered (as on 1-4-2005) are provided in Table 2.

**Table 2: Overall Progress of the State in Implementing Water Supply Schemes Against the Target on 1-4-05 (Source: PHED Meghalaya Annual Action Plan 2008-09)**

| Type of habitation | No. of habitations planned to be covered as on 1-04-2005 | Cumulative achievement during 2005-2009 | % achievement |
|---|---|---|---|
| Uncovered | 251 | 250 | 99.6 |
| Slipped back | 4341 | 2954 | 68.0 |
| Quality affected | 160 | 174 | 108.8 |
| Total | 4752 | 3378 | 71.1 |

## Organisation and Staffing

ARWSP program is being implemented through the Public Health and Engineering Department (PHED) in the state of Meghalaya. The schemes are implemented through 21 divisions, across 7 districts. At the state level the PHED is headed by the Chief Engineer, supported by 3 Additional Chief Engineers, having zonal responsibilities. At the Circle level, there are Superintending Engineers, responsible for a group of divisions and each division is headed by an Executive Engineer.

The circles are not necessarily co terminus with districts. Within a division, there are 2-3 Sub divisional officers (SDOs), and each SDO is supported by 2-3 Junior Engineers (JEs), with Plumbers, Khalasis, and Muster roll labours responsible for implementation and maintenance the at ground level.

# Planning and Implementation

## Annual Action Plan

The PHE department prepares a comprehensive annual action plan (AAP) for water supply and sanitation program, covering various schemes including the centrally sponsored schemes for Accelerated Rural Water Supply Programme (ARWSP), Rajiv Gandhi National Drinking Water Mission Submission Programme, and Urban Water Supply. The AAP provides the proposed financial outlay with indicative physical targets for the year; e.g. the AAP for 2009-10 mentions 1000 habitations having slipped back from FC to NC/PC categories, and proposes to cover 800 such habitations during the year; completion of 3 urban water supply schemes for Jowai, Mairang and Nongpoh; construction of offices and residential quarters; maintenance of existing urban water supply schemes; establishment of state level water quality testing laboratory and strengthening of district level laboratories; MIS computerisation programmes, among other proposed schemes/ programs.

As per the AAP 2009-10, the total target for RWSP under 12th plan (2007-12) is proposed at 3700 habitations (including 1300 under state share and 2400 under central share), covering 5.6 lakh population. Based on the reported progress for 2007-08 and anticipated progress for 2008-09, the coverage so far is 777 habitations under state share (60% of 12th plan targets) , and 2309 under central share (96% of 12th plan targets), benefiting 3.4 lakh population (61% of 12th plan target). The reported progress and proposed targets for 2009-10 for RWSP and Sanitation programs is provided in Table 3.

**Table 3: Physical Progress during Previous Years and Proposed Targets for 2009-10 (Source: PHED Annual Action Plan 2009-10)**

| Items | Eleventh Plan (2007-12) Target | Actual / Anticipated Achievement | | Annual Plan 2009-10 Target |
|---|---|---|---|---|
| | | Annual Plan (2007-08) | Annual Plan (2008-09) | |
| 1. RWSP | | | | |
| A. No of habitations provided with adequate safe drinking water supply | | | | |
| (a) State sector (no. of habitations) | 1300 | 196 | 581 | 180 |
| (b) Central sector (no. of habitations) | 2400 | 1009 | 1300 | 620 |
| Population benefitted (in lakhs) | 5.6 | 1.4 | 2 | 0.8 |
| B. Schools/ ICDS to be provided with adequate safe drinking water supply | | | | |
| (a) Schools | 1150 | 149 | 250 | 100 |
| (b) ICDS | 300 | 39 | 130 | 50 |
| 2. Rural Sanitation Program | | | | |
| (a) Individual household latrines (BPL&APL) | 208089 | 23311 | 25000 | 50000 |
| (b) School toilets | 4950 | 1104 | 1000 | 3000 |
| (c) Sanitary complex | 310 | 28 | 100 | 100 |
| (d) Rural sanitation mart | 22 | 0 | 0 | 1 |
| (e) Balwadi toilets | 1094 | 106 | 150 | 400 |

Financial expenditures during 2007-08, anticipated expenditure for 08-09, and budget for 2009-10 indicates 36 % expenditure under ARWSP against 12th plan targets, and considering the budget

outlay for 2009-10, the proposed expenditure is as high as 61%. The detailed financial expenditure is provided in Table 4 below.

The broad process followed for preparation of the Annual action Plan involves: Number of balance NC/PC habitations as per GOI 2003 survey is identified along with village wise water sources (almost 1-2 years prior to planning year). The Concerned divisions make project reports for each scheme along with financial estimates and submit these to the head office through respective circles, by May and July (in some cases also by December) of the planning year. Subsequently, the Additional Chief Engineers for the respective zones review and technically approve the proposed project estimates. Such approved projects are then submitted to the State Water and sanitation committee, headed by the Chief Secretary, for final approval. The State Water and Sanitation committee normally meets towards October- November to approve the proposed schemes. After approval of the schemes, these are processed by the head office by the planning and finance divisions, which take almost a month, and subsequently administrative approvals are issued to the concerned divisions for implementation of these schemes. The AAP preparation and approval process has some shortcomings:

- The AAP preparation begins with preparation and submissions of schemes by the divisions by May to July of the planning year, and ends with communication of administrative approval for implementation of sanctioned schemes by the concerned divisions by December to January. This process leaves very little time for actual implementation of the schemes by the concerned divisions. As a result, a schemed approved for implementation in a planning year is normally completed in the subsequent year.
- The AAP does not does not provide the breakup of proposed water supply schemes, in terms of types of schemes and district/ division wise distribution of schemes. Hence it is not possible to make out district/ division wise number of schemes proposed.
- A work plan for implementation of these schemes is lacking.

*The ARWSP guidelines propose, the states/UTs should prepare the AAP six months before the commencement of the financial year, on the basis of shelf of schemes, allocation under state MNP, ARWSP, and likely carry-over of funds. These plans are required to be submitted to RGNDWM by beginning of October of the year. However, this is clearly lacking in the state, as the planning exercise for a year stretches well into 9-10 months into the financial year, rather than 6 months prior to the financial year.*

*ARWSP also stipulates planning of activities under sub missions, the organisational structure for these sub missions, details of IEC activities planned a dedicated plan for clean environment around drinking water sources and O&M of these. The above key areas are not evident in the AAP, and would need to be given attention to/included in the AAP.*

# Quantitative Findings

## State Level Implementation

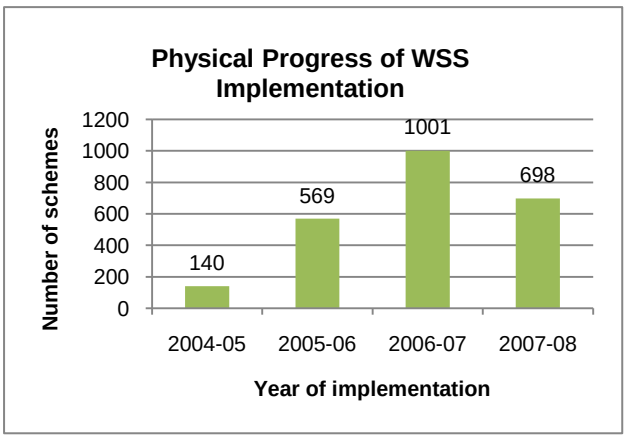
The implementation of the water supply schemes is primarily done by the concerned divisions. After the scheme is finalised an administrative approval is issued by the Chief Engineer PHED office to the concerned circle/ division. Subsequent to the issuance of administrative approval, the concerned division begins implementing the water supply scheme. During the years 2005-06 to 2007-08, the state's physical progress in terms of implementation of new water supply schemes and population covered under AWRSP shows increasing trend during 2004-05 to 2006-07.

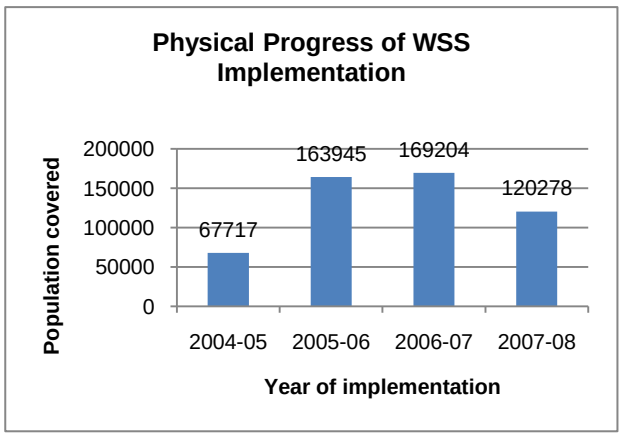
Table 4: Financial Expenditure during Previous Years and Proposed Targets for 2009-10 (Rs. Lakhs)

| S. No. | Scheme | Funding Pattern (Centre: State) | Eleventh Plan (2007-12) Proposed Outlay | | Actual/ Anticipated Expenditure | | | | Annual Plan (2009-10) Proposed Budget | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Annual Plan (2007-08) | | Annual Plan (2008-09) | | | | |
| | | | Centre | State | Centre | State | Centre | State | Centre | State | |
| **1** | ARWSP | 90:10 | 29545.00 | 30311.00 | 5661.16 | 4274.00 | 6909.01 | 4500.00 | 10000.00 | 5000.00 | Funding pattern has been changed to 90:10 form 2008-09 |
| **2** | RGNDWM | 75:25 | 567.00 | 189.00 | 0.00 | 0.00 | 30.00 | 0.00 | 50.00 | 0.00 | State share included in ARWSP |
| **3** | Urban Water Supply (AUWSP) | 50:50 | 0.00 | 49.50 | 0.00 | 60.00 | 0.00 | 20.00 | 0.00 | 0.00 | Scheme discontinued and merged with JNNURM |
| **4** | Establishment Of Monitoring Cell & Investigation Unit | 50:50 | 50.00 | 50.00 | 0.75 | 0.00 | 4.00 | 4.00 | 5.00 | 5.00 | |
| **5** | Compuerisation Project | 100:0 | 540.00 | 0.00 | 182.00 | 0.00 | 66.55 | 0.00 | 100.00 | 0.00 | |
| **6** | Water Quality Monitoring & Surveillance | 100:0 | 300.00 | 0.00 | 17.88 | 0.00 | 40.00 | 0.00 | 100.00 | 0.00 | |
| **7** | Rural Sanitation Services | | 0.00 | 1200.00 | 0.00 | 100.00 | 0.00 | 350.00 | 0.00 | 700.00 | Program discontinued and merged with TSC |
| **8** | Flood Damage | 100:0 | 356.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 100.00 | 0.00 | |
| **9** | Setting Up Of Library | 100:0 | 2.00 | 0.00 | 0.00 | 0.00 | 2.00 | 0.00 | 0.00 | 0.00 | |

**Source: PHED Annual Action Plan 2009-10**

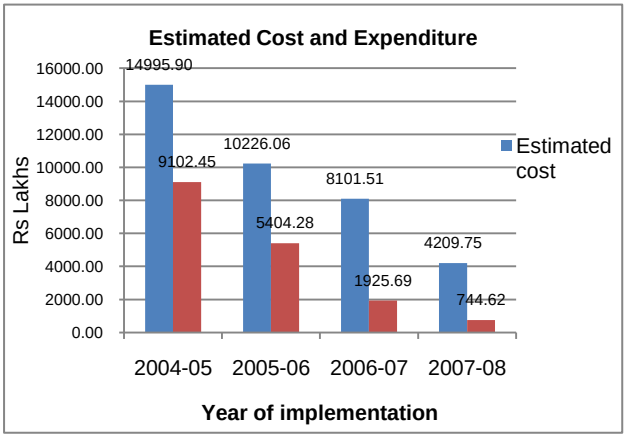
Figure 1: Physical Progress of ARWSP Implementation in Meghalaya (2004-2008)

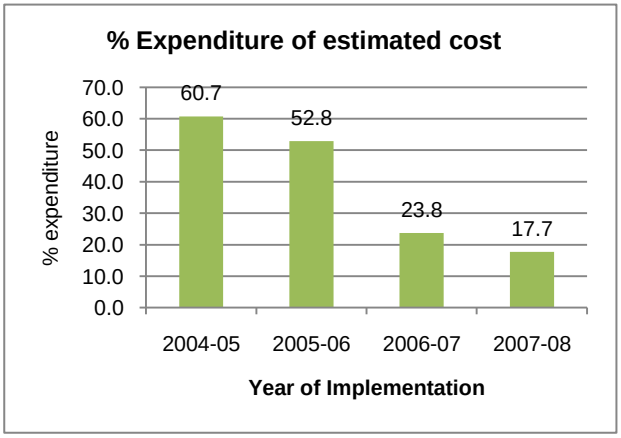



The reported financial expenditure including central and state shares during the implementation period 2004-05 to 2007-08 indicate a decreasing trend in proposed outlay as well as reduction in % expenditures:

Figure 2: Financial Expenditure Including Central and State Shares During the Implementation Period 2004-05 to 2007-08



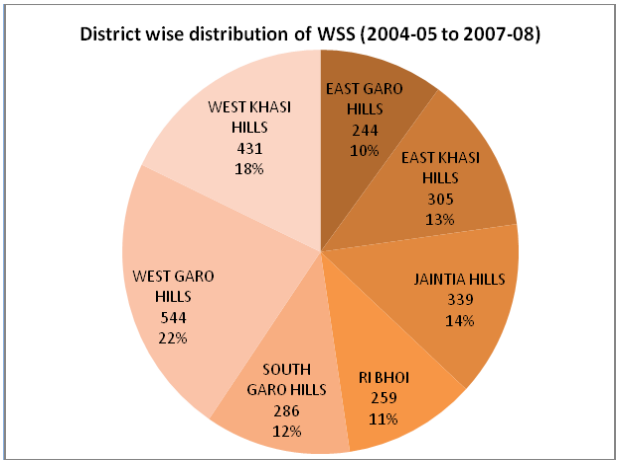




This trend is in contrast to the trend in physical progress where an increasing trend is seen from 2004-05 to 2006-07.

Implementation of water supply schemes by the divisions/ districts over the last four years (2004-05 to 2007-08), indicates out of a total of 2408 schemes implemented in the state, the highest number, 544 water supply schemes (22% of total) have been implemented in West Garo Hills. Three districts of West Garo Hills, West Khasi Hills and Jaintia Hills account for 1314 schemes (54% of total).

The types of schemes implemented by the state PHE department broadly fall into two categories, being spot source schemes and piped water schemes. The number of schemes implemented

Figure 3: District-wise distribution of WSS (2004-05 to 2007-08)



during 2004-05 to 2007-08 show, maximum schemes implemented under ARWSP being Gravity fed scheme at 879 (35% of total schemes). However, spot source schemes including spring tapped chamber, ring well, dug well, tube well, rain water harvesting and hand pumps in total include 1498 (60%) of total 2480 schemes implemented under ARWSP during 2004-05 to 2007-08 in the state. A breakup of scheme type each year wise during 2004-05 to 2007-08 is given in Table 5.

**Table 5: Types of Water Supply Schemes Implemented during 2004-05 TO 2007-08**

| Scheme Type | Year | | | | Total | % of Grand Total |
|---|---|---|---|---|---|---|
| | 04-05 | 05-06 | 06-07 | 07-08 | | |
| Spot Source Schemes | | | | | | |
| Spring Tapped Chamber | 32 | 85 | 214 | 265 | 596 | 24.03% |
| Ring Well/ Dug Well/ Tube Well | 14 | 184 | 348 | 303 | 849 | 34.23% |
| Ground Level Rain Water Harvesting ( Rain Water Harvesting ) | 0 | 0 | 7 | 3 | 10 | 0.40% |
| Hand Pump | 0 | 1 | 29 | 13 | 43 | 1.73% |
| Piped Water Schemes | | | | | | |
| Gravity fed Schemes | 63 | 191 | 396 | 229 | 879 | 35.44% |
| Pumping water supply (River, Deep tube well) | 30 | 34 | 28 | 6 | 98 | 3.95% |
| Gravity Cum Pumping water supply | 1 | 4 | 0 | 0 | 5 | 0.20% |
| Grand Total | 140 | 499 | 1022 | 819 | 2480 | 100.00% |

Source: Integrated Management Information System, DDWS, GOI

As per anticipated expenditure data available for 2008-09, the proportion of funds spent on operation and maintenance of water supply schemes is quite low at 9% for ARWSP schemes and 10% of state plan schemes. The relative expenditure expected to be incurred on works and maintenance during 2008-09 is provided in Table 6.

**Table 6: Anticipated Expenditure during 2008-09 on Works and Maintenance**

| Scheme classification | Anticipated expenditure during 2008-09 (Rs. Lakhs) | | |
|---|---|---|---|
| | Works | Maintenance | % Maintenance |
| ARWSP | 6796.41 | 671.28 | 9.0 |
| State plan | 4049.97 | 449.97 | 10.0 |

Source: PHED Annual Action Plan 2009-10

*The ARWSP guidelinesprovide for upto 15% of ARWSP funds released to be utilised for operation and maintenance of assetes created under WSS. Form the above table, it is clear that the state's expenditure on this component is much less (at 9% of ARWSP funds, and 10% of state plan funds). Also, given the fact that the WSS components (supply main GI pipes, delivery pipes in the villages, stand posts) were in damaged state in many villages visited, it would be desirable for the state to allocate higher amount of funds for this activity, and plan to use these judiciously in the villages, preferably through community involvement.*

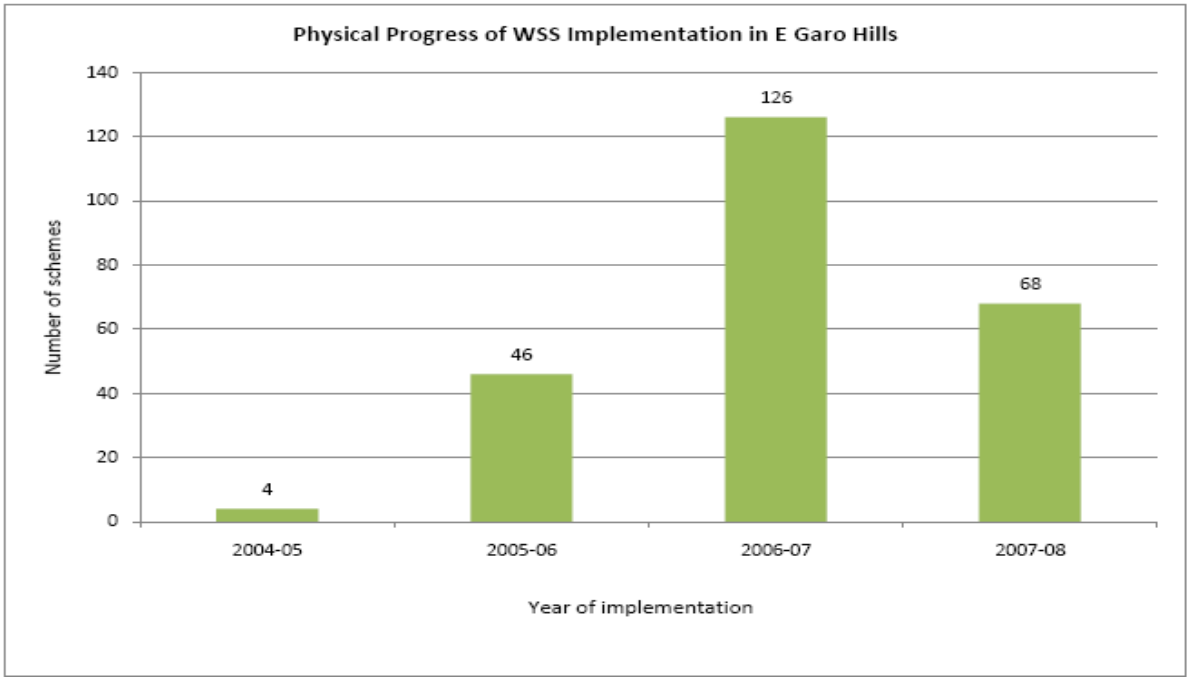
## District Level Implementation

Among the 7 districts in Meghalaya, the district wise progress in implementation of water supply schemes indicates:

*East Garo Hills*

The number of water supply schemes implemented range from lowest of 4 in 2004-05 to highest of 126 in 2006-07 (see Figure 4 below), while population covered ranged from 1883 persons in 2004 to 20095 persons in 2006-07. The proposed annual outlay has increased from 0.71 crores in 2004-05, to 12.79 crores in 2006-07, reducing to 9.64 crores in 2007-08. The expenditure as percent of allocation was high at 89.7% in 2004-05, which reduced to 43.1% in 2005-06, having remained at almost 46% during the years 2006-07 and 2007-08 (see Figure 5 below). Against the targeted NC, PC habitations numbering 683 (as per Indian Habitation Survey 2003), the progress during the years 2004-05 to 2007-08, shows 323 schemes implemented, covering 0.58 lakh population (42.5%)against targeted 1.38 lakh (see Figure 6 below).

Figure 4: Physical Progress of WSS Implementation in E. Garo Hills (2004 - 2008)



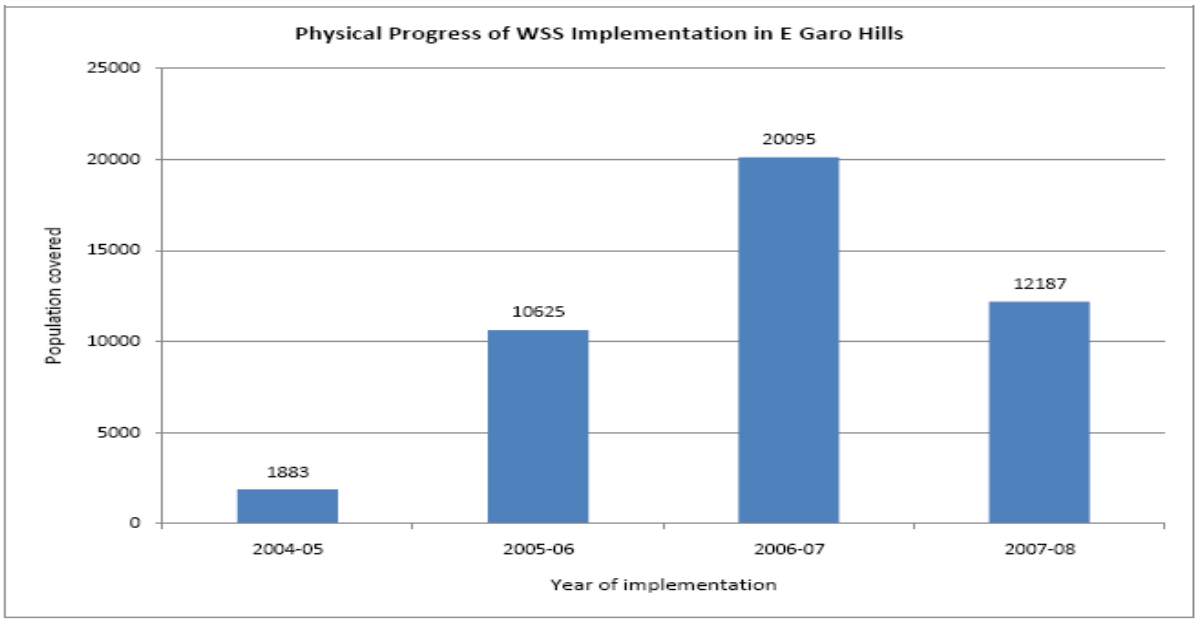
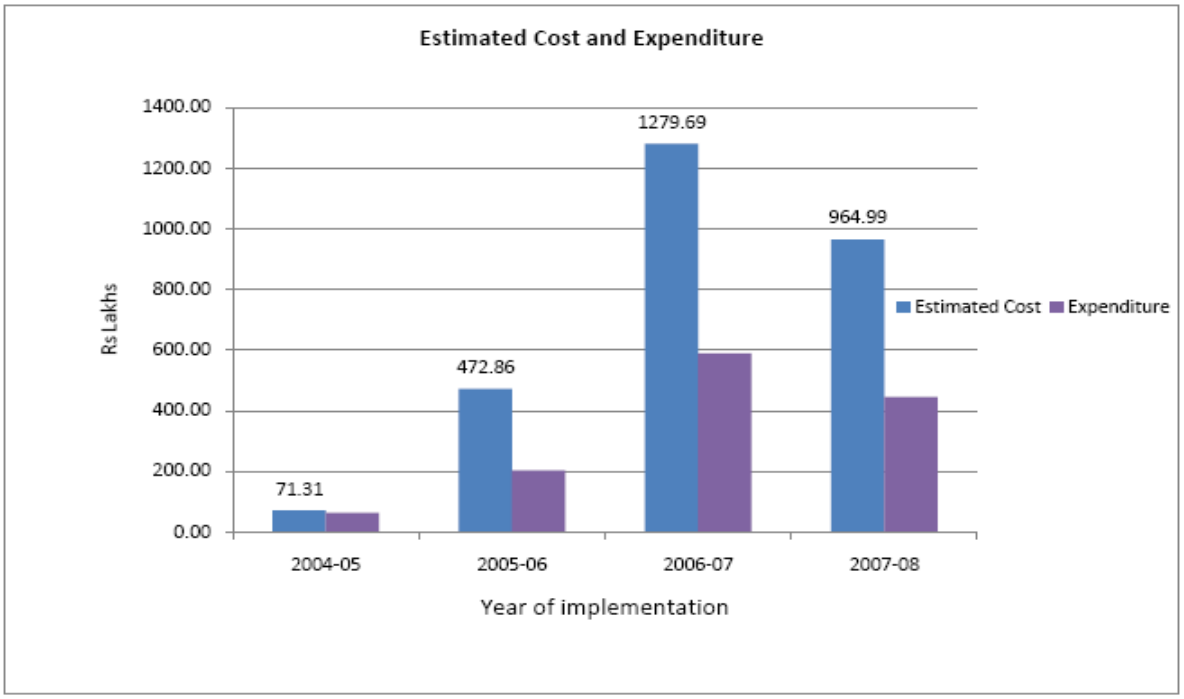



Figure 5: Financial Progress of WSS Implementation, E. Garo Hills (2004-2008)



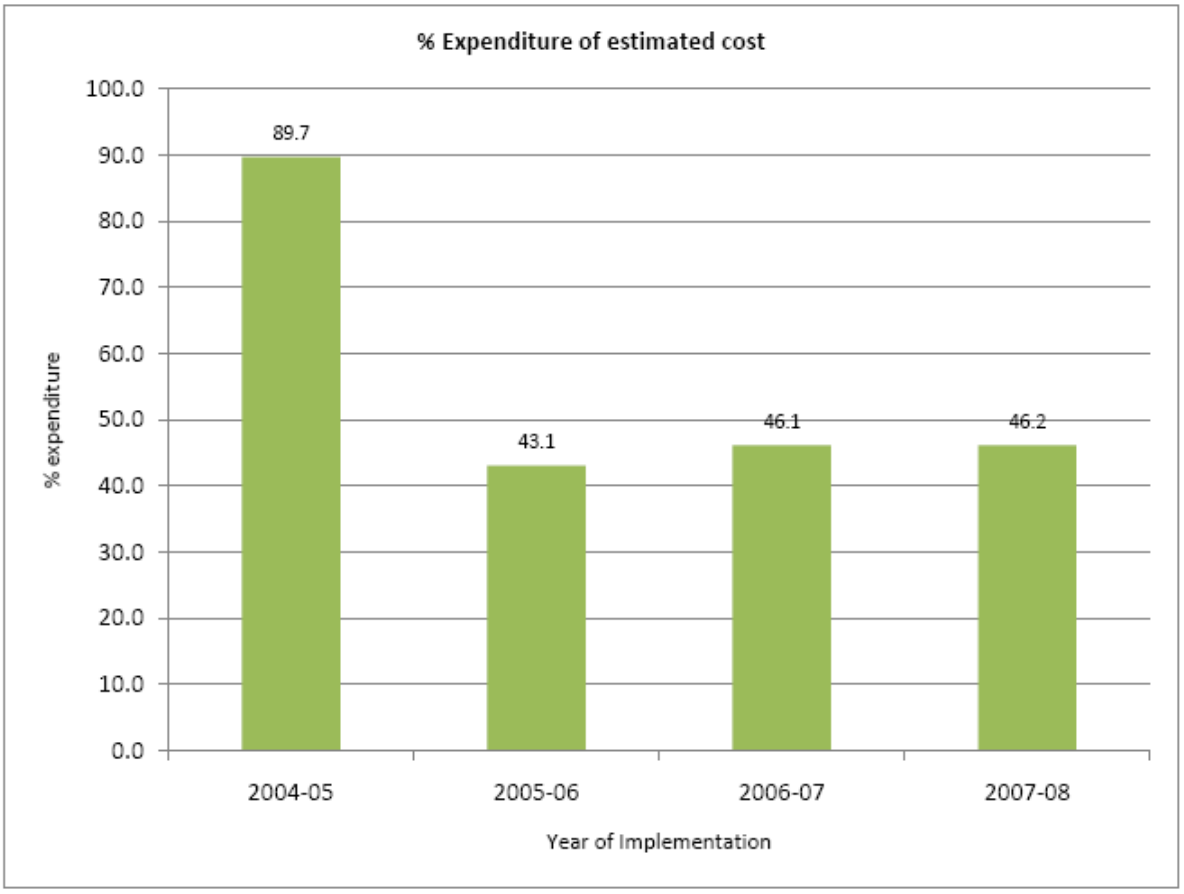
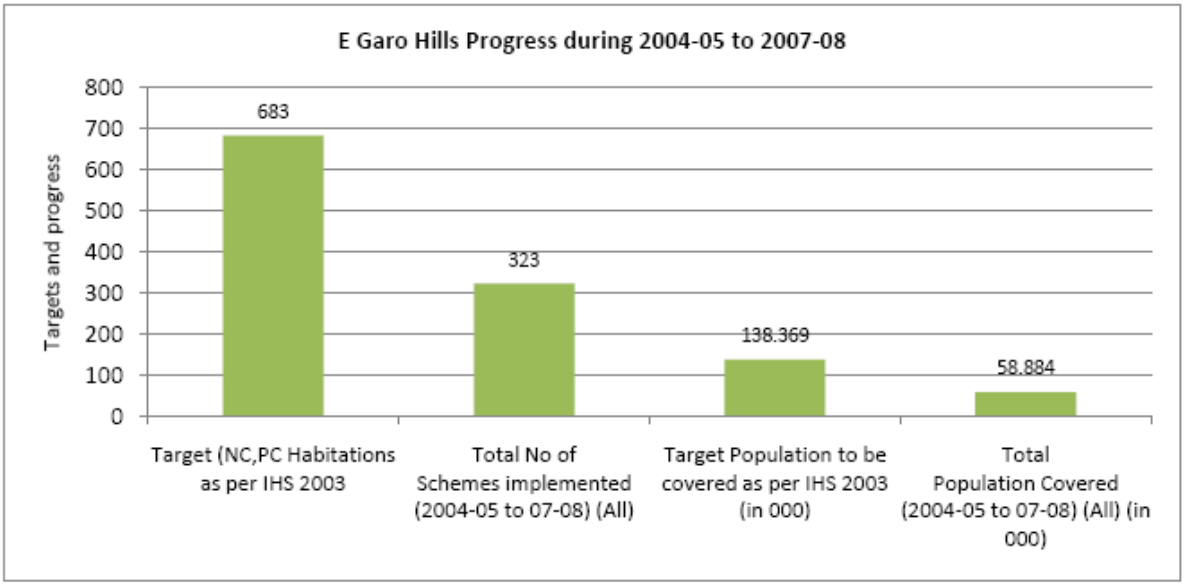



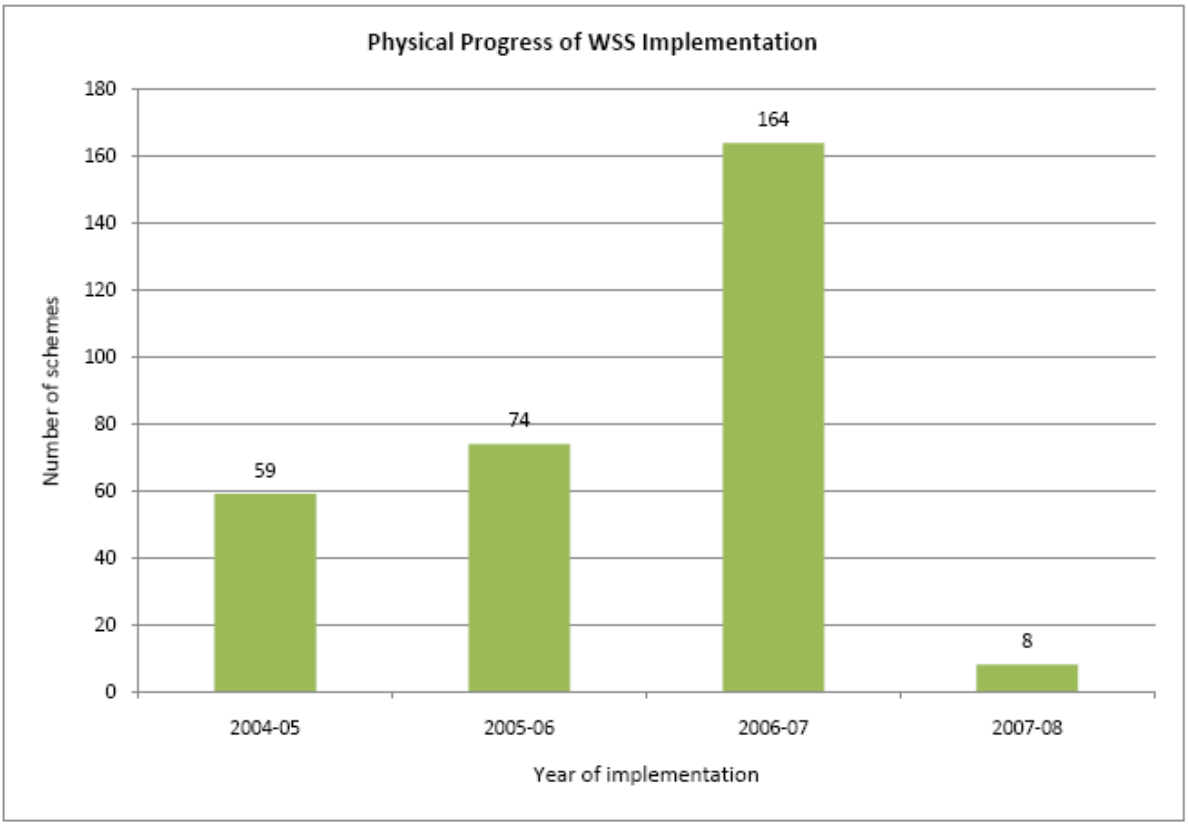
Figure 6: Targets and Progress, E. Garo Hills

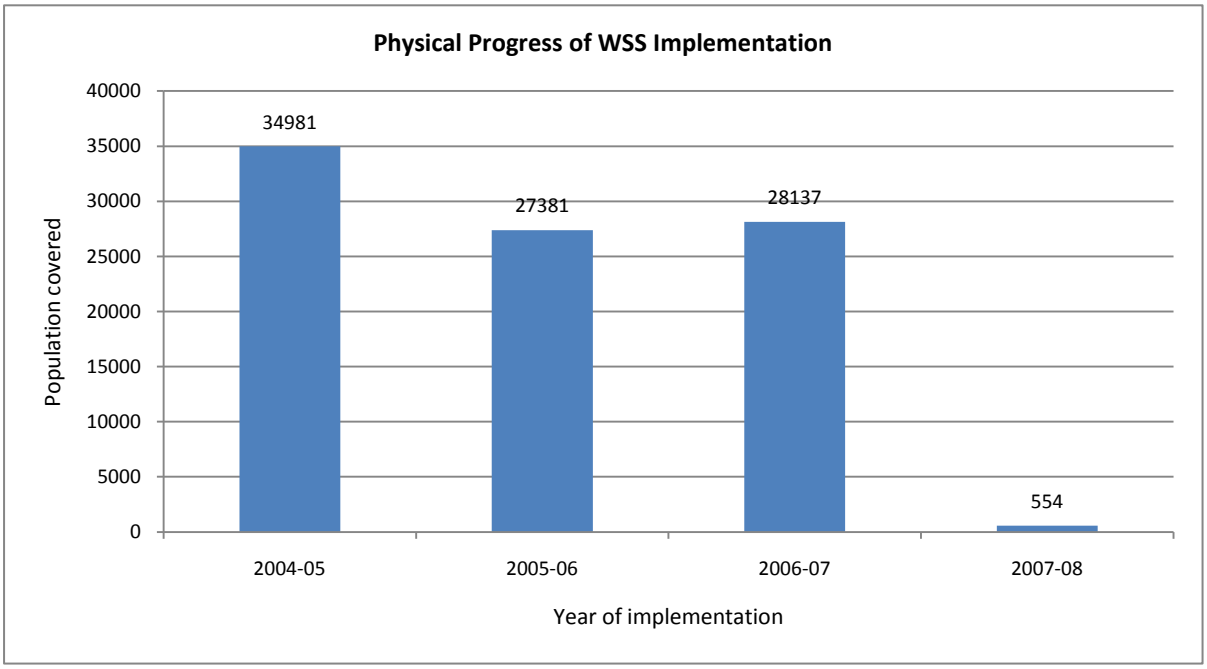



### *East Khasi Hills*

The number of water supply schemes implemented range from lowest of 8 in 2007-08 to highest of 164 in 2006-07, while population covered ranged from 554 persons in 2004 to 20095 persons in 2006-07 (see Figure 7 below).

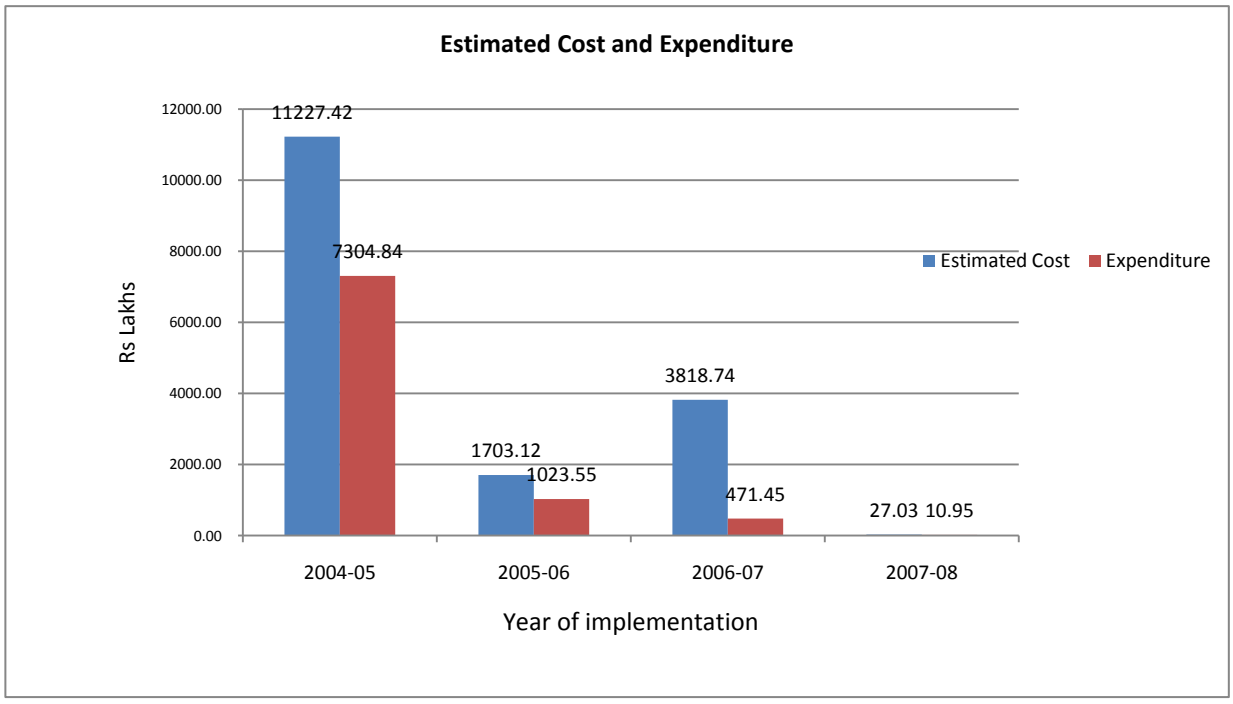
Figure 7: Physical Progress of WSS Implementation in E. Khasi Hills (2004 - 2008)

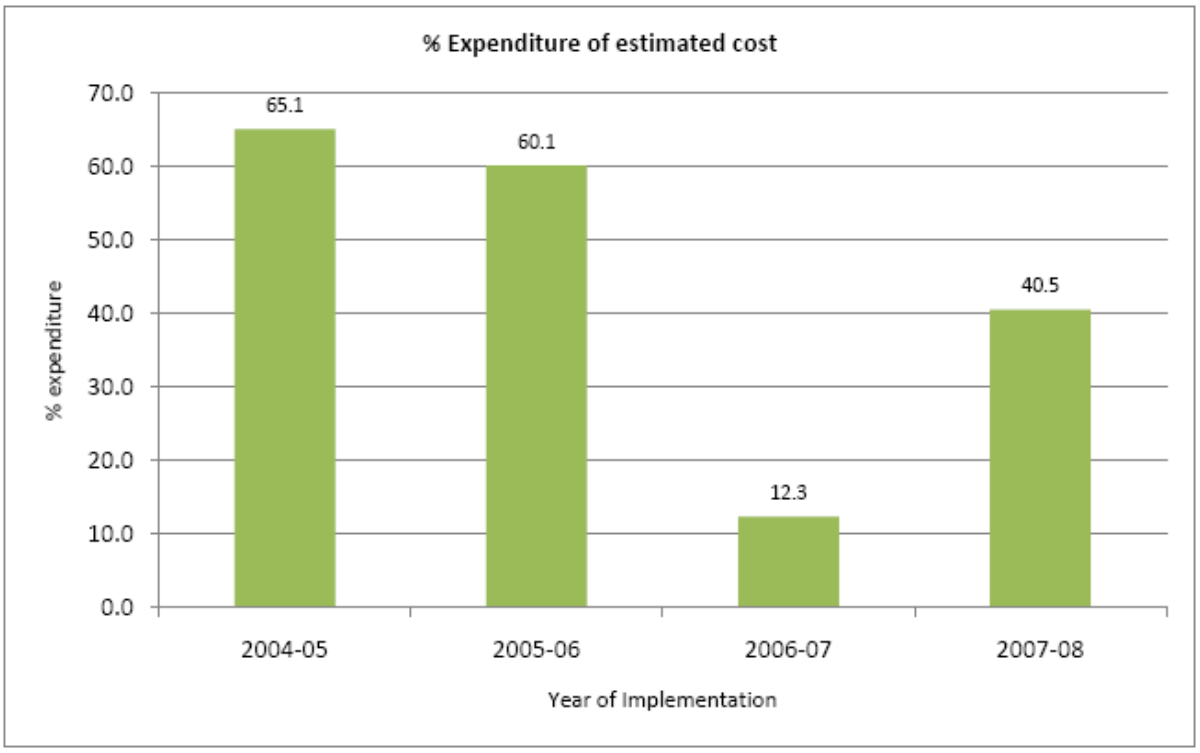





The proposed annual outlay has decreased during successive years from Rs. 112.27 crores during 2004-05 to Rs. 27.03 crores during 2007-08. The expenditure as percent of allocation was reasonably good at 65% and 60% during the years 2004-05 and 2005-06 respectively. This however dipped sharply to 12% during 2006-07 but has risen to 40.5% during 2007-08 (see Figure 8).

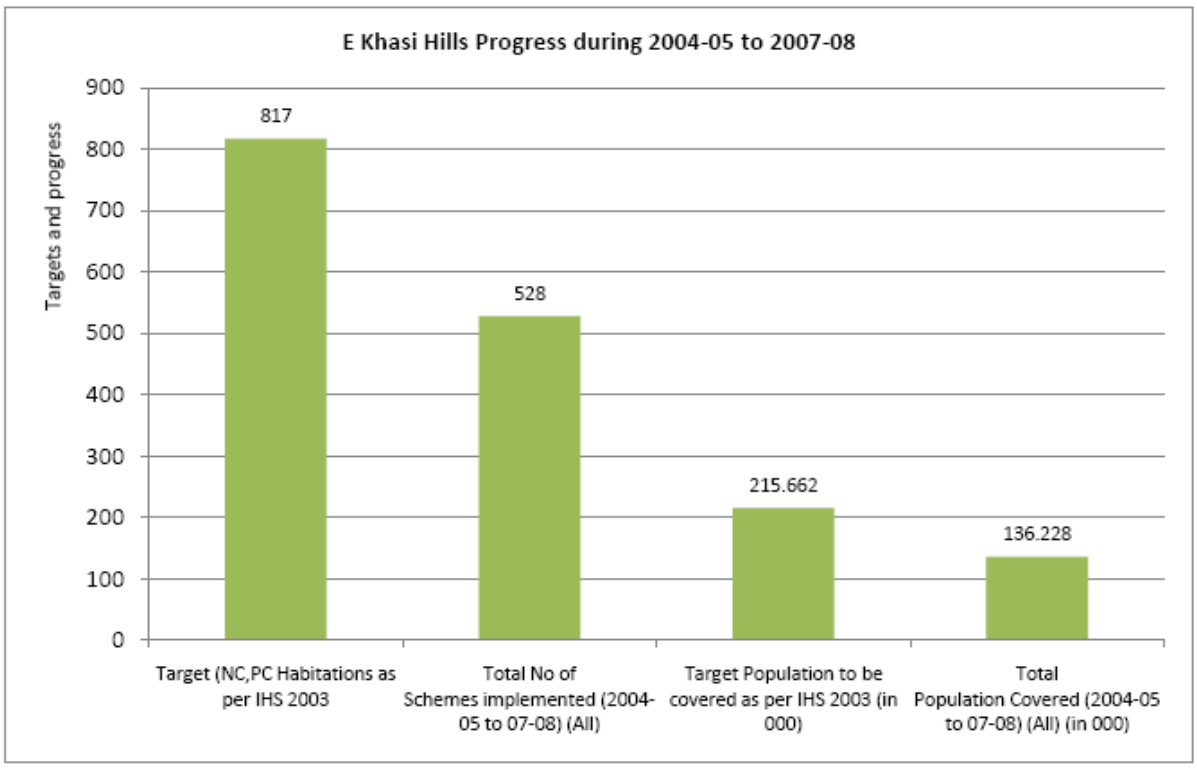
**Figure 8: Financial Progress of WSS Implementation in E. Khasi Hills (2004 - 2008)**






Against the targeted NC, PC habitations of 817 (as per Indian Habitation Survey 2003), the progress during the years 2004-05 to 2007-08, shows 528 schemes implemented, covering 1.36 lakh population (63%) against targeted 2.15 lakhs (see Figure 9).

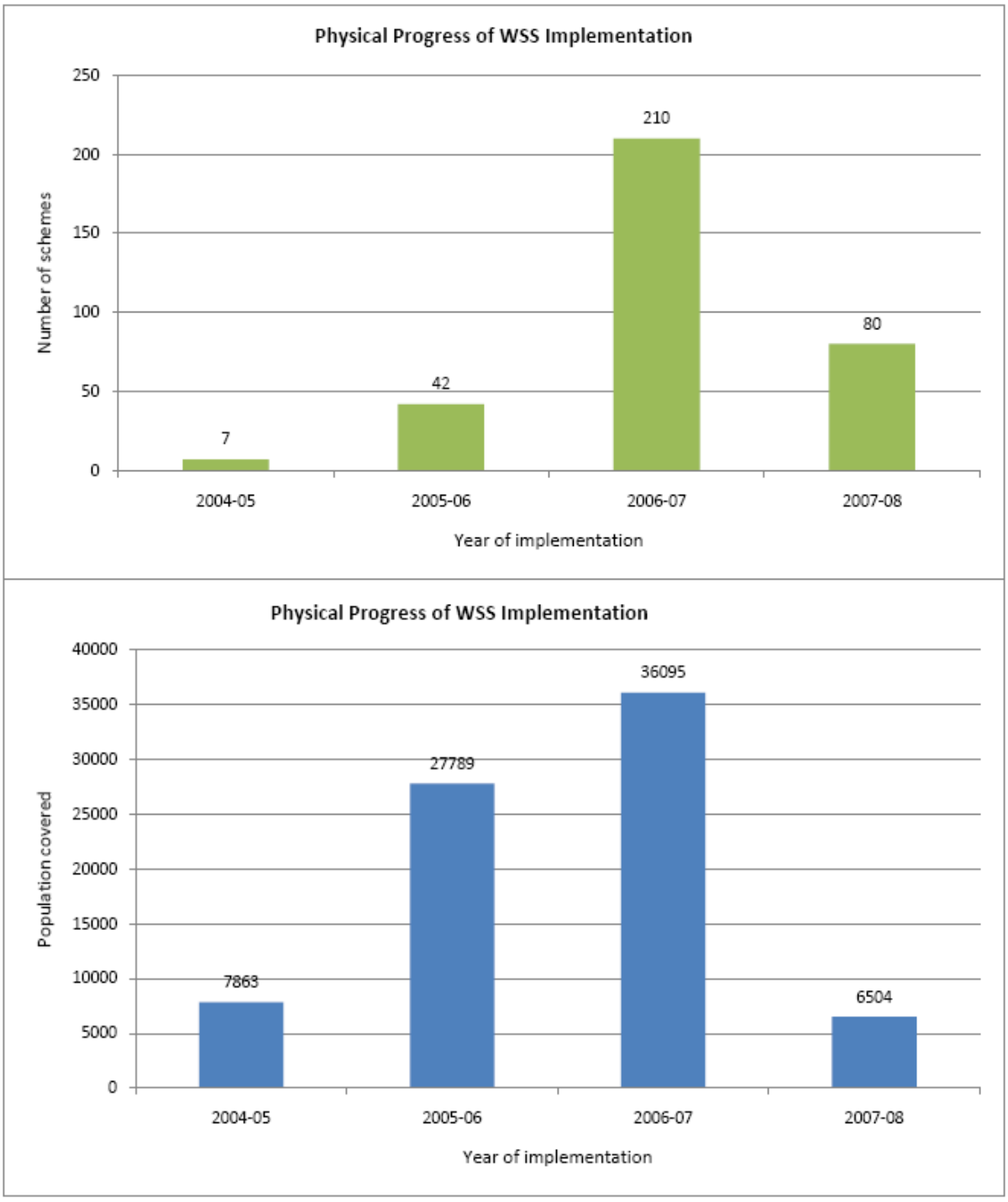
**Figure 9: Targets and Progress, E. Khasi Hills**



### *Jaintia Hills*

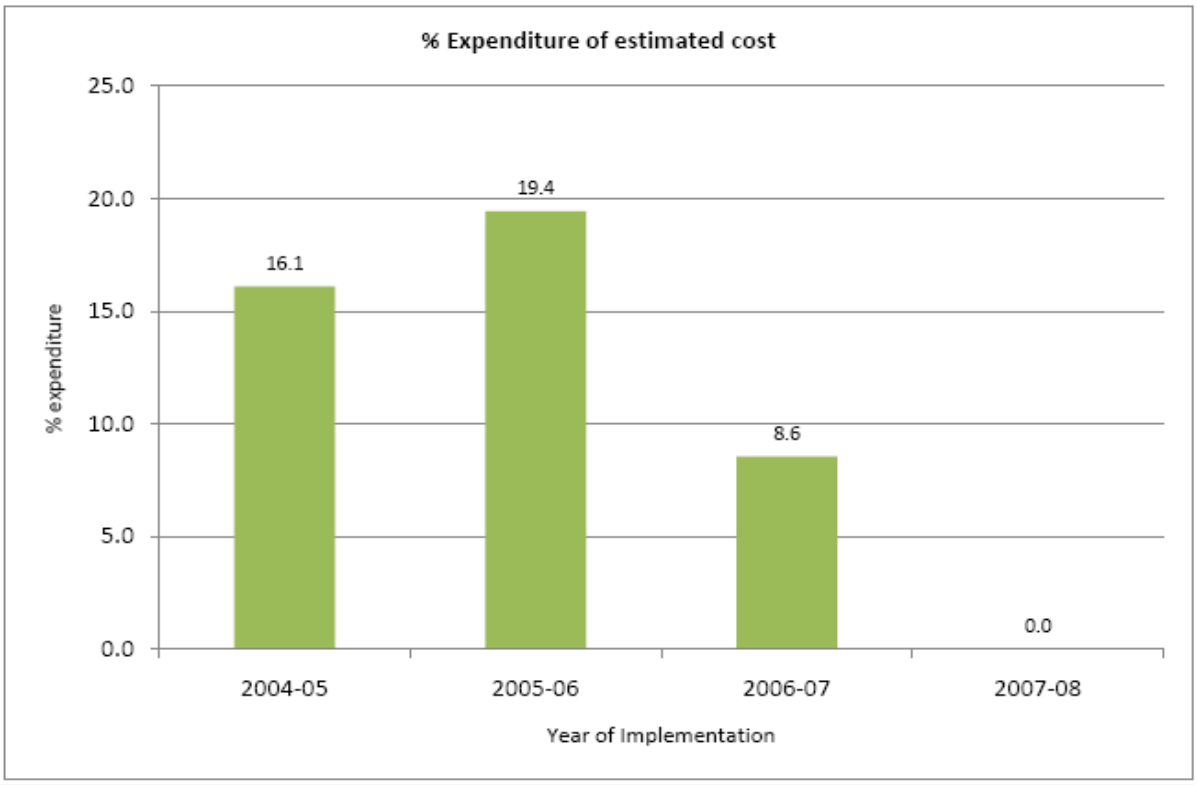
The number of water supply schemes implemented range from lowest of 7 during 2004-05 to highest of 210 during 2006-07, while population covered ranges from 6504 persons in 2007-08 to 36095 persons in 2006-07 (see Figure 10).

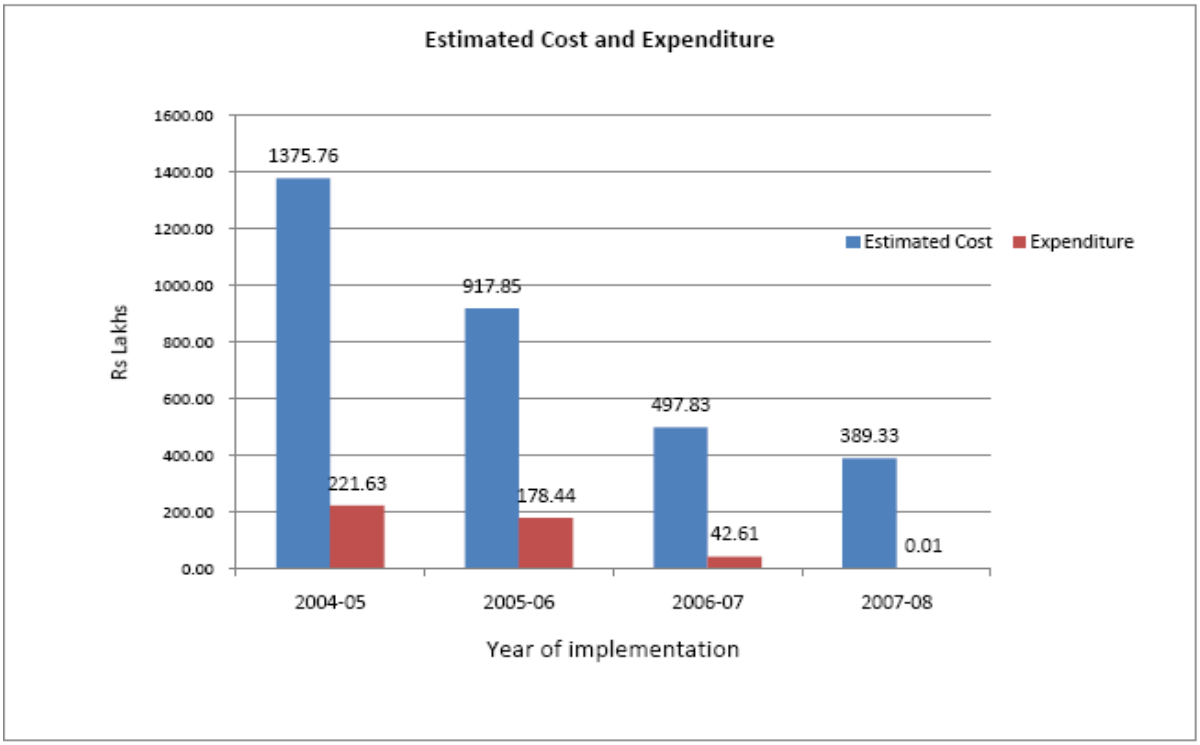
**Figure 10: Physical Progress of WSS Implementation in Jaintia Hills (2004 - 2008)**



The proposed annual outlay has decreased during successive years from Rs. 13.75 crores during 2004-05 to Rs. 3.89 crores during 2007-08. The expenditure as percent of allocation has remained quite low at 16% and 19% during 2004-05 and 2005-06 respectively, which has further gone down at 8.6% during 2006-07, and has registered almost nil expenditure during 2007-08 (see Figure 11).

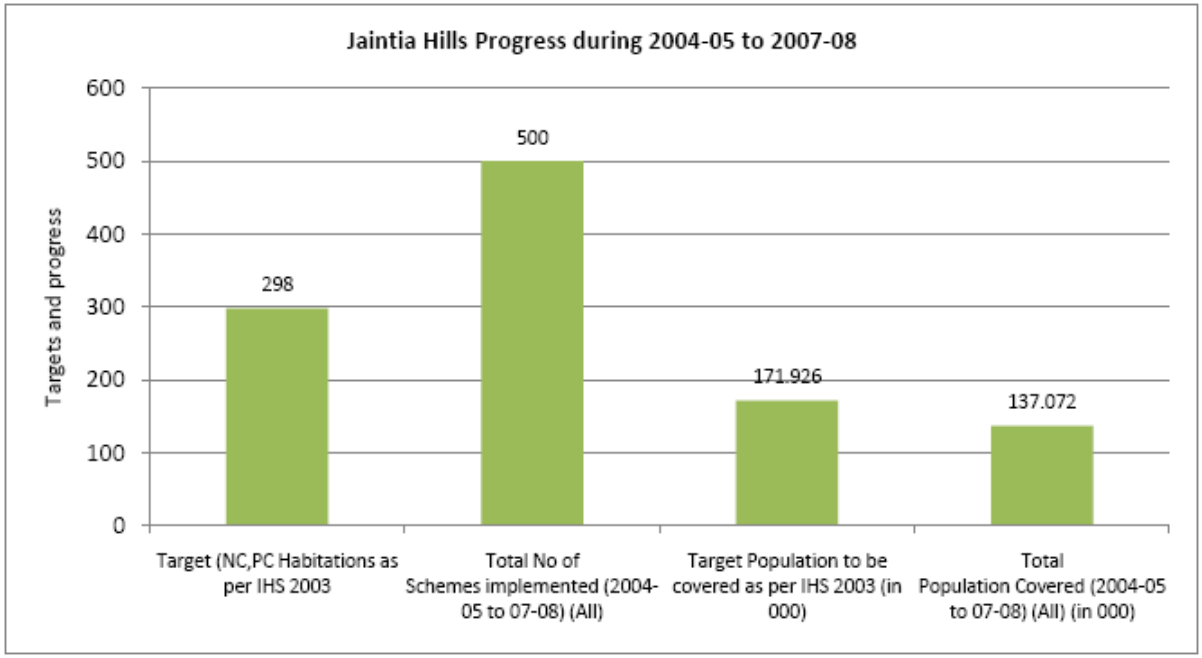
**Figure 11: Financial Progress of WSS Implementation in Jaintia Hills (2004 - 2008)**



Against the targeted NC, PC habitations of 298 (as per Indian Habitation Survey 2003), the progress during the years 2004-05 to 2007-08, shows 500 schemes implemented, covering 1.37 lakh population (80%) against targeted 1.71 lakhs.

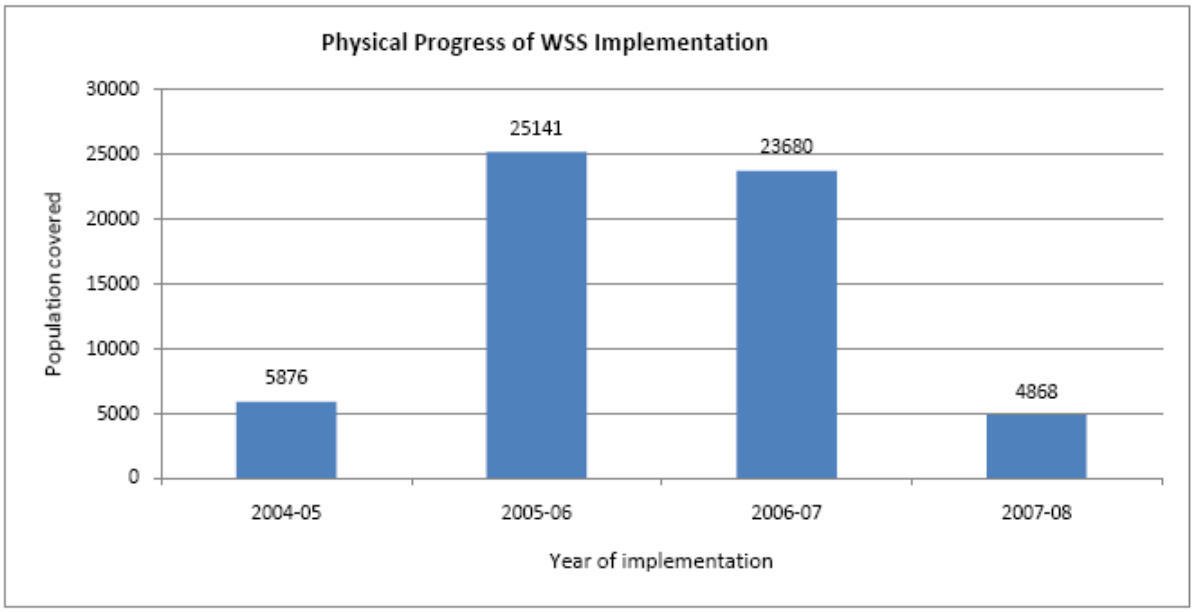
Figure 12: Targets and Progress, Jaintia Hills

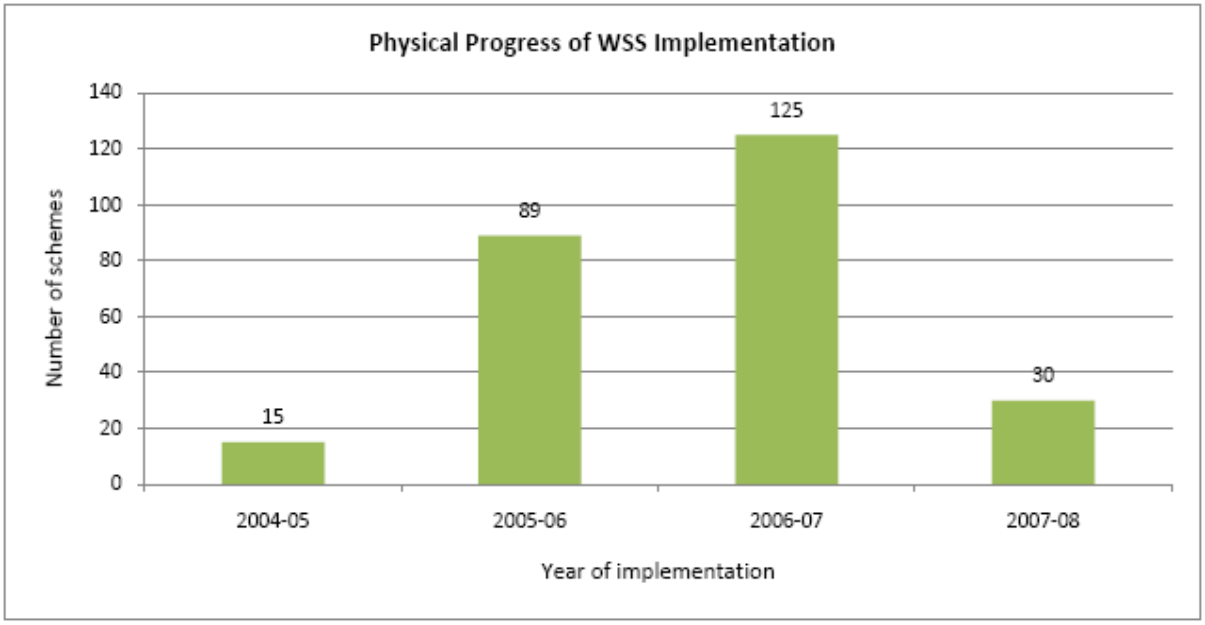



***Ribhoi***

The number of water supply schemes implemented range from lowest of 15 during 2004-05 to 125 during 2006-07, while population covered ranged from 4868 persons during 2007-08 to 25141 persons during 2005-06 (see Figure 13).

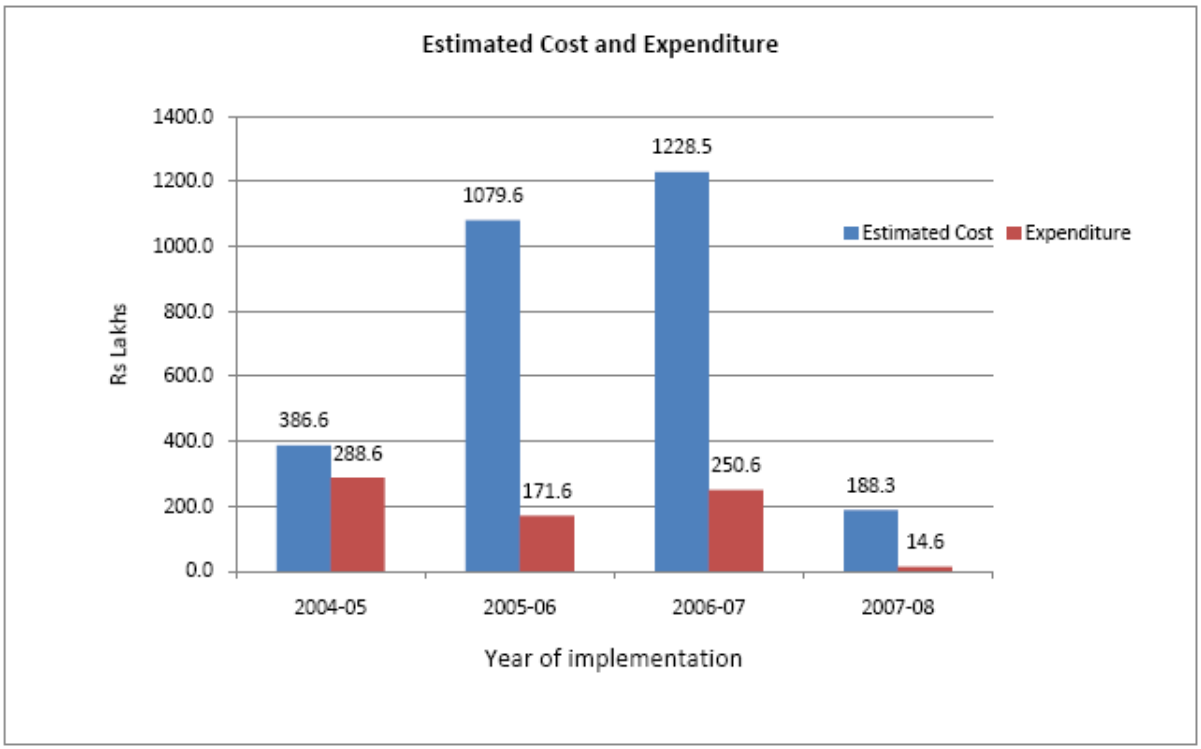
Figure 13: Physical Progress of WSS Implementation in Ribhoi (2004 - 2008)

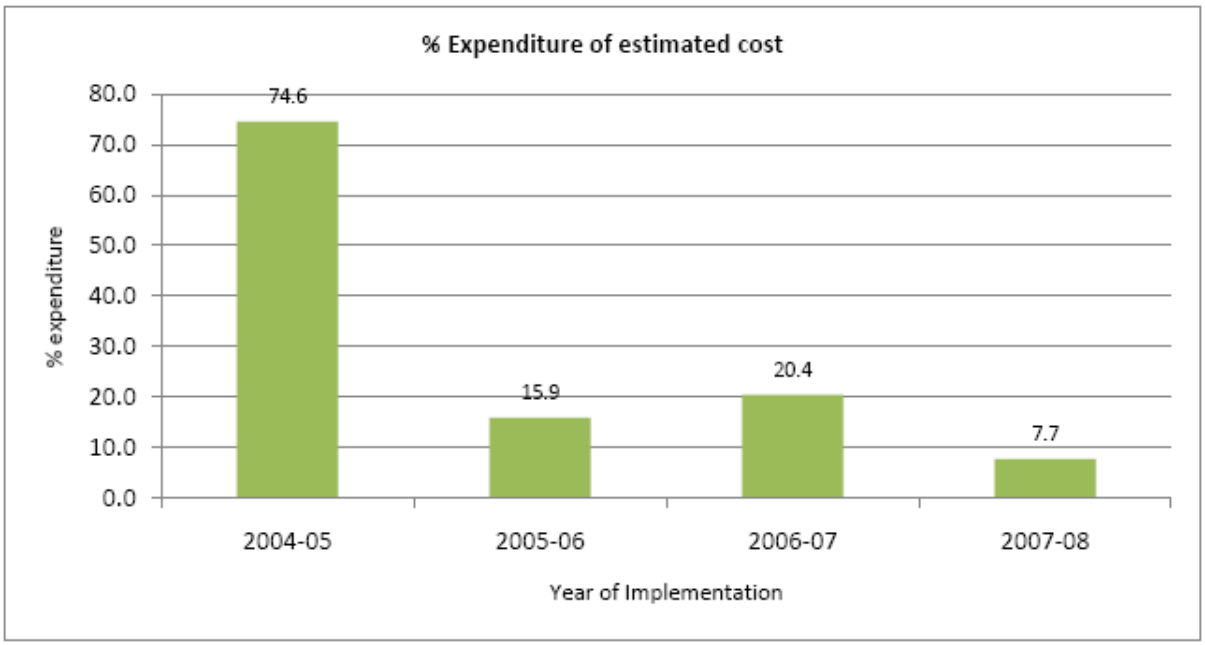





The proposed annual outlay has increased from Rs. 3.86 crores during 2004-05 to Rs. 10.79 crores during 2005-06, and further to Rs. 12.28 crores during 2006-07. This has reduced to Rs. 1.88 crores during 2007-08. The expenditure as percent of allocation was reasonably good at 75% during 2004-05, but has remained quite low at 16%, 20% and 8% during the years 2005-06, 2006-07, and 2007-08 respectively.

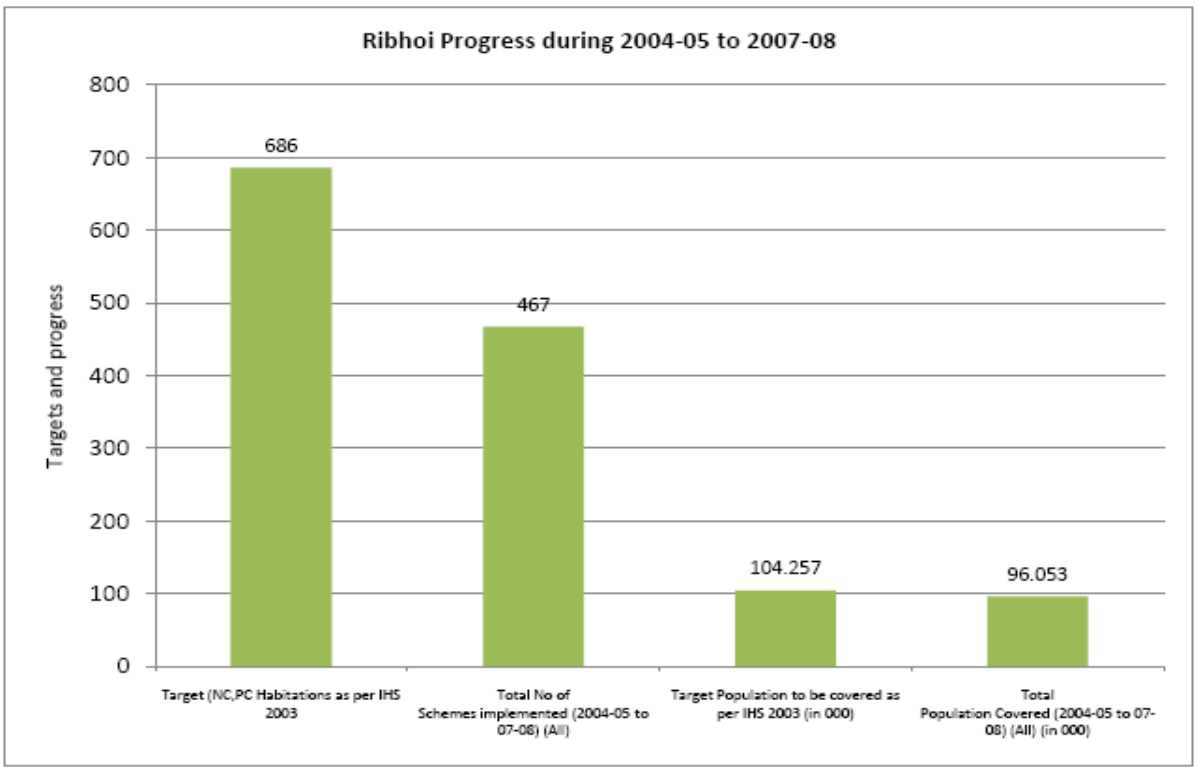
**Figure 14: Financial Progress of WSS Implementation in Ribhoi (2004 - 2008)**






Against the targeted NC, PC habitations of 686 (as per Indian Habitation Survey 2003), the progress during the years 2004-05 to 2007-08, shows 467 schemes implemented, covering 0.96 lakh population (92%) against targeted 1.04 lakhs.

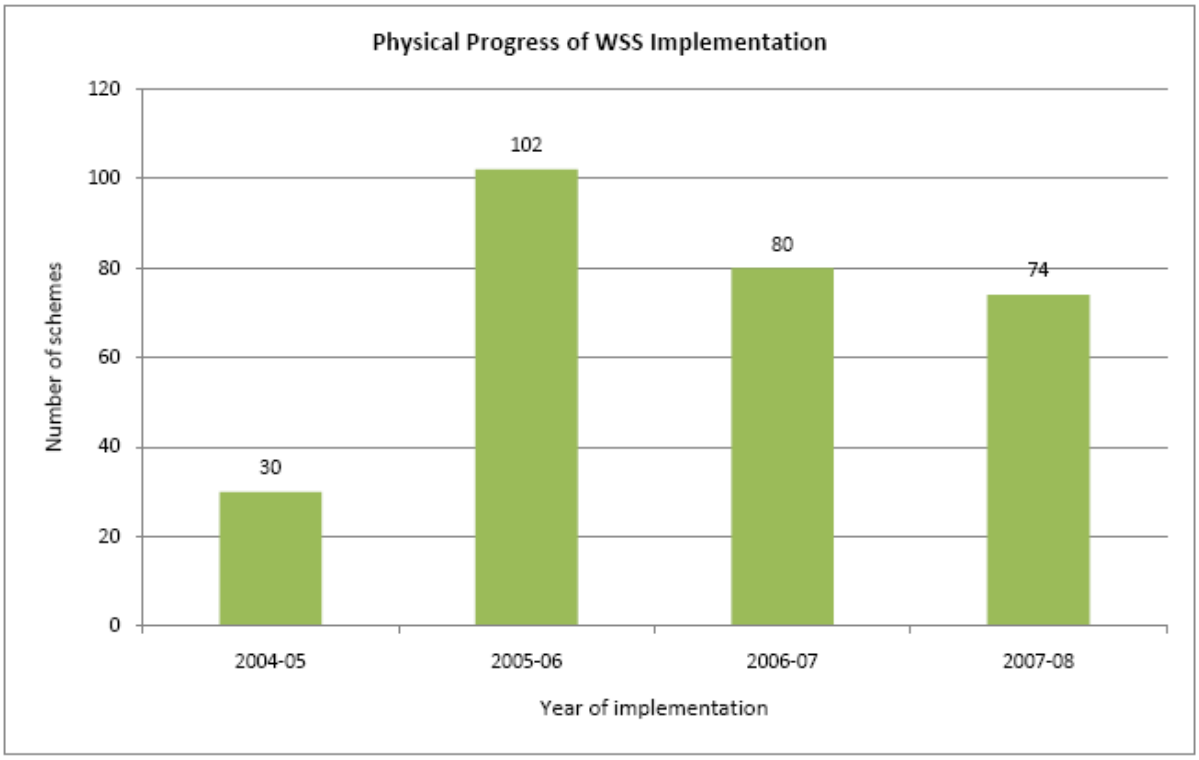
**Figure 15: Targets and Progress, Ribhoi**

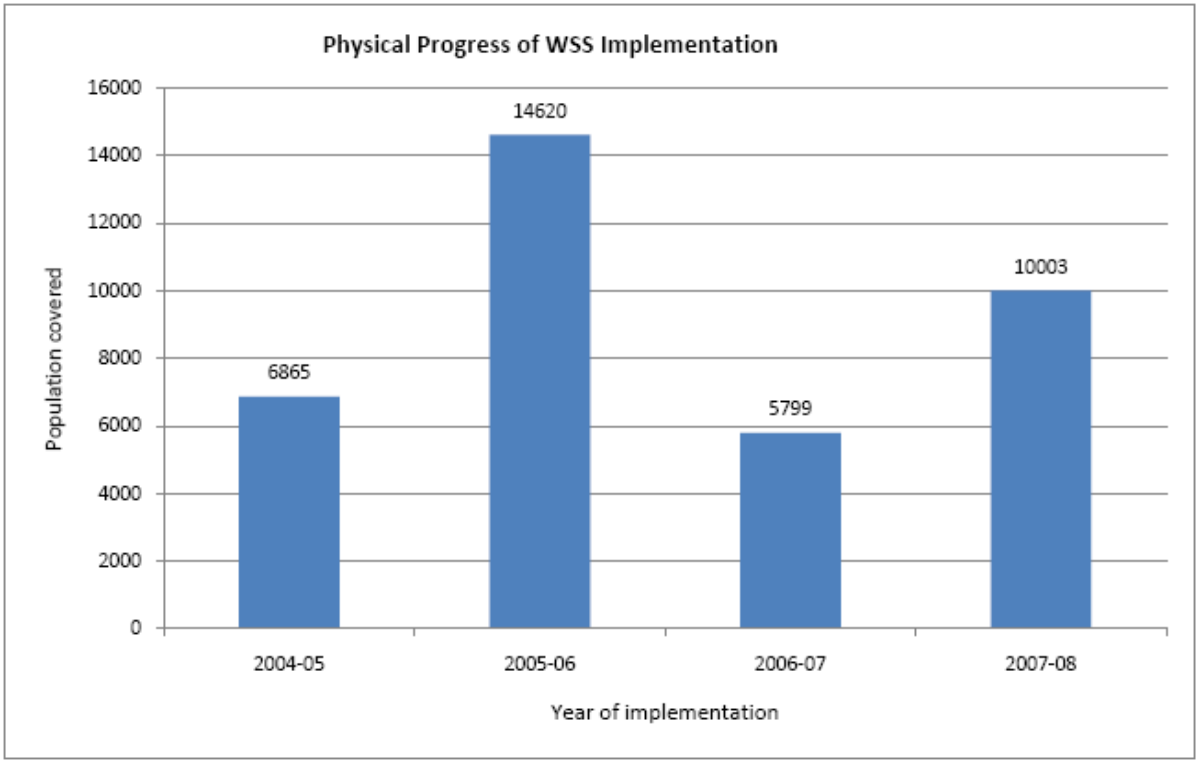


### *South Garo Hills*

The number of water supply schemes implemented range from lowest of 30 during 2004-05 to 102 during 2005-06, while population covered ranges from 5799 persons during 2006-07 to 14620 persons during 2005-06 (see Figure 16).

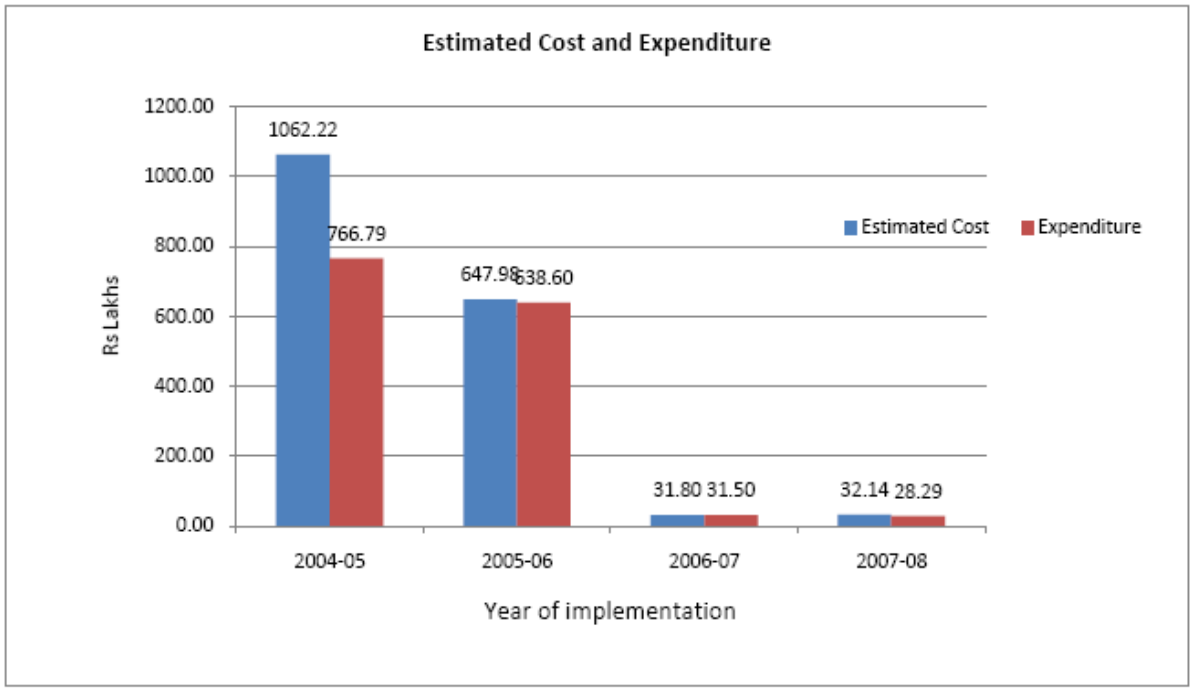
Figure 16: Physical Progress of WSS Implementation in S. Garo Hills (2004 - 2008)

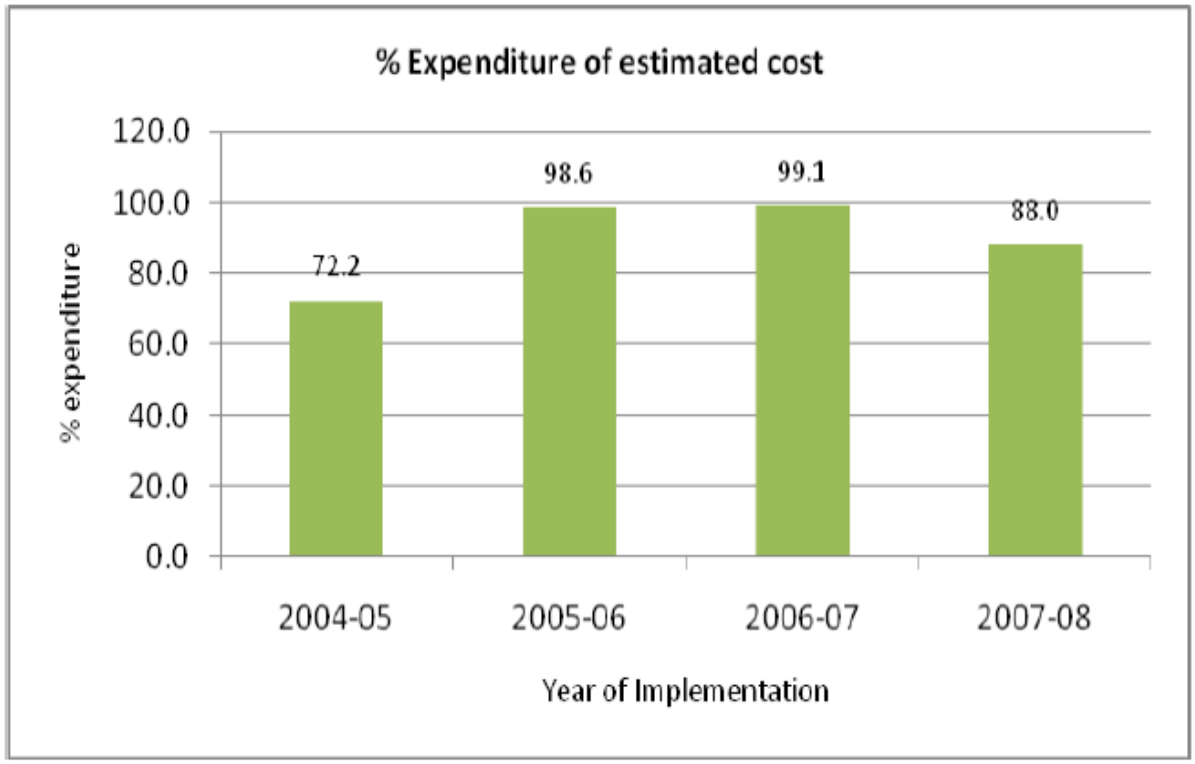


The proposed annual outlay has decreased from 10.62 crores during 2004-05 to Rs. 6.47 crores during 2005-06. This has sharply reduced to Rs. 0.31 and Rs. 0.32 crores during 2006-07 and 2007-08 respectively. The expenditure as percent of allocation has however been good at 72% during 2004-05, 99% during 2005-06 and 2006-07, and 88% during 2007-08 (see Figure 17)

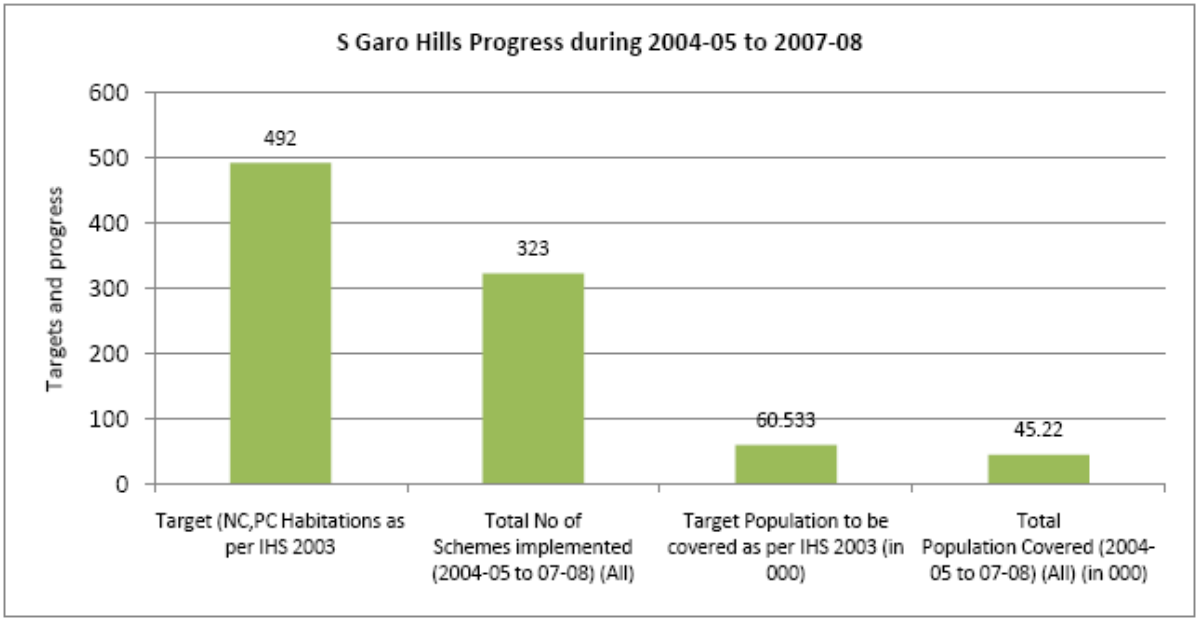
**Figure 17: Financial Progress of WSS Implementation in W. Garo Hills (2004 - 2008)**



Against the targeted NC, PC habitations of 492 (as per Indian Habitation Survey 2003), the progress during the years 2004-05 to 2007-08, shows 323 schemes implemented, covering 0.45 lakh population (74%) against targeted 0.60 lakhs.

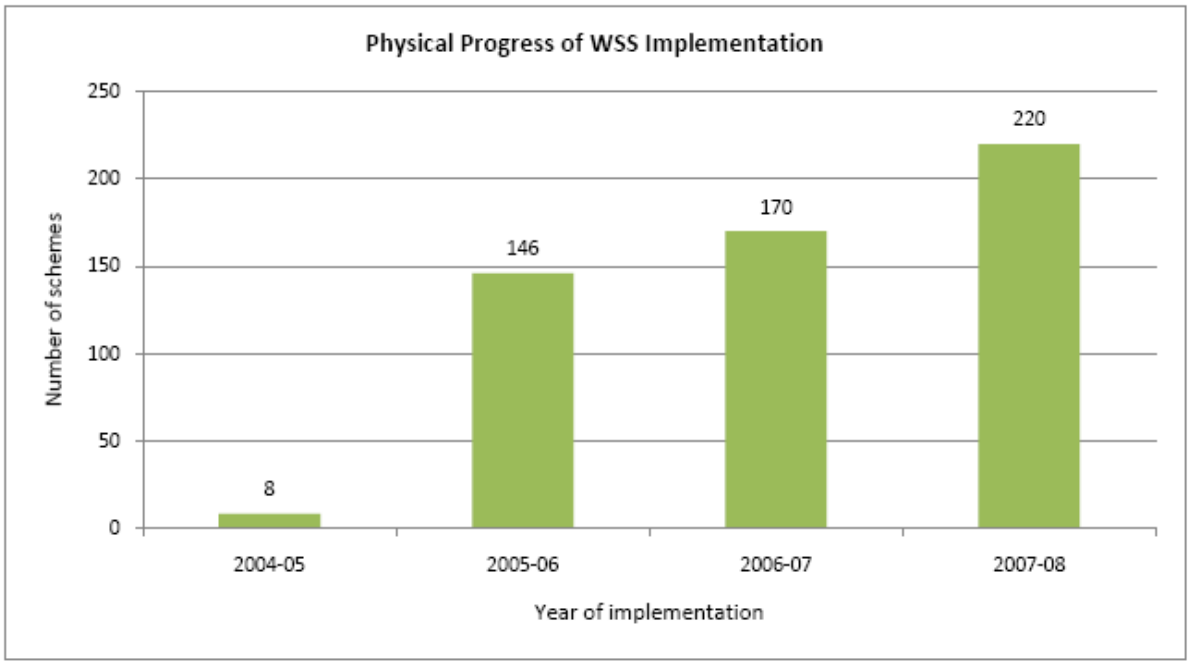
Figure 18: Targets and Progress, S Garo Hills

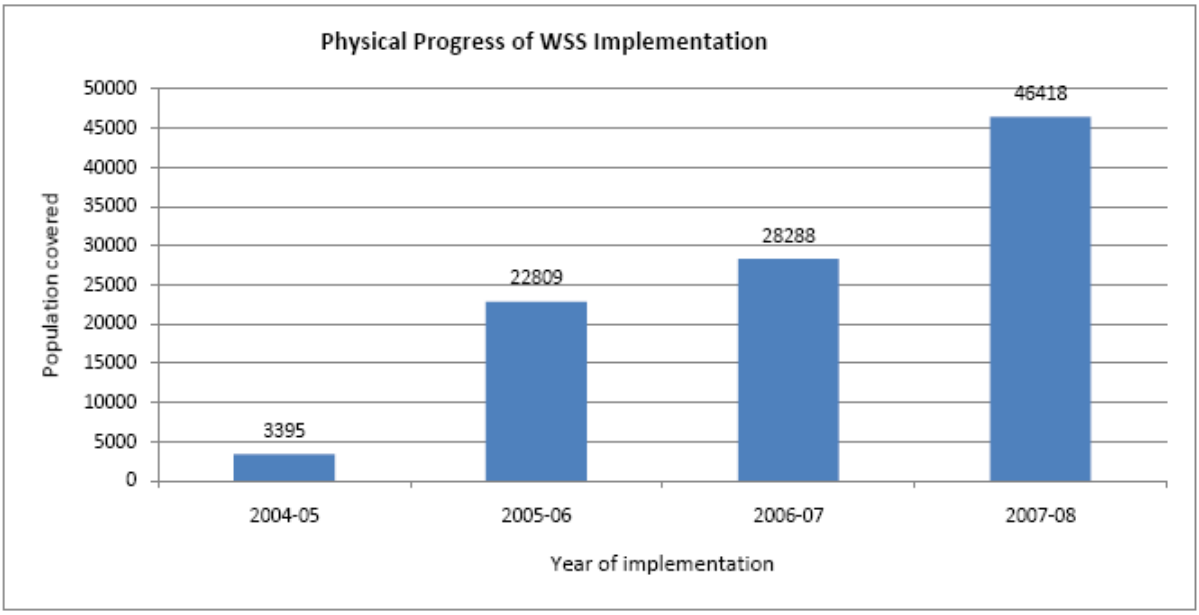



### *West Garo Hills*

The number of water supply schemes implemented has risen from 8 during 2004-05 to 220 during 2007-08. The population covered also follows a similar trend rising from 3395 persons during 2004-05 to 46418 persons during 2007-08 (see Figure 19).

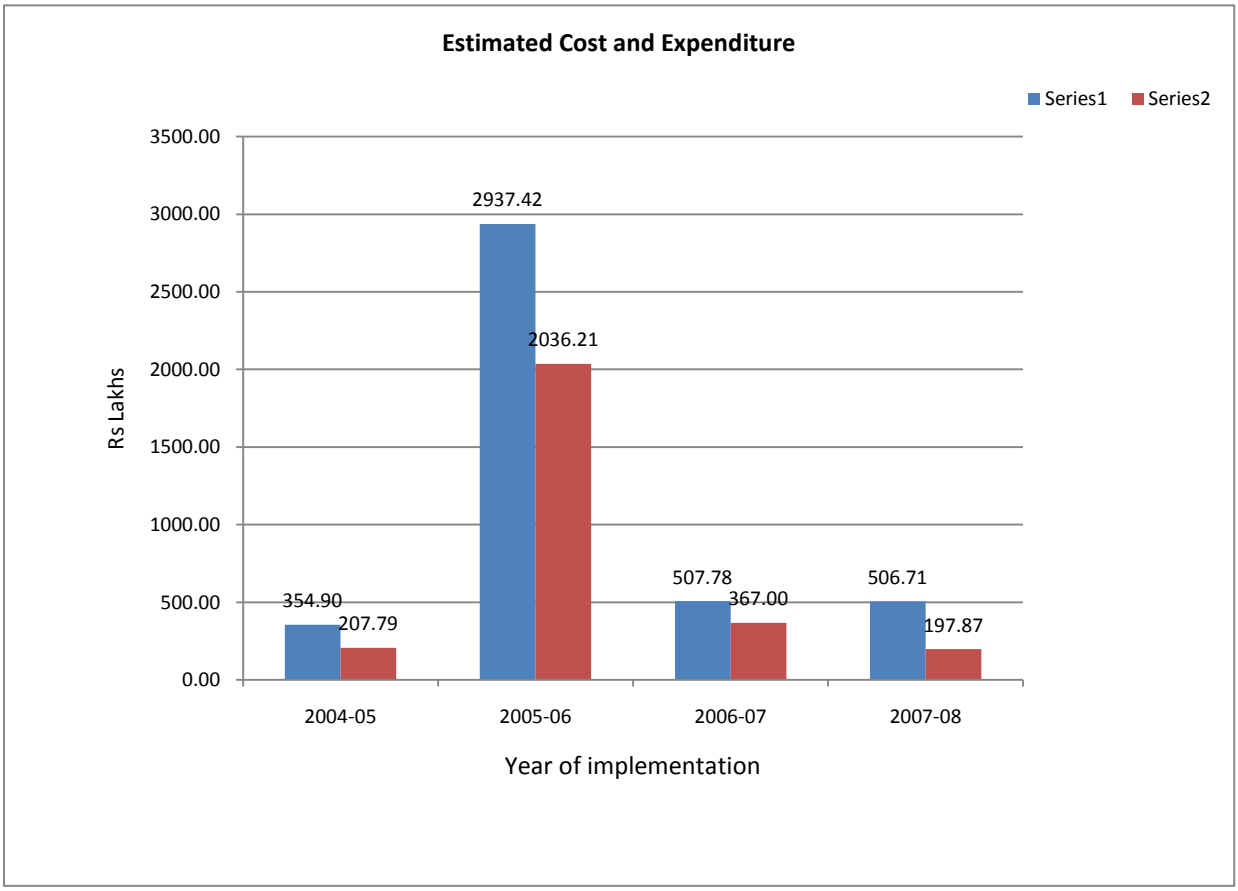
Figure 19: Physical Progress of WSS Implementation in W. Garo Hills (2004 - 2008)

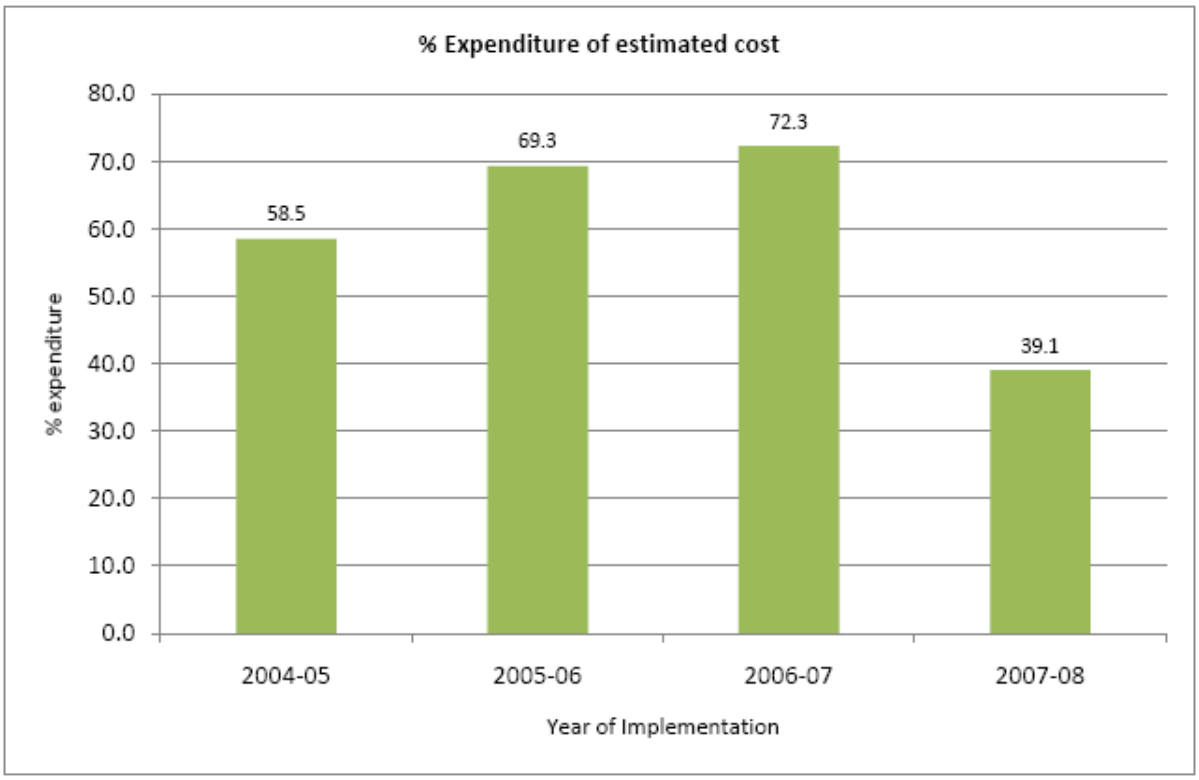





The proposed annual outlay increased from Rs 3.54 crores during 2004-05 to Rs. 29.37 crores during 2005-06. It has thereafter reduced to Rs. 5.07 and Rs. 5.06 crores during 2006-07 and 2007-08 respectively. The expenditure as percent of allocation has risen from 59% during 2005-06 to 69% during 2005-06, and 72% during 2006-07. It has reduced to 39% during 2007-08 (see Figure 20).

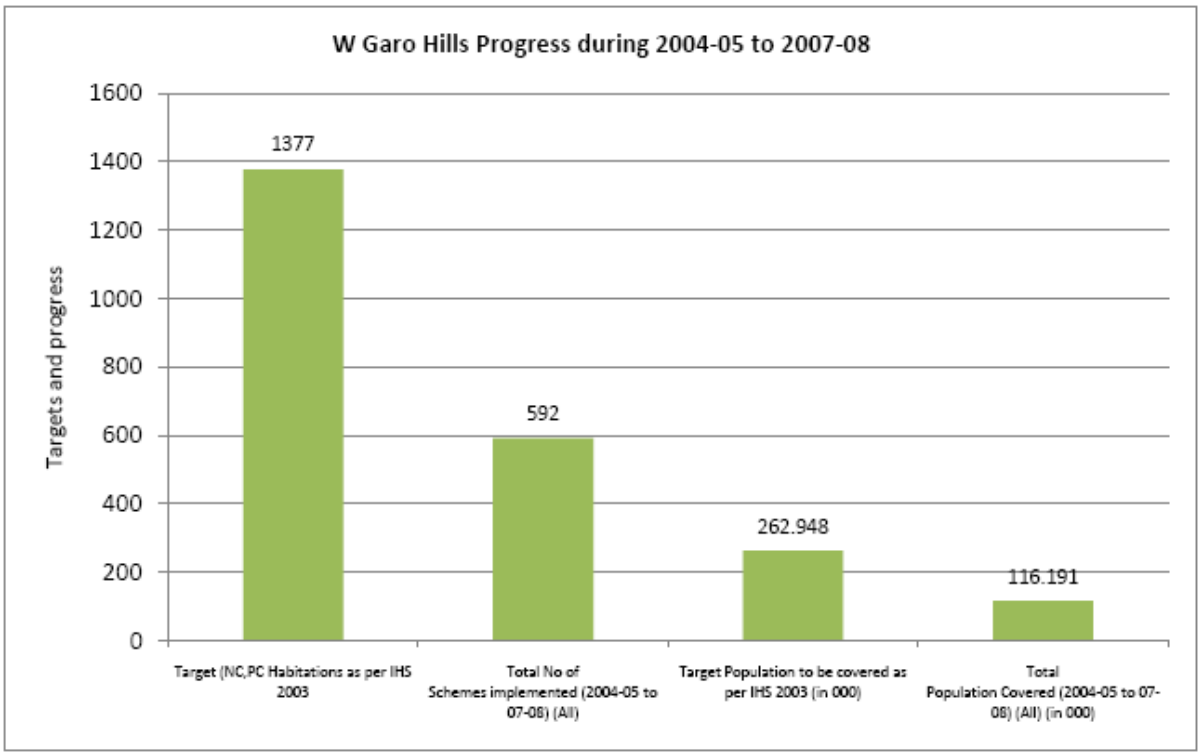
**Figure 20: Financial Progress of WSS Implementation in W. Garo Hills (2004 - 2008)**






Against the targeted NC, PC habitations of 1377 (as per Indian Habitation Survey 2003), the progress during the years 2004-05 to 2007-08, shows 592 schemes implemented, covering 1.16 lakh population (44%) against targeted 2.62 lakhs.

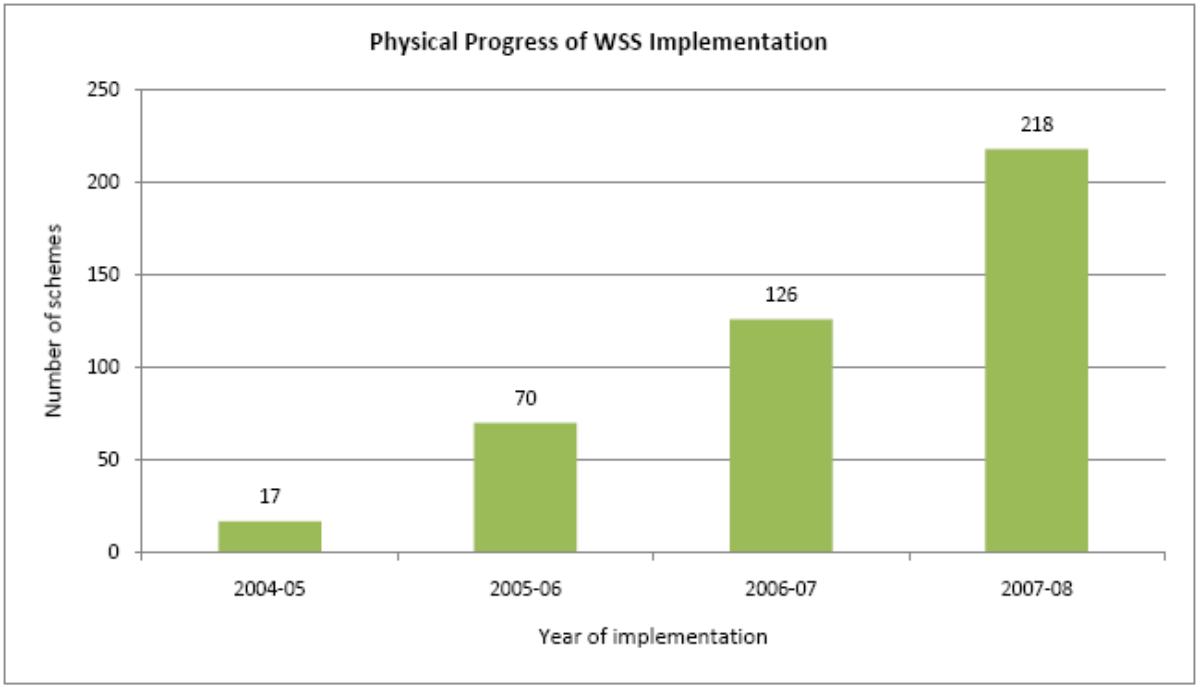
Figure 21: Targets and Progress, W Garo Hills

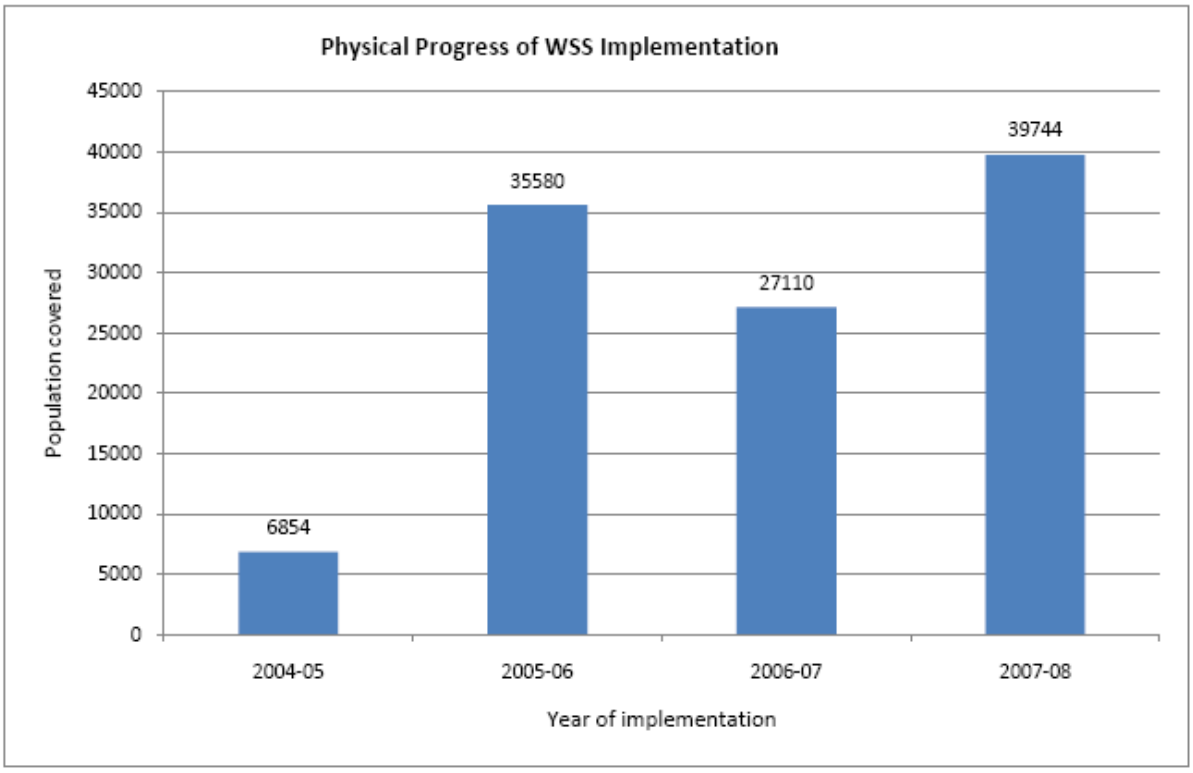


***West Khasi Hills***

The number of water supply schemes implemented has risen from 17 during 2004-05 to 218 during 2007-08. The population covered has also increased from 6854 persons during 2004-05 to 39744 persons during 2007-08 (see Figure 22).

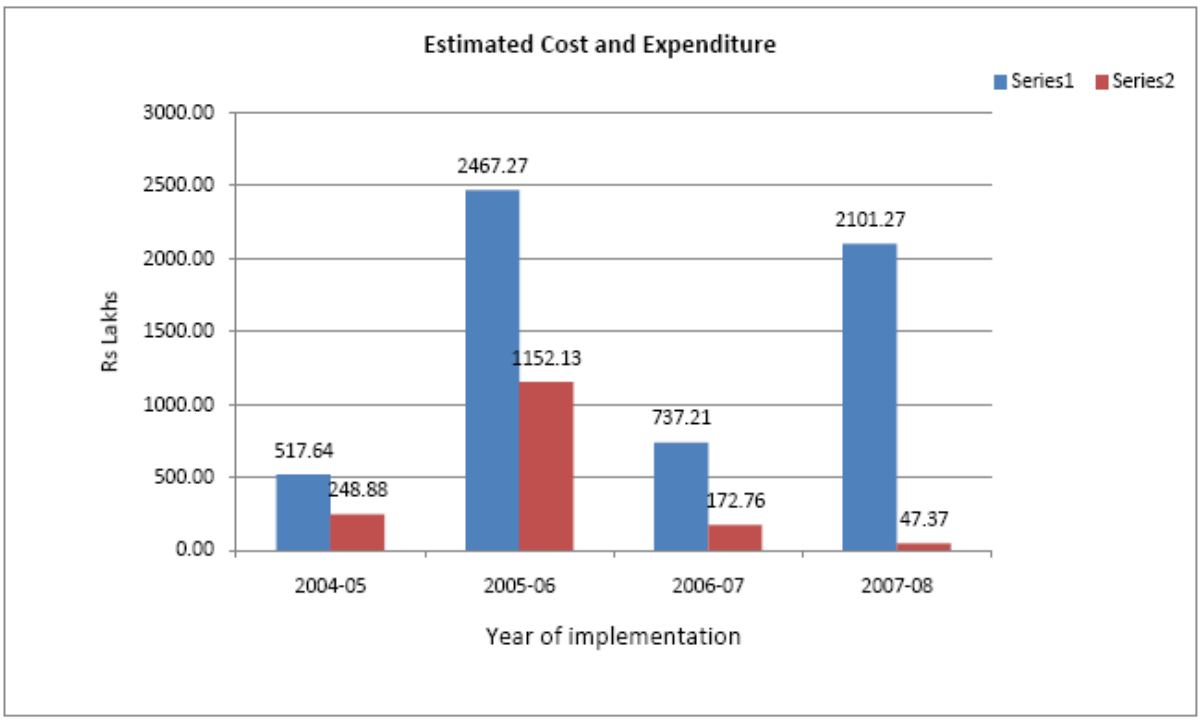
**Figure 22: Physical Progress of WSS Implementation in W. Khasi Hills (2004 - 2008)**

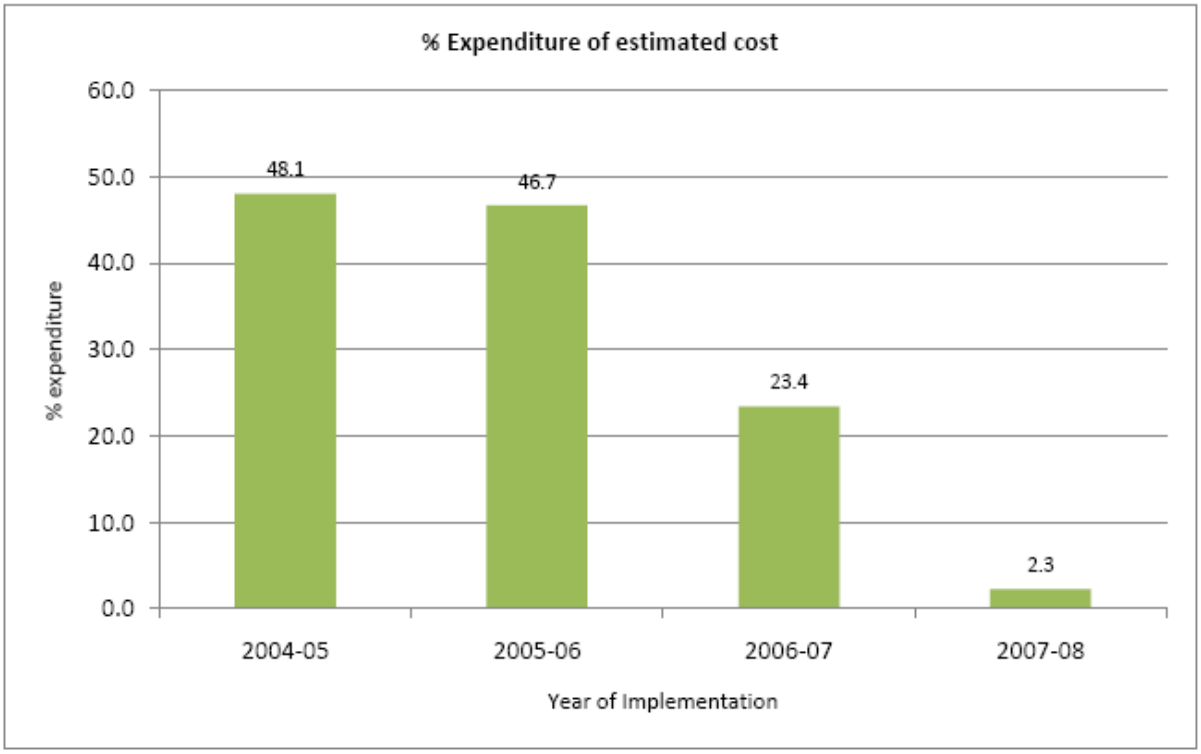


The proposed annual outlay increased from Rs 5.17 crores during 2004-05 to Rs. 24.67 crores during 2005-06. It has thereafter reduced to Rs. 7.37 crores during 2006-07, rising to Rs. 21.01 crores during 2007-08. The expenditure as percent of allocation has decreased during successive years from 48% to 47% to 23% to 2% during the years 2004-05, 2005-06, 2006-07, and 2007-08 respectively (see Figure 23).

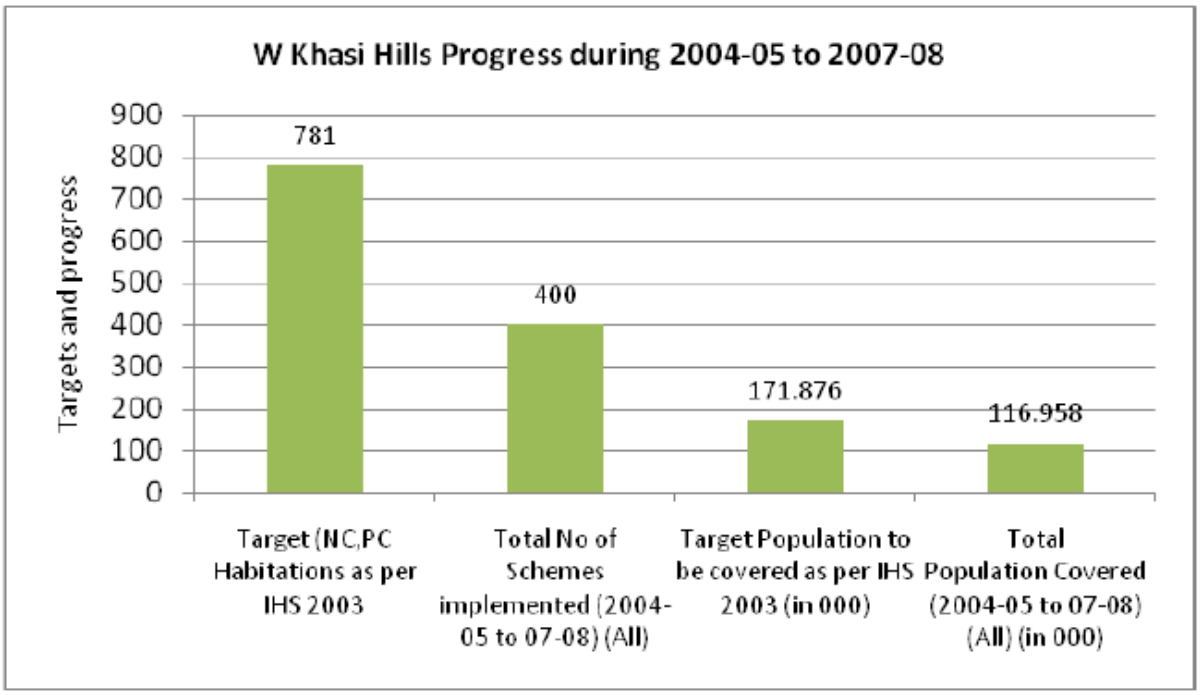
**Figure 23: Financial Progress of WSS Implementation in W. Khasi Hills (2004 - 2008)**



Against the targeted NC, PC habitations of 781 (as per Indian Habitation Survey 2003), the progress during the years 2004-05 to 2007-08, shows 400 schemes implemented, covering 1.16 lakh population (68%) against targeted 1.71 lakhs (see Figure 24).

**Figure 24: Targets and Progress, W Khasi Hills**




# Qualitative Findings

## Community Participation

As per ARWSP guidelines vigilance and monitoring committees at state, districts and village level are required to be set up, and regular meetings of such committees to be conducted. The guidelines also emphasise on involvement of women particularly while taking decision on location of stand post/ spot sources in the village/habitation. Out of the schemes and villages visited, there were very few instances of any organised body for monitoring drinking water supply. In some of the villages where these committees existed, they lacked capacities for managing the water resources and supply related issues. These village water committees lacked a system of regular meetings. However, under the total sanitation campaign, the village sanitation committees are being formed in the villages, which could be used for drinking water monitoring as well.

The participation of women in decision making for water supply areas including location of community stand post/ spot sources in the villages seemed negligible. The ARWSP guidelines very clearly state that, *"Since women are the principal beneficiaries of this programme, it is of crucial importance that women are involved at all the stages of Rural Water Supply Schemes, particularly while making decisions on the location of the standpost/spot sources in the villages/habitations. Information about sources of water should be obtained from women by the surveyors of the schemes"*. The village water committees wherever existing in the visited villages, lacked any women members. It was reported that the community participation in terms of selection of sites for water supply schemes and location of stand posts/spot was limited to consultation with the Village Durbar, where women participation was generally lacking due to social customs.

## Operation and Maintenance

Land for creating the scheme/intake, etc. is provided by the community. The maintenance of water supply schemes was primarily being done by the PHE department through the ground level staff (plumber, *khalasi* and muster roll workers). There was low level of ownership of schemes, coupled with very high dependence on PHE department for maintaining the schemes and providing the ground level staff for this. The schemes were designed and implemented with 15 year life span, but there were instances of damage to the civil construction, as well as gravity main pipes in the gravity fed schemes. Many of these were caused by indiscriminate felling of trees on hills where the pipes were laid for bringing water from the source to the tanks.

**Pomlum Village, East Khasi Hills**

Pomlum, a village in Pynursla block of East Khasi district. It has a population of 241 persons (as per 2001 census), residing in 35 households. The village is fortunate to have the PHEDs Pomlum Water Supply Gravity Scheme by which soft water is supplied throughout the year. The source, Wahkhasin is a small stream about 1.5 km away from the village from which water is brought to Pomlum through 40 mm GI pipe. Before 2007, the village was partially covered and the villagers had built a small water tank which was fed from some other source through a rubber pipe. However, post implementation of the scheme the scenario has improved with 7 platforms being constructed by PHED supplying water at the rate of a litre per minute. The scheme has been completed in the current year. The study team interacted with the village headman and other people to understand the key issues like upkeep, operation, availability of quality testing facilities, women participation, monitoring etc in the village. The findings show that the user community participation has not complemented the PHEDs efforts at implementation of the scheme. Village level water monitoring committee has not yet been constituted. There is hardly any women participation in selection of spot, monitoring of water scheme. Testing kits have not been received in the village, but training is yet to be imparted to the community. Neither the department has any dedicated staff/ muster roll worker for the routine maintenance of the scheme/catchment area nor have the villagers appointed any one for regular maintenance of the scheme. Even for small repair of taps or pipes, the villagers depend on PHED officials. It should be noted that the scheme which is just a month old has no present problems, however lack of community participation could make the future questionable. Massive training, guidance and IEC activity is the need of hour, otherwise the transition from a supply driven to a demand driven approach could well remain a distant dream.

The department had their constraints in terms of freeze on new recruitment of muster roll labours, while the villagers lacked an institutional set up (in many cases) in form of water monitoring committee. Due to a combination of the above factors, there seemed to be low maintenance of the water supply schemes. In case of villages where water monitoring committees existed, the villagers lacked adequate technical know-how for educating/ counselling other villagers for conserving the water sources, limiting jhum cultivation. While the ARWSP guidelines do not mandate community participation or roles in O&M, Lumsohliya village, in Umsning block of Ribhoi district was an exemplary case where community members have taken initiatives for monitoring the water supply scheme in the village, and for basic O&M of the scheme, with able guidance and support from local PHED officials.

**Transition from technological solutions to socio-techno solutions**

Lumsohliya is a fully covered habitation in Umsning block of Ribhoi district with a population of 186 souls. Lumsohliya Water supply Scheme was initiated by PHED in 2007 and was successfully completed in 2008. It is a gravity fed scheme and the water is brought from Ummawlareng, about 3 km from the village. The scheme is fully functional for more than a year and the water is distributed through 6 community taps. During field visit, Mr. L. Dhar, (SDO, Umsning block), the Junior Engineer and 2 members of the Lumsohliya village to Ummawlareng, the water source. While covering the stretch, it was observed that in few spots, the supply main GI pipes had developed fissures because of which water was gushing out. Felling of trees (some times on the pipes) coupled with other natural factors was Instrumental in damage to the pipes. However, the community had devised indigenous solution like “blocking the outflow of water with bamboo pieces plucked in the fissures” and “tying old rubber tubes around the plugs”. In addition to this, the headman takes care of small repair and maintenance issues in the village. It was reported by the headman of the village that whenever the water flow decreases

from the community taps, few community members trek to the water source, to identify and rectify (if possible) the problem. A leaf could be taken out of such maintenance efforts by the community and used as a case for demonstrating community ownership and active participation on O&M. The local PHED officers should be given credit for encouraging such community initiatives, and providing their guidance and support as and when required to the community.

## Source Sustainability

As per ARWSP guidelines, the availability of drinking water source in the vicinity of the habitation is an important criteria for classification of the habitation into Not covered (NC)/No safe source (NSS) categories, as is evident from the section "*A habitation which fulfils the following criteria may be categorised as NC/NSS habitation: the drinking water source/ point does not exist within 1.6 km of the habitation in plains or 100 metre elevation in hilly areas*". In the state, there are a large number of cases where mainly piped water supply schemes have been abandoned after certain years of operation because of drying up of the water sources. Examination of why this was happening led to the finding that water resources in general were under severe stress in many areas, primarily due to loss of vegetative cover in the upper catchment areas as also the little emphasis on recharge of aquifers, check dams, and rainwater harvesting. Some ascribe this to the continuous pressure from uncontrolled shifting (jhum) cultivation and commercial exploitation in the dominantly private forests (which is not under forest department).

Along with jhum cultivation, limestone quarrying (to feed cement factories) and coal mining (in Jaintia and parts of Sohra block) are ruining the ecology of Meghalaya hills. Rampant quarrying and mining in this region may become a problem in the near future though right now the situation is not grave. The problem of coal lies in the process of extraction. In Meghalaya, mines are not controlled by the government but by private individuals who are the actual owners of the land. Posts mining the areas are left open and sulphur from coal leaches into underground water tables thereby making these acidic and polluted. Mining is rampant in Jaintia district, especially in Jowai block.

**Water crisis in Lyngkyrdem- A case of scarcity in the midst of plenty**

Lyngkyrdem, a large village in Pynursla block of East Khasi District has a population of 5000 and is approximately 50 Km from Shillong. It consists of 3 habitations (Laitytink, Iewduh and Mawlieh). The village lies about 4900 m above the sea level (highest being Shillong peak), grappling with severe water crisis. The village does not have any piped water scheme (gravity feed schemes are not suitable for high altitude). Besides, there is no safe water source in the vicinity from where water could be pumped to the village. The only water source for the villagers seems to be streams, rivulets, spring chambers (Wahnonkebri, Wahkhalai, Wahkhlaw, Wahuran, Wahktieh, Wahmawiong, Wahryngknah and Wahkarom), from where they collect untreated water during night hours. However, these sources dry up in summer months, causing people to face acute water scarcity. The study team interacted with Mr. Tarson Rynjah, who is a senior member of the Lyngkyrdem village water monitoring committee. It was observed that PHED had instituted few bore pumps in 3 habitations. However, the bore pumps were dysfunctional since more than last 3 years. There is only one functional bore pump in Iewduh habitation in the village, but the water is unfit for drinking due to contamination by underground coal mine. According, to the headman Mr. Marplelan Nary the village water monitoring committee was constituted 2 years ago. Though the committee had brought the issue of non functional schemes to the Investigation Division of PHED, but the problem was yet to be conclusively addressed. The PHED also tried to dig as deep as 253 meters, but could not find any underground sources of water in the village.

To supply piped water to the village, PHED did initiate a water supply project in 2004, called Lyngkyrdem combined water supply scheme. However, Wahbah, the source for the scheme, almost 15 km away from the village, has also dried up. The huge cost incurred in laying of 6 inch diameter pipes has gone down. The department cited heavy deforestation around the catchment as the reason for failure of the scheme. Presently, PHED is trying to supply water to the 3 habitations through Wahtyngai Water Supply Scheme at Laitlyngkot. However, the scheme is likely to be by 2010 and till then the 5000 odd population of Lyngkyrdem has no option but to survive on untreated water from the spot sources.

## Water Quality Testing

The ARWSP guidelines envisage, identification of Not covered (NC)/No safe source (NSS) habitations based also on identification of quality problems such as excess salinity, iron, fluoride, arsenic or other toxic elements or biological contamination. These require testing of water in the

villages, both at the time of commissioning WSS, as well as regular testing during operation of WSS. Thus, quality of water supplied is a key criterion for identification of problem habitations under AWRSP. For this it is important that the water sources are tested for quality of water at the time of conceiving the water supply scheme, as well as regular testing is conducted to periodically ascertain the quality of water. At present the state has a network of state and districts level water quality testing laboratories.

However, given the number of water supply schemes and the geographical spread of these, it is clear that the present capacities are insufficient for undertaking regular testing and monitoring of water quality from various schemes under ARWSP and MNP. From the data on water quality testing during the years 2004-05 to 2007-08, it is clear that initial testing of water from the water supply schemes is negligible varying from 98% untested status during 2004-05 to 100% untested status during 2005-06. The current level of water testing including supply for field water testing kits to communities and training for using these is quite low in the state. It is therefore an area of concern, and needs to be addressed on priority.

Under central scheme, the state has begun providing, portable water testing kits at villages for regular testing of water quality. These water testing kits are yet to reach most villages. The department has just begun training of community for water testing through the testing kits, in a staggered manner.

**Emulative model of Water Testing in Wahlakhaw**

Wahlakhaw is a habitation in Mairang block of West Khasi District in Shillong. As observed in most of the districts and blocks in Meghalaya, water testing kits, and training for water testing is yet to be fully implemented at all villages. The water testing drive has begun since 2007.

However, Mr. Denice Shabong who is the SDO in Mairang block has evolved an innovative way to inculcate the practice of water testing among the villagers, even before distributing the kits. He has selected a cluster of adjacent villages (10-15 on an average) and identified a nodal person who is usually a graduate in Chemistry, or has studied chemistry till high school. This person has been given water testing quality training, and the physical possession of the water testing kit. The study team interacted with Ms Shisha Linda Marbaniang, who is the nodal person in Wahlakhaw village. She has taken the water testing activity voluntarily and tries to train the local people (of 10 adjacent villages) in water testing. As an evolved practice, the villagers collect the sample and bring it to her and she in turn tests it, thereby showing them the way. It was heartening to note that some other villagers had learned the skills for conducting simple tests like Ph value of the water sample. With such kind of initiative, the deficit of testing kit has been countered to an extent and the practice of water testing has become close to a routine. Such models can be considered for replication across other villages in Meghalaya.

**Table 7: Status of State Level ToT for Water Quality Testing**

| Training | Date of Training | Place of Training | Number of Participants | Topics Covered |
|---|---|---|---|---|
| First Training | 05-09, May-08 | Shillong | 26 | Water Quality Monitoring, Demonstration of field testing kit, Environment Pollution v/s Water Pollution, Water Related Diseases, TSC |
| Second Training | 14-18, July-08 | Shillong | 36 | |

Source: HRD Section: PHED Meghalaya

Figure 25: Water quality testing status during years 2004-05 to 2007-08

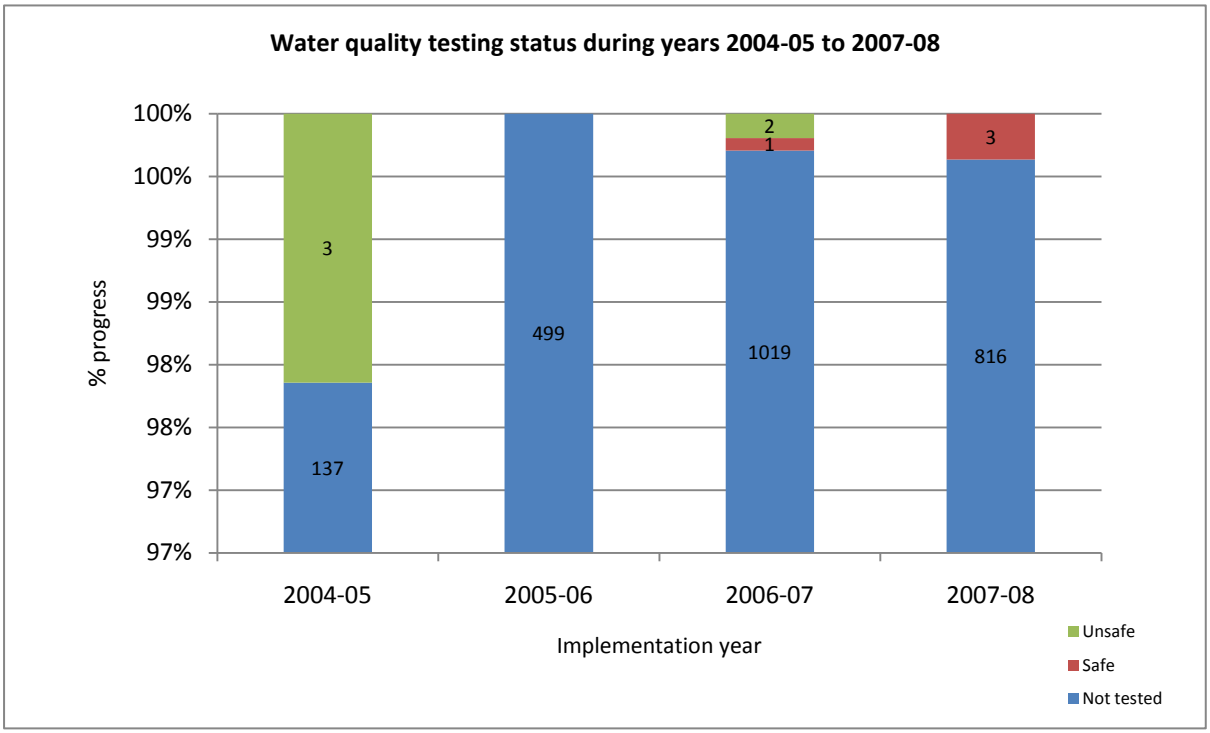



Table 8: Status of District Level ToT for Water Quality Testing

| District | Date of Training | Place of Training | Number of Participants |
|---|---|---|---|
| Jaintia Hills | 06-08, Aug,08 | Jowai | 25 |
| Ribhoi | 11-13, Aug,08 | Nongpoh | 16 |
| East Khasi | 20-22, Aug,08 | Shillong | 35 |
| West Khasi | 27-29, Aug,08 | Nongstein | 25 |
| South Garo | 24-26, Sep,08 | Baghmara | 18 |
| West Garo | 9-11,sep,08 | Tura | 36 |
| East Garo | 3-5,Nov,08 | Williamnagar | 22 |
| Total | | | 177 |

Source: HRD Section: PHED Meghalaya

## Monitoring

The PHE department has a regular system of monitoring the physical and financial progress of schemes under implementation, which is uploaded on the government of India website (www.ddws.gov.in). In addition, the department has its own quantitative monitoring MIS.

# Conclusions and Key Recommendations

## Conclusions on Planning Process and from Quantitative Data Analyses

### Planning

The AAP preparation and approval process has some shortcomings:

- The AAP preparation begins with preparation and submissions of schemes by the divisions by May to July of the planning year, and ends with communication of administrative approval for implementation of sanctioned schemes by the concerned divisions by December to January. This process leaves very little time for actual implementation of the schemes by the concerned divisions. As a result, a schemed approved for implementation in a planning year is normally completed in the subsequent year.
- The AAP does not does not provide the breakup of proposed water supply schemes, in terms of types of schemes and district/ division wise distribution of schemes. Hence it is not possible to make out district/ division wise number of schemes proposed.
- A work plan for implementation of these schemes is also lacking.
- The water supply schemes are planned/proposed based on the gaps identified in the Indian Habitation Survey 2003. The gap identification should also take into consideration, the changes in existing situation (slipped back habitations, new habitations), post 2003. For this the PHE could commission a rapid survey every year, or alternatively can also have a concurrent system of updating the current situation in each habitation/ block/ division through community feedback, field visit by PHE officers.

#### *Recommendations*

- The Annual Action plan cycle could be made shorter, from the present 8-9 months long planning cycle. This leaves very little time for implementation in the financial year. This all the more relevant, given the climatic conditions in the state, where in many regions, there is medium to heavy rainfall for almost 6-7 months, where civil constructions are normally not done. The plan for a financial year should be formulated in the previous year so that it is approved and sanction orders issued by the beginning of the financial year.
- The Annual Action Plan should have a clear listing of proposed schemes during the plan year, each district/ block wise. This would enable greater transparency in the plan and issuance of the water supply schemes as well as improved monitoring of the schemes. The AAP should also have an indicative work plan for implementation of the approved/ sanctioned schemes. The districts/ divisions could have more detailed work plan for implementation of the proposed schemes.

### Quantitative Data Analyses

The overarching conclusion from the quantitative data is that the ARWSP implementation in Meghalaya is reaching its target populations in all the districts, and as such, largely fulfilling the coverage mandate set out in the guidelines.

# Conclusions on Qualitative Findings

## Community Participation

While ARWSP is largely designed as a top-down delivery programme with little emphasis on community participation, it does mandate some areas of co-opting communities, especially in the area of women's participation. *The programme has largely not been successful in achieving this.* With the exception of some villages, community participation in general has been limited.

### *Recommendations*

PHED, in discussion with other partners/stakeholder groups and/or civil society should make efforts to initiate a community consultative process in their programming in general, with a focus on women's participation and roles. This can begin in the villages that have already constituted VWSCs.

## Operation and Maintenance

Owing to a PHED enforced a temporary freeze on fresh recruitment of muster roll workers, there is a shortage of manpower to maintain the schemes, leading to a situation where, one existing muster roll worker is responsible for maintaining schemes across 5-10 villages, there by causing some of the villages/schemes to get neglected. River/stream pumping schemes in the state are generally planned for areas/ habitations where gravity schemes are not possible, as it provides soft surface water. However, there are various problems related to operation and maintenance of these schemes. In some districts (e.g. South Garo), there is acute electricity problem (at times there are power cut for several days at stretch), leading to non-functioning of the scheme for the period. At times even if the power is available, low voltage causes the scheme to be non functional. In many cases, the pump operator post lies vacant/not sanctioned in the scheme.

### *Recommendations*

It will be useful for PHED to have a live "scheme status" list – which would show the status of each scheme – whether active or defunct, if defunct, why, since when, and whether possible to revive it, action taken, etc., with a view to improve overall O&M efficiency.

## Source Sustainability

Source sustainability has been found to be a serious issue in many areas as has been outlined above, and as such, considerable efforts involving several departments may be necessary to remedy the situation, and PHED alone may not be equipped to able to handle the response needed.

### *Recommendations*

It is highly recommended that the Government of Meghalaya identify all areas where water sources have been affected critically (both quantitatively and qualitatively) by either loss of vegetative cover or by virtue of mining/quarrying, and prioritise action on these to restore the water balance, availability and quality. It is understood that the Meghalaya Catchment Areas Protection Act can be taken recourse to, as well as examining possibilities of interdepartmental efforts to rehabilitate/re-afforest areas that have been affected by mining/quarrying but are no longer being actively mined/quarried. Other measures such as rainwater harvesting and aquifer recharge may be considered in water deficit areas.

## Water Quality Testing

Water quality in Meghalaya is affected by both point and non-point sources of pollution, wherein the non point sources like coal mining, quarrying, etc. are more likely to impact the ground water quality, than point sources (open defecation near the source of water). Water quality testing is yet to take off in Meghalaya. The water quality testing is quite negligible, even while commissioning of water supply schemes supply schemes are not tested even at the time of commissioning (only 3 out of 816 water supply schemes were tested during commissioning in 2007-08). This is clearly an area of concern, as not testing of the water quality of the schemes would render the consumers vulnerable to any water borne diseases that may be caused due to poor quality of water. This problem may be very severe in areas where rampant mining has been continuously leading to depletion of resources, as well as pollution of water resources.

A system of concurrent testing of water quality is also urgently needed, for which under central assistance a beginning has been made for providing water testing kits to community. The water testing kits are in the process of being procured and supplied to the community. However, the critical areas that require urgent focus are: adequate training to concerned persons (government/ PHED officers) and community members in using the testing kits, identification of persons responsible for maintaining water testing kits and regular testing of water through these kits, and a system of replenishment of components (reagents, litmus paper, etc.).

### *Recommendations*

- Water quality testing needs to be given adequate thrust. For this the training of community members in using and maintaining the water testing kits should be done on a priority basis. The selection of community members should be done based on certain criteria (e.g. their interest levels, academic qualifications, etc.)
- Post training, a detailed plan for handholding support for these trained persons in using the testing kits and follow up in case of detection of quality issues, will have to be developed and rigorously followed.
- A system of regular visits and feedback from PHED staff, to ascertain the regular use of the testing kits by the community members, and retraining them will be required to enable the continuous use of water quality testing kits by all villages/ habitations.
- A system of replacement of damaged water testing kits, and replenishing the consumable items (e.g. reagents, etc.) also need to be established.

## New Guidelines

While the consultants were mandated to carry out an evaluation of ARWSP, it may be worthwhile here to briefly consider the new policy directions of the Department of Drinking Water Supply, Government of India, which has made the ARWSP programme as existed redundant. An excerpt from the new guidelines makes this evident:

> *"It goes without saying that the RWS norms and guidelines need to be flexible and broad-based for allowing appropriate leeway to the community/VWSC for planning RWS projects based on the principle of demand responsive planning mechanism to suit the local requirement rather than adoption of universal norms and standards. Level of service should be linked to the issue of demand, commonly expressed through user willingness-to –pay for a particular level of service and their satisfaction. Coverage of a particular village should be indicated based on these criteria. However, the issue of equity and the basic minimum need concept should be kept in mind while designing the schemes. Based on these considerations*

*the ARWSP has been modified as National Rural Drinking Water Programme (NRDWP) for the Eleventh Plan period. It is sincerely hoped that the new regime will help in providing adequate and quality drinking water on a sustainable basis to citizens in rural India."*

The current thrust of the new guidelines is for the states to undertake a shift from conventional approaches to a "water security" mode – and all states have been asked to prepare district level water security plans, for which a template has been shared. It is anticipated that while this template is currently rudimentary, that it will evolve and new ones issues in the coming years.

The move towards water security planning is essentially in broad agreement with the recommendations being made in this report by the consultants, especially on source sustainability, and more generally, on scheme sustainability and all that it implies, including community involvement, O&M, water quality, etc. As such, it is highly recommended that the recommendations of this report be read keeping in mind the new guidelines and changes, where appropriate, may be made accordingly in water supply programming in Meghalaya.

# Annexure 1: ARWSP Guidelines

IMPLEMENTING AGENCIES

The implementing agencies for the programme may be decided by the State Government. The implementation may be through the PHED or Rural Development Department / Panchayati Raj Department / Board, Corporation or Authority. The implementation should be entrusted to one single department in the State and not to a number of departments, with a view to better implementation, monitoring of the progress, etc. If the programme has to be implemented in more than one department in the State due to unavoidable and certain special considerations, one of the departments should be designated as the Nodal Department for coordinating the rural water supply programmes and sending consolidated progress to the Central Government.

The Panchayati Raj Institutions should also be involved in the implementation of schemes, particularly in selecting the location of stand post, spot sources, operation and maintenance, fixing of cess/water tariff, etc.

While formulating the schemes, name of the implementing agency may be indicated for each scheme.

The Nodal Department in the State Government will have the overall responsibility for planning, implementation, supervision and monitoring, of the approved schemes.

In case the implementation is entrusted to the District Rural Development Agency (DRDA), there should be a close coordination between the State Nodal Department and the DRDA so as to ensure avoidance of duplication of efforts and dovetailing of the activities with the normal schemes under MNP and ARWSP. The implementation of specific schemes through DRDAs should not mean reduction or stoppage of flow of funds to the particular scheme/area under State Sector MNP.

NORMS FOR PROVIDING POTABLE DRINKING WATER

While implementing the Rural Water Supply Schemes, the following norms may be adopted for providing potable drinking water to the population:

40 litres per capita per day (lpcd) for humans to meet the following requirements:

| Purpose | Quantity ( LPCD) |
|---|---|
| Drinking | 3 |
| Cooking | 5 |
| Bathing | 15 |
| Washing Utensils & House | 7 |
| Ablution | 10 |

In addition, provision should be allowed at 30 lpcd for animals in hot and cold desert/ecosystems in 227 blocks of 36 DDP districts already identified in the States of Andhra Pradesh, Gujarat, Haryana, H.P., J&K, Karnataka and Rajasthan.

With normal output of 12 litres per minute, one handpump or standpost is estimated for every 250 persons. In case of an independent habitation/hamlet/Wadi/Tola/Majra/Mohra etc, if their population is less than 250 persons and there is no potable water source within its location, one source may be

provided. A rural habitation not having any safe water source with a permanently settled population of 20 households or 100 persons, whichever is more, may be taken as the unit for coverage with funds under the ARWSP. However, the State Government could cover any habitation regardless of its size/population/number of households with funds under the MNP.

DDP areas and SC/ST habitations with less than 100 persons can, however, be covered under the ARWSP.

CRITERIA FOR IDENTIFICATION OF PROBLEM HABITATIONS

A habitation which fulfils the following criteria may be categorized as a Not Covered (NC) / No Safe Source (NSS) habitation:

The drinking water source/point does not exist within 1.6 km of the habitations in plains or 100 meter elevation in hilly areas. The source/point may either be public or private in nature. However, habitations drawing drinking water from a private source may be deemed as covered only when the water is safe, of adequate capacity and, is accessible to all.

Habitations which have a water source but are affected with quality problems such as excess salinity, iron, fluoride, arsenic or other toxic elements or biologically contaminated.

Habitation where the quantum of availability of safe water from any source is not enough to meet drinking and cooking needs.

Hence, in case of quality affected habitations, even if they are fully covered as per the earlier norms it would be considered as a NSS habitation if it does not provide safe water at least for the purpose of drinking and cooking.

Habitations which have a safe drinking water source/point(either private or public) within 1.6 km. in plains and 100 meter in hill areas but the capacity of the system ranges between 10 lpcd to 40 lpcd, the habitation could be categorized as "Partially Covered (PC)". These habitations would, however, be considered as "Safe Source (SS)" habitations, subject to the water quality parameters.

All the remaining habitations may be categorized as "Fully Covered (FC)".

Once the task of providing every habitation with safe drinking water source is completed as per the norms and criteria indicated at paragraph 2.2.1 and paragraph 2.3 (a) respectively, in the entire State, the State Government may consider relaxation of norms with the prior approval of the Government of India, subject to the condition that beneficiaries of the relaxed norms are willing to share a part (which should not be less than 20%) of the capital cost and shoulder full responsibilities of subsequent O & M and replacement so as to meet their enhanced service expectations.

PRIORITY FOR COVERAGE OF NO SAFE SOURCE HABITATIONS

The following priorities should be adopted:

- Coverage of No Safe Source (NSS) habitations. Among them priority may be given to the ones inhabited exclusively by SC/ST or having larger SC/ST population enumerated in the Status Report of 1994 (Survey) and resurveyed in 1996-97.
- Coverage of quality affected habitations with acute toxicity first and the others later.
- Upgradation of source level of safe source habitations which get less than 40 lpcd water to the level of 40 lpcd.
- Coverage of schools and Anganwadis where safe drinking water sources could not be provided under the outlays allocated by the Tenth Finance Commission.

CRITERIA FOR ALLOCATION OF FUNDS UNDER ARWSP

Criteria for allocation of funds to the States under the ARWSP w.e.f. 1.4.99 will be as under:

| Weightage for | Percentage (%) |
|---|---|
| Rural Population | 40 |
| (b) States under DDP, DPAP, HADP & special category hill States in terms of rural areas | 35 |
| (c) NC/PC villages (at 2:1 ratio) | 10 |
| (d) Quality affected villages (40:40:15:5) | 5 |
| (e) Overall water resource availability (un-irrigated over irrigated area) | 10 |
| Total | 100 |

However, the proportion of Union Territories, North Eastern States, and Sikkim is retained at the level of their allocation for 1986-87.

The allocation of Central Assistance under the ARWSP is subject to the matching provision/ expenditure by the States under the State Sector MNP. Releases under the ARWSP would not exceed the provision for Rural Water Supply made by the State Governments under their MNP. The shortfall in actual expenditure under the MNP vis-à-vis expenditure under the ARWSP during the previous year shall be deducted from the last instalment of the ARWSP funds for the current financial year. The allocation of central assistance under the ARWSP for a financial year would be communicated to the States/UTs at the beginning of the financial year.

These are dynamic figures and allocations for the subsequent years will be made based on the data on items on 2.5 (c), (d) and (e) above as on 31st March of the previous year. This can vary subject to changes on (c), (d) and (e) above on an annual basis.

The funding pattern for Sub Mission projects taken up after 1-4-1999 will be in the ratio of 75:25 by the Central and State Governments. No separate funds will be released for this purpose. Up to 20% of the ARWSP funds released to the States can be used for these projects as per the details given in para 5.2.

ARWSP in DDP Areas

A fixed amount (of about 5%) of annual central plan allocation is earmarked for Rural Water Supply in DDP areas in Andhra Pradesh, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka and Rajasthan without the condition of the States providing matching provisions under their MNP. The share of these States will be determined in proportion to the number of NSS habitations without safe source.

OPERATION & MAINTENANCE

Up to 15% of the funds released every year under the ARWSP to the States/UTs may be utilized for operation and maintenance of assets created, subject to (i) ceiling of matching grant provided by the States out of the MNP provision and (ii) the approved norms already circulated to all the States/UTs. The funds earmarked for operation and maintenance of assets is not to be permitted for creation of capital assets.

EARMARKING OF ALLOCATION FOR SCs/STs

The State/UTs are required to earmark and utilize at least 25% of the ARWSP funds for drinking water supply to the SCs and another minimum 10% for the STs. Where the percentage of SC or ST population in a particular State is considerably high warranting earmarking/utilization of more than stipulated provisions, additional funds can be utilised. As a measure of flexibility, States may utilise at least 35% of the ARWSP funds for the benefit of SCs/STs, particularly in those states where SC/ST coverage is less than the coverage of the general population.

Diversion of funds earmarked for the SC/ST Sector to other sectors is not permitted. In cases wherein the States have achieved substantial coverage of SC/ST habitations and, do not have sufficient SC/ST population left out so as to utilise 35% of the ARWSP and the MNP allocations, such States may be allowed by the Rajiv Gandhi National Drinking Water Mission, to incur lower level of expenditure on the coverage of SC/ST habitations, on a case to case basis, in consultation with the Ministry of Social Justice and Empowerment and the National Commission for SC/ST. In such cases, States are required to submit separate proposals giving detailed justification for availing of such relaxation.

The State Governments may list out the SC/ST habitations separately and their coverage may be monitored as a distinct component of the programme.

INVOLVEMENT OF WOMEN

Since women are the principal beneficiaries of this programme, it is of crucial importance that women are involved at all the stages of Rural Water Supply Schemes, particularly while making decisions on the location of the standpost/spot sources in the villages/habitations. Information about sources of water should be obtained from women by the surveyors of the schemes. They should also be involved in the following manner:-

a) At least 30% of handpump mistries under NHRD, TRYSEM and other training schemes, should be women of the local areas/habitations as they can take better care of the operation and maintenance of the handpump schemes than others.

b) There should be women caretakers for handpumps in the habitations.

c) Certificate about satisfactory completion of the schemes may be obtained from women groups in the habitations.

d) Prominent women from the habitation should be represented on the village level water monitoring committees.

Experience has shown that where women are involved in such consultation and in the maintenance of the spot sources, the performance of the water supply systems has been effective. This aspect should be kept in view and ensured by the implementing agencies at the time of formulation, implementation and maintenance of the schemes. Each scheme/project for Rural Water Supply should mention the extent of the involvement of women.

ANNUAL ACTION PLAN

The main objectives of the Annual Action Plan are to provide a definite direction to the programme, and also to ensure monthly and quarterly monitoring of physical and financial progress during the course of the financial year vis-à-vis (i) the target as included in the Action Plan and (ii) the priorities mentioned in para 2.4.

The States/UTs shall prepare Annual Action Plans six months before the commencement of the financial year on the basis of the shelf of schemes, the likely size of the allocation under State Sector MNP, ARWSP as well as likely carry over funds, if any, and submit them to the RGNDWM, by the beginning of October of the year for use at the Annual Plan discussions.

While preparing the Annual Action Plans, completion of the incomplete works shall be given priority over taking up of new works. It should be ensured that the works taken up are completed as per schedule and that there should not be any delay in execution which would result in cost escalation, non-utilisation of assets created, etc.

As soon as final outlay is decided, the Annual Action Plans prepared earlier may be reviewed and finalized. It should be forwarded to the Central Govt. latest by the 30th April of the financial year to which they pertain. The Action Plans should indicate the following aspects also:-

Target of coverage of NC/PC habitations with their names, block, district, etc with reference of serial number from the appropriate survey list,

Whether the habitations will be covered fully or partially, If partially, the extent of such partial coverage in terms of either additional segment of population to be benefited or the number of sources to be added to the sources existing at the end of the previous financial year

Steps taken by the implementing agency for functioning in a mission-mode,

In house plan for HRD and how these have bearing on the projects

The activities to be taken up under sub-missions, magnitude of the problem, steps to tackle it, the organizational structure for handling the sub-missions, details of IEC activities,

Population to be benefited indicating separately the SC/ST population; and,

Clean environment around drinking water sources including handpumps, proper O&M and involvement of the Panchayati Raj Institutions.

Dual Water Supply Policy may be adopted for rural habitations facing acute water quality problems. In these habitations even if safe water is provided up to 10 LPCD, which would be sufficient for drinking and cooking purposes, it may be considered as a habitation with a safe source of drinking water. For other activities like washing, ablution etc. water available from the unsafe sources can be utilised without any problem.

The second instalment to cover the balance of the annual allocation will be released on fulfilment of the following conditions:-

Receipt of a specific proposal from the State/UT Govt. in prescribed proforma (Annexure II) with progress reports and returns by the end of December in each year,

Utilization of 60% of the available resources under the ARWSP and the MNP (unutilized opening balance, if any, from the previous years plus funds released as the first instalment),

Receipt of certificate of actual expenditure under the MNP and the ARWSP from the Accountant General Up to the year preceding the previous financial year,

Receipt of utilization certificate (in the prescribed proforma as at Annexure-III) under the MNP and the ARWSP signed by the Chief Engineer and countersigned by the Secretary, for the previous financial year,

Certificate that the unfinished works are given priority for completion,

Certificate that no work started more than three years ago remains incomplete,

Certificate that schemes technically cleared six months ago have been taken up for implementation,

Proposal for release of the second instalment of funds under the ARWSP, complete in all respects as indicated above, should reach the Mission by the 31st December. Such proposals will be entitled for receipt of full allocated amount under the ARWSP. Proposals received after the 31st December will be subjected to progressive cuts as indicated below:

| Month of receipt of proposal for release of second instalment of ARWSP fund | Cut on the total allocated amount of ARWSP fund |
|---|---|
| December | Nil |
| January | 10% |
| February | 20% |
| March | 30% |

(i) The expenditure on O&M should not exceed 15% of the ARWSP and 15% of the MNP funds. Excess expenditure in the previous year, if any, will be deducted at the time of release of the 2nd instalment of funds for the year; and

(j) Any other condition(s) that may be imposed from time to time.

Release of funds for other schemes/projects will also be regulated in two instalments and as per the need-based approach. In other words, funds will be released based on the specific proposals from the State Governments indicating the actual requirement during the remaining part of the year and utilization of prescribed percentage of funds already released.

While releasing the central assistance, the quantum of unutilized funds available with the States/UTs in relation to the total allocation for the financial year will be kept in view. From 1.4.99, a carry over of funds, to the extent of 20% of the total allocation for the year will only be allowed. The maximum carryover of funds on 1.4.99 (from 1998-99 to 1999-2000) permissible is 20% of the total allocation. However, from 1.4.2000, the carry over of funds, only to the extent of 15% of the total allocation for the year will be allowed. Final instalments for the year will be reduced by the amount the carry over funds exceed this limit.

The States/UTs shall release the entire amount of central assistance received along with the matching MNP share to the executing agency/agencies without any delay and in any case not later than 15 days after its receipt.

In the States where the programmes are implemented through Statutory Bodies like Boards, Nigam and Authority etc, central assistance will be released direct to such Bodies and not through the States. In such cases, expenditure incurred under the ARWSP should confirm submitting the utilization of Central funds should be subjected to audit either by the Accountant General of the State concerned or by Chartered Accountants. The expenditure incurred under the ARWSP should be confirmed by submitting the certificate of actual expenditure from Accountant General or Chartered Accountant which shall be acceptable. The Audit of Central funds is mandatory from the financial year 1999-2000 onwards. In respect of expenditure incurred under the Minimum Needs Programme the statutory audit by the Accountant General concerned Up to the year preceding the previous financial year is necessary and hence the Certificate of expenditure incurred from the AG clearly indicating the audited expenditure figures will have to be necessarily submitted

Copies of orders for release of funds by the State Governments both under the ARWSP and the MNP should be invariably endorsed to the Central Govt. to ensure funds are released on time.

Vigilance and Monitoring Committee at State, District and Village level may be set up as indicated in the Ministry of Rural Areas & Employment letter No.V-24011/27/95-RE-III dated 16-10-95 and regular meetings of the same held. This would also be a pre-condition for release of funds henceforth.

Amount released under the ARWSP cannot be utilized/adjusted against any cost escalation of schemes or excess expenditure over the approved cost of schemes in the previous years.

An official of the Mission should be invited to the meeting of the Scheme Clearance Committee of the State.

The unutilized fund under the ARWSP, due to non drawl / non utilization of the allocated amount by any state government will be redistributed to the better performing states, towards the end of the financial year, as per the allocation criteria.

# Annexure 2: Select Bibliography


1. Comprehensive guidelines for implementation of ARWSP
2. RWSP Online Yearly Status Report, Department of Drinking Water Supply, Ministry of Rural Development
3. Proposal for Annual Plan 2009-10, Public Health Engineering Department, Government of Meghalaya
4. Bharat Nirman: Rural Drinking Water, Department of Drinking Water Supply, Ministry of Rural Development
5. Strategy paper: Bharat Nirman

# Annexure 3: Checklist for Field Visits

**STATE/ DISTRICTS**

**Overall**

1) Types of schemes under implementation:
   a) Piped water supply schemes: (i) Gravity feed schemes (spring, stream); (ii) River pumping scheme; (iii) Deep tube well pumping scheme
   b) Spot source schemes: (i) Hand pump; (ii) Well; (iii) Spring tapped chamber (STC).

**Institutional**

2) State level organisation structure for ARWSP.
3) Reporting arrangements.
4) Vigilance and monitoring committees at state, district, village. Minutes of meetings.
5) Scheme clearance committee. Member of mission to be part of this (may be temporary).

**Planning and monitoring**

6) Annual action plans prepared, available (for State).
7) Planning mechanism at district/ block. Details of the planning process. To cover:
   a) Steps taken for functioning in mission mode; HRD plan; Clarity of objectives and activities; delegation; org structure (state, district, block); IEC activities.
   b) Duration of schemes; size of allocation under MNP, ARWSP; and likely carry forward of funds.
   c) Priority to incomplete works, over new.
   d) Target of coverage of NC/ PC habitations. Planned coverage (FC/PC). If PC, then extent of coverage: either additional population, or number of sources to be added.
   e) Clean environment around drinking water source, proper O&M, involvement of PRI.
8) Timing of preparation of AAP (should be 6 months prior to financial year). Plan reviewed/ finalised based on final outlay, and submitted to GOI by April 30.
9) Planning for:
   a) Selection of habitations under ARWSP.
   b) Selection of types of schemes.
   c) Dual water supply (at least 10 l of safe water, and rest for other purposes). (for rural habitations facing acute water quality problems). Steps being taken for addressing this.
   d) O&M. At what level (District/ sub district). Process. Role of PRIs.
   e) Training of user/ community.
   f) Sustainability of scheme/ source.
10) Monitoring mechanisms at state/ districts
   a) State level monitoring committee. Composition, functions.
   b) Presence of district level mission committee for overseeing the rural water supply schemes. Composition, frequency of meetings, minutes of meetings (last 3 years).

11) Awareness/ IEC activities planned.

**Implementation**

12) Implementing agency/ department. One or more departments involved in implementation.

13) Involvement of PRI (selection of location of stand post/ other spot sources; O&M; fixation of water tariff, etc.)

14) Name of implementing agency for each scheme.

15) In case implementation through DRDA, ensuring of close coordination between PHED and DRDA; this should not lead to duplication of activities and stoppage of funds to state MNP program.

16) Coverage under ARWSP

| Year | FC | PC | NC | Slipped back (since 2003 IHS) | Quality affected |
|---|---|---|---|---|---|
| 2006-07 | | | | | |
| 2007-08 | | | | | |
| 2008-09 | | | | | |

17) At least 30% hand pump mistries to be trained under various GOI schemes should be women of local areas.

18) There should be women caretakers for hand pumps.

19) Process for awarding of contracts. Level of contract awarded at state/ district levels.

20) Major constraints faced by district, suggestions for improvement.

**Finance**

21) Allocation under ARWSP should match proposed expenditure under state sector MNP.

22) Allocation/ release and expenditure at state/ district:

(Rs lakhs)

| **Heads** | **08-09** | **07-08** | **06-07** |
|---|---|---|---|
| Allocation | | | |
| Releases | | | |
| Expenditure | | | |

23) At least 15% funds to be earmarked for O&M of assets created. These funds not to be used for creation of new assets. Fund utilisation for O&M (Breakup and percentage)

24) Second instalment claimed in last 3 years. If not, reasons for not getting 2$^{nd}$ instalment. Remedial measures undertaken.

**VILLAGE**

25) Demography of village.

**Community**

26) Sources of water in the village: during summer, rainy, winter seasons.

27) Year of establishment of scheme.

28) Status of repair and maintenance: mistry/ operator available, down time of schemes.

29) Procedure followed for selection of venue. Involvement of community/ PRI.

30) Community participation mechanism, users/ monitoring committee, membership, functions, frequency of meeting.

31) Consultation with women for selection of location of water sources. Extent of involvement of women in various functions of the scheme.

32) Prominent women represented in village water monitoring committees.

33) User charges if any.

34) Grievance redressal mechanism.

35) Water source recharge mechanisms being implemented.

36) Quality issues:

    a) Total number of months water is availability.

    b) Duration of supply every day (hrs). No. Of times of water supply.

    c) Quantity of water available for each household/ day.

    d) Are there separate sources for drinking water and for general use. Is drinking water purchased. If yes at what cost.

    e) Distance of water source from centre of cluster.

    f) Number of public points/ domestic points.

    g) No. (%) of households using the facility.

    h) Treatment process if any.

    i) Existence of non functional/ partially functional schemes. Number of such schemes, Duration since non functioning, Reasons, Any action taken.

    j) Down time of water sources. Level of satisfaction with O&M.

37) Relevant case studies, with pictures, etc.

**Jr Engineer/ PHED Officer**

38) Sources of water in the village: during summer, rainy, winter seasons.

39) Water storage type (underground, overhead, at ground), capacity of storage.

40) Year of establishment of scheme. Name of agency which built the scheme, operating the scheme.

41) Status of repair and maintenance: Mistry/ operator available, down time of schemes.

42) Procedure followed for selection of venue.

43) Sustainability issues: Depletion of GW, population expansion/ creation of new habitation, ageing of systems, others.

44) Measures taken for sustainability: Rain water harvesting, Recharge pits, check dams, percolation tanks, etc.

45) Quality:

    a) Water type- saline, iron affected, bacterial effected, not effected, any other type.

46) Capital cost of the scheme.

47) Recurring cost:

    a) Establishment charges.

b) Electric bills
c) Bleaching powder
d) Oil and lubricants
e) Repair charges
f) Any other

48) Who pays O&M costs.

49) Number of employees in the scheme (full time, part time)

**Monitoring**

50) Monitoring mechanisms for schemes.

51) Certificate of satisfactory completion of schemes to be obtained from women group.

# Annexure 4: Factsheets of Visited ARWSP Schemes

## East Khasi Hills

| Details of Mawsmai Combine Water supply Scheme | | |
|---|---|---|
| **1** | Name of Scheme | Mawsmai combined wss |
| **2** | No of Habitation covered | 3 |
| **3** | Ultimate Population | 587 (in 2006), 822 (ultimate population) |
| **4** | Type of scheme | Gravity fed |
| **5** | Name of source | Wahmawria, Kyndongriat |
| **6** | Type of source | Surface water |
| **7** | Sanctioned Amount of the scheme (Rs lakhs) | 37.39 |
| **8** | year of Sanction | 2005 |
| **9** | year of completion | 2008 |
| **10** | Total expenditure | 37.25 |
| **11** | Type of treatment | Filtaration and storage |
| **12** | Capacity of Sedimentation tank | NA |
| **13** | Capacity of Slow Sand Filter bed (sq m) | 18.6 |
| **14** | Clear water Reservoir capacity (l) | 14580 |
| **15** | Size of clear water reservoir (m) | 2.7*2.7*2 |
| **16** | Size (diameter) of GI pipe gravity main (mm) | 80 mm reduced to 65 to the filter |
| **17** | Length of Gravity main (km) | 3 |
| **18** | Method of distribution | 22 |
| **19** | Status | Fully functional |
| **20** | Number of storage tanks | 1 main tank & 4 zonal tank |

| Details of Mawkawir Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Mawkawir WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 340 (in 2001), 476 (ultimate population) |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Dainthlen |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 22.07 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 21.99 |
| 11 | Type of treatment | Filtration and storage |
| 12 | Capacity of Sedimentation tank | NA |
| 13 | Capacity of Slow Sand Filter bed (sq m) | 8.44 |
| 14 | Clear water Reservoir capacity (l) | 8000 |
| 15 | Size of clear water reservoir (m) | 2*2*2 |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 40 |
| 17 | Length of Gravity main (km) | 6.5 |
| 18 | Method of distribution | 8 community tap |
| 19 | Status | Fully functional |

| | | |
|---|---|---|
| 20 | Number of storage tanks | 1 main (2 zonal) |

| Details of Mawkawir Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Mawkawir WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 340 (in 2001), 476 (ultimate population) |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Dainthlen |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 22.07 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 21.99 |
| 11 | Type of treatment | Filtration and storage |
| 12 | Capacity of Sedimentation tank | NA |
| 13 | Capacity of Slow Sand Filter bed (sq m) | 8.44 |
| 14 | Clear water Reservoir capacity (l) | 8000 |
| 15 | Size of clear water reservoir (m) | 2*2*2 |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 40 |
| 17 | Length of Gravity main (km) | 6.5 |
| 18 | Method of distribution | 8 community tap |
| 19 | Status | Fully functional |
| 20 | Number of storage tanks | 1 main (2 zonal) |

| Details of Pyrnai combine Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | : Pyrnai combine Water Supply Scheme |
| 2 | No of Habitation covered | 1) Pyrnai |
| | | 2) Saitwait |
| | | 3) Mawbyrnei |
| 3 | Ultimate Population | : 1544 persons (as per 2001 census) |
| 4 | Type of scheme | : Gravity |
| 5 | Name of source | : Wah Umphru |
| 6 | Type of source | : Stream |
| 7 | Sanctioned Amount of the scheme | : Rs 29.82 (Lakhs) |
| 8 | year of Sanction/completion | : 2006/2009 |
| 9 | Total expenditure | : Rs 30.55 (Lakhs) |
| 10 | Type of treatment | : Conventional |
| 11 | Capacity of Sedimentation tank | : Nil |
| 12 | Capacity of Slow Sand Filter | : 69.43 $M^3$ |
| 13 | Capacity of Clear water Reservoir | : 24.30 $M^3$ |
| 14 | Capacity of Zonal Clear water Reservoir at Mawbyrnei | : 1.73 $M^3$ |
| 15 | Size of Gravity main | : 80 mm Dia |
| 16 | Length of Gravity main | : 3600 M |
| 17 | Method of distribution | : Through 14 Nos of street taps |
| 18 | Status | : Fully covered and functioning |

# Jaintia Hills

| Details of skhentalang Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Skhentalang WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 998 |
| 4 | Type of scheme | Gravity Feed |
| 5 | Name of source | Amsumthew stream |
| 6 | Type of source | surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 28.18 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 28 |
| 11 | Type of treatment | slow sand filter and sedimentation |
| 12 | Capacity of Sedimentation tank | 4*1*2.1 cum |
| 13 | Capacity of Slow Sand Filter bed (sq m) | 4.5*3.5*2.7 cum |
| 14 | Clear water Reservoir capacity (l) | 14640 ltr |
| 15 | Size of clear water reservoir (m) | 3.15*3.15*1.5 |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 50 mm GI Pipe till sedimentation tank |
| 17 | Length of Gravity main (km) | 5400 rm |
| 18 | Method of distribution | 10 platforms |
| 19 | Status | Functional |
| 20 | Number of storage tanks | 1 |

| Details of Mawhlang Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Mawhlang Water supply Scheme |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 415 |
| 4 | Type of scheme | dugwell (5 in number) |
| 5 | Name of source | NA |
| 6 | Type of source | Underground water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 1.5 |
| 8 | year of Sanction | 2007 |
| 9 | year of completion | 2008 |
| 10 | Status | Functional |

| Details of Umtrya Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Umtyra WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 200 (ultimate population) |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Khlieh Umtyra |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 29.67 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 30.88 |
| 11 | Type of treatment | Sedimentation tank, Filtration and storage |
| 12 | Capacity of Sedimentation tank (cubic metres) | 5.4*1.35*2 |

| | | |
|---|---|---|
| 13 | Capacity of Slow Sand Filter bed (sq m) | 3.90*2.90 |
| 14 | Clear water Reservoir capacity (sq m) | |
| 15 | Size of clear water reservoir (m) | 3.65*3.65*2.20 |
| | Zonal reservoir | 2.75*2.75*2.20 |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 40 |
| 17 | Length of Gravity main (km) | 3.3 |
| 18 | Method of distribution | 6 community tap |
| 19 | Status | Fully functional |
| 20 | Number of storage tanks | 1+1 (zonal reservoir) |

| Details of Moopala Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Moopala WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 840 (ultimate population) |
| 4 | Type of scheme | Deep tube well (pumping scheme) |
| 5 | Depth of tube well | 105 m |
| 6 | capacity of pump | 7.5 hp |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 31.57 |
| 8 | year of Sanction | 2007 |
| 9 | year of completion | 2009 |
| 10 | Total expenditure | 22.17 |
| 11 | Type of treatment | NA |
| | Number of storage tanks | 2 |
| 12 | Clear water Reservoir capacity (sq m) | 3.2*3.2*2.2 |
| 13 | Method of distribution | 10 community tap |
| 14 | Status | Fully functional |

## South Garo Hills

| Details of Allagiri Songital Combine Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Allagiri Songital Combine Water supply Scheme |
| 2 | No of Habitation covered | 32 |
| 3 | Ultimate Population | 6119 |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Kalbang Stream |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 279.85 |
| 8 | year of Sanction | 2005 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 292.35 |
| 11 | Type of treatment | Sedimentation, Filtration and storage |
| 12 | Capacity of Sedimentation tank | 59.488 |
| 13 | Capacity of Slow Sand Filter bed (sq m) | 282.5125 |
| 14 | Clear water Reservoir capacity (l) | 118.715 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 80 mm reduced to 65 to the filter |
| 16 | Length of Gravity main (km) | 5.3 |
| 17 | Method of distribution | Through Public Stand Posts |

| | | |
|---|---|---|
| 18 | Status | Fully functional |
| 19 | Number of storage tanks | 1 main tank & 5 zonal reservoirs |

| Details of Romba Abagiri Combine Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Romba Abagiri Combine Water supply Scheme |
| 2 | No of Habitation covered | 22 |
| 3 | Ultimate Population | 1762 |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Gambil Stream |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 73.71 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 77.91 |
| 11 | Type of treatment | Sedimentation, slow sand filtration and storage |
| 12 | Capacity of Sedimentation tank ( cu m) | 24.276 |
| 13 | Capacity of Slow Sand Filter bed ( cu m) | 72.9 |
| 14 | Clear water Reservoir capacity (l) | 37.5 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 80 mm dia |
| 16 | Length of Gravity main (km) | 4.2 |
| 17 | Method of distribution | Through Public Stand Post |
| 18 | Status | Fully Functional |
| 19 | Number of storage tanks | 2 |

| Details of Daji Abagiri Combine Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Daji Abagiri Combine Water supply Scheme |
| 2 | No of Habitation covered | 9 |
| 3 | Ultimate Population | 1634 |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Navajora Stream |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 49.63 |
| 8 | year of Sanction | 2005 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 114.74 |
| 11 | Type of treatment | Sedimentation, slow sand filtration and storage |
| 12 | Capacity of Sedimentation tank ( cu m) | 18.7 |
| 13 | Capacity of Slow Sand Filter bed ( cu m) | 75.625 |
| 14 | Clear water Reservoir capacity (l) | 36.45 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 65 mm GI pipe |
| 16 | Length of Gravity main (km) | 3.6 |
| 17 | Method of distribution | Through Public Stand Post |
| 18 | Status | Fully Functional |
| 19 | Number of storage tanks | 2 |

## East Garo Hills

| Details of Horinkata Bakra Garo Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Horinkata Bakra Garo WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 220 (present), 286 (ultimate population) |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Sonua |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 11.16 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 11.16 |
| 11 | Type of treatment | Filtration and storage |
| 12 | Capacity of Sedimentation tank (L) | 9000 |
| 13 | Capacity of Slow Sand Filter bed (L) | 12500 |
| 14 | Clear water Reservoir capacity (L) | 4500 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 50 mm |
| | Length of Gravity main (km) | 1.05 |
| 16 | Length of Distribution system (km) | 2.5 |
| 17 | Size of distribution system (mm) | 40, 25, 15 |
| 18 | Method of distribution | 10 community tap |
| 19 | Status | Fully functional |
| 20 | Number of storage tanks | 1 |

| Details of Upper manikganj LP school | | |
|---|---|---|
| 1 | Name of Scheme | Upper manikganj LP school WSS |
| 2 | No of Habitation covered | 1 school |
| 3 | Ultimate Population | 50 students |
| 4 | Type of scheme | Ring well with chain pulley arrangement |
| 5 | Type of source | Underground |
| 6 | Sanctioned Amount of the scheme (Rs lakhs) | 0.62 |
| 7 | year of Sanction | 2009 |
| 8 | year of completion | Physical completion in 2009 |
| 9 | Total expenditure | Financial completion pending |
| 10 | Method of distribution | Bucket, pulley and rope provided by PHED |
| 11 | Status | Fully functional |

| Details of Horinkata LP School | | |
|---|---|---|
| 1 | Name of Scheme | Horinkata LP School |
| 2 | No of Habitation covered | 1 school |
| 3 | Ultimate Population | 50 students |
| 4 | Type of scheme | Ring well with chain pulley arrangement |
| 5 | Type of source | Underground |
| 6 | Sanctioned Amount of the scheme (Rs lakhs) | 0.62 |
| 7 | year of Sanction | 2009 |
| 8 | year of completion | Physical completion in 2009 |
| 9 | Total expenditure | Financial completion pending |

| | | |
|---|---|---|
| 10 | Method of distribution | Bucket, pulley and rope provided by PHED |
| 11 | Status | Fully functional |

| Details of Rongongre Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Rongongre Water supply Scheme |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 200 |
| 4 | Type of scheme | Ring well |
| 5 | Name of source | |
| 6 | Type of source | Ground water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 0.95 |
| 8 | year of Sanction | 2008 |
| 9 | year of completion | 2009 |
| 10 | Total expenditure | 0.96 |
| 11 | Status | Fully functional |
| 12 | Number of storage tanks | 1 |

| Details of Kakwa Bonegre Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Kakwa Bonegre Water supply Scheme |
| 2 | No of Habitation covered | 2 |
| 3 | Ultimate Population | 862 |
| 4 | Type of scheme | Gravity Fed |
| 5 | Name of source | Rongbok Scheme |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 35.26 |
| 8 | year of Sanction | 2007 |
| 9 | Total expenditure | 31.14 |
| 10 | Type of treatment | Sedimentation, Filtration and storage |
| 11 | Capacity of Sedimentation tank ( lt) | 8800 |
| 12 | Capacity of Slow Sand Filter bed (lt) | 43740 |
| 13 | Clear water Reservoir capacity (l) | 16200 |
| 14 | Size of clear water reservoir (m) | 16.2 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 650 mm dia GI pipes |
| 16 | Length of Gravity main (km) | 0.5 |
| 17 | Method of distribution | by public stand post |
| 18 | Status | Fully functional |
| 19 | Number of storage tanks | 1 |

| Details of Dimbil Apal Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Dimbil Apal Water supply Scheme |
| 2 | No of Habitation covered | 3 |
| 3 | Ultimate Population | 806 |
| 4 | Type of scheme | Gravity Fed |
| 5 | Name of source | Rongsan stream |

| | | |
|---|---|---|
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 44.59 |
| 8 | year of Sanction | 2006 |
| 9 | Total expenditure | 44.61 |
| 10 | Type of treatment | Sedimentation, Filtration and storage |
| 11 | Capacity of Sedimentation tank ( lt) | 11520 |
| 12 | Capacity of Slow Sand Filter bed (lt) | 52900 |
| 13 | Clear water Reservoir capacity (l) | 20808 |
| 14 | Size of clear water reservoir (m) | 26.928 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 65 mm dia GI pipes |
| 16 | Length of Gravity main (km) | 0.5 |
| 17 | Method of distribution | By public stand post |
| 18 | Status | Fully Functional |
| 19 | Number of storage tanks | 1 |

| Details of Gongre Songgital Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Gonggre Songgital Water supply Scheme |
| 2 | No of Habitation covered | 2 |
| 3 | Ultimate Population | 640 |
| 4 | Type of scheme | Gravity Fed |
| 5 | Name of source | Naci stream |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 26.12 |
| 8 | year of Sanction | 2007 |
| 9 | Total expenditure | 26.11 |
| 10 | Type of treatment | Sedimentation, Filtration and storage |
| 11 | Capacity of Sedimentation tank ( lt) | 7128 |
| 12 | Capacity of Slow Sand Filter bed (lt) | 30625 |
| 13 | Clear water Reservoir capacity (l) | 11250 |
| 14 | Size of clear water reservoir (m) | 11.25 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 65 mm dia GI Pipe |
| 16 | Length of Gravity main (km) | 2.3 |
| 17 | Method of distribution | By public stand post |
| 18 | Status | Fully Functional |
| 19 | Number of storage tanks | 1 |

| Details of Simsangiri Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Simsanggiri Water supply Scheme |
| 2 | No of Habitation covered | 29 |
| 3 | Ultimate Population | 14976 |
| 4 | Type of scheme | Gravity cum pumping |
| 5 | Name of source | Chibok Stream |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 1.99 |

| | | |
|---|---|---|
| 8 | year of Sanction | 1997 |
| 9 | year of completion | 2004 |
| 10 | Total expenditure | 2.12 |
| 11 | Type of treatment | Sedimentation, Filtration and storage |
| 12 | Capacity of Sedimentation tank ( lt) | 201586 |
| 13 | Capacity of Slow Sand Filter bed (lt) | 126000 |
| 14 | Clear water Reservoir capacity (l) | 608800 |
| 15 | Size of clear water reservoir (m) | 13.75 mm dia & 4.10 m depth |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 200 mm dia MS pipes |
| 17 | Length of Gravity main (km) | 13 |
| 18 | Method of distribution | By public stand post |
| 19 | Status | Fully Functional |
| 20 | Number of storage tanks | 4 |

## West Garo Hills

| Details of Malmua supply Scheme | | |
|---|---|---|
| **1** | Name of Scheme | Malmua WSS |
| **2** | No of Habitation covered | 2 nos. |
| **3** | Ultimate Population | 612 (in 2001), 892 (ultimate population) |
| | | Malmua = 82 pop. |
| | | Tarapara = 530 pop. |
| **4** | Type of scheme | Gravity fed |
| **5** | Name of source | "Dhnivita" |
| **6** | Type of source | Surface water |
| **7** | Sanctioned Amount of the scheme (Rs lakhs) | 42.02 lakhs |
| **8** | year of Sanction | 2008 |
| **9** | year of completion | 2009 |
| **10** | Total expenditure | 23.86 lakhs |
| **11** | Type of treatment | Sedimentation, Slow sand Filtration and storage |
| **12** | Capacity of Sedimentation tank | 9.60 $m^3$ |
| **13** | Capacity of Slow Sand Filter bed (cu m) | 47.01 $m^3$ |
| **14** | Clear water Reservoir capacity (l) | 23.32 $m^3$ |
| **15** | Size of clear water reservoir (m) | (3.60 x 3.60 x 1.80) $m^3$ |
| **16** | Size (diameter) of GI pipe gravity main (mm) | 65mm dia GI pipe to the filter |
| **17** | Length of Gravity main (km) | 1.82 km |
| **18** | Method of distribution | 12 public taps. |
| **19** | Status | Fully functional |
| **20** | Number of storage tanks | 1 no. |

| **Details of Kurnaghati combined Water supply Scheme** | | |
|---|---|---|
| **1** | Name of Scheme | Kurnarghati combined WSS |
| **2** | No. of Habitation covered | 3 nos. (Kurnarghati 106 pop, Nandichar-I 981 pop, Changalipara 60 pop.) |
| **3** | Ultimate Population | 4109 (in 2000), 5342 (ultimate population in 2015) |
| **4** | Type of scheme | DTW Pumping |
| **5** | Name of source | Under ground DTW |
| **6** | Type of source | underground water |

| | | |
|---|---|---|
| **7** | Sanctioned Amount of the scheme (Rs lakhs) | 123.70 lakhs |
| **8** | year of Sanction | 2001 |
| **9** | year of completion | 2006 |
| **10** | Total expenditure | 124.00 lakhs |
| **11** | Type of treatment | Iron removal Plant |
| **12** | Capacity of Sedimentation tank | NA |
| **13** | Capacity of Slow Sand Filter bed (sq m) | NA |
| **14** | Iron removal Plant capacity (l) | 20.00 $m^3$/hr |
| **15** | Size of Overhead reservoir (m) | 84840.00 litres of 14m height |
| **16** | Size (diameter) of GI pipe Pumping main (mm) | 100 mm raw & clear water |
| **17** | Length of pumping main (km) | 0.035 km. |
| **18** | Method of distribution | 40 community tap |
| **19** | Status | Fully functional |
| **20** | Number of storage tanks | 1 no. |

| **Details of Balupara, Mongalgre and Waribokgre WSS (*RW)** | | |
|---|---|---|
| **1** | Name of Scheme | Balupara, Mongalgre and Waribokgre WSS (*RW) |
| **2** | No of Habitation covered | 3(three) |
| **3** | Ultimate Population | 784 |
| **4** | Type of scheme | Ring Well |
| **5** | Type of source | ground water |
| **6** | Sanctioned Amount of the scheme (Rs lakhs) | Rs. 4,76,450.00 |
| **7** | year of Sanction | 2008 |
| **8** | year of completion | 2008 |
| **9** | Total expenditure | Rs. 4,76,450.00 |
| **10** | Status | Fully functional |

| **Details of Dollonggre Apal WSS** | | |
|---|---|---|
| **1** | Name of Scheme | Dollonggre Apal WSS |
| **2** | No of Habitation covered | 1 (one) |
| **3** | Ultimate Population | 218 |
| **4** | Type of scheme | Gravity fed |
| **5** | Name of source | "Thenchi" |
| **6** | Type of source | Surface water |
| **7** | Sanctioned Amount of the scheme (Rs lakhs) | Rs. 10,22,100.00 |
| **8** | year of Sanction | 2007 |
| **9** | year of completion | 2008 |
| **10** | Total expenditure | Rs. 10.221 (L) |
| **11** | Type of treatment | Sedimentation, Slow sand Filtration and storage |
| **12** | Capacity of Sedimentation tank | 7.80m3 |
| **13** | Capacity of Slow Sand Filter bed (cu m) | 10.12m3 |
| **14** | Clear water Reservoir capacity (l) | 3.40m3 |
| **15** | Size (diameter) of GI pipe gravity main (mm) | 40mm dia |
| **16** | Length of Gravity main (km) | 2.80 m |
| **17** | Method of distribution | 8 |
| **18** | Status | Fully functional |
| **19** | Number of storage tanks | 1 no. |

| Details of Chandigre WSS (*RW) | | |
|---|---|---|
| 1 | Name of Scheme | Chandigre WSS (STC) |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 129 |
| 4 | Type of scheme | STC |
| 5 | Name of source | Chiring |
| 6 | Type of source | ground water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | Rs. 64,100.00 |
| 8 | year of Sanction | 2008 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | Rs. 64,100.00 |
| 11 | Status | Fully functional |

## Ribhoi District

| Details of Lumsohliya Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Lumsohliya WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 186 (in 2006), 260 (ultimate population) |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Ummawlareng |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 11.17 |
| 8 | year of Sanction | 2007 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 10.9 |
| 11 | Type of treatment | Filtration and storage |
| 12 | Capacity of Sedimentation tank | NA |
| 13 | Capacity of Slow Sand Filter bed (sq m) | 4.58 |
| 14 | Clear water Reservoir capacity (l) | 3850 |
| 15 | Size of clear water reservoir (m) | 1.55*1.55*1.6 |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 40 (reduced to 25 mm at tank) |
| 17 | Length of Gravity main (km) | 3.1 |
| 18 | Method of distribution | 6 community tap |
| 19 | Status | Fully functional |
| 20 | Number of storage tanks | 1 |

| Details of Kroh Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Kroh WSS |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 306 (in 2006), 429 (ultimate population) |
| 4 | Type of scheme | Gravity fed |
| 5 | Name of source | Umkhawkhling |
| 6 | Type of source | Surface water |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 18.8 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2007 |

| | | |
|---|---|---|
| 10 | Total expenditure | |
| 11 | Type of treatment | Filtration and storage |
| 12 | Capacity of Sedimentation tank | NA |
| 13 | Capacity of Slow Sand Filter bed (cu m) | 18.9 |
| 14 | Clear water Reservoir capacity (l) | 6480 |
| 15 | Size of clear water reservoir (m) | 1.8*1.8*2 |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 40 to the filter |
| 17 | Length of Gravity main (km) | 4.5 |
| 18 | Method of distribution | 7 (sanctioned) + 2 (extra) |
| 19 | Status | Fully functional |
| 20 | Number of storage tanks | 2 (1 extra) |

| Details of Jronglum Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Jronglum WSS |
| 2 | No of Habitation covered | 1 (one) No. |
| 3 | Ultimate Population | 1050 Peoples |
| 4 | Type of scheme | Gravity |
| 5 | Name of source | Umpynnohrait |
| 6 | Type of source | Surface |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | Rs. 15,49,500.00 |
| 8 | year of Sanction | 29/01/2001 |
| 9 | year of completion | 2003-'04 |
| 10 | Total expenditure | Rs. 16,02,900.00 |
| 11 | Type of treatment | Conventional Type |
| 12 | Capacity of Sedimentation tank | (4.00x1.00x1.45)m |
| 13 | Capacity of Slow Sand Filter bed (sq m) | 40,000.00 Litres |
| 14 | Clear water Reservoir capacity (l) | 14,580 litres |
| 15 | Size of clear water reservoir (m) | [2.70 x 2.70 x2.00] M |
| 16 | Size (diameter) of GI pipe gravity main (mm) | 50mm dia |
| 17 | Length of Gravity main (km) | 5170.00Rm |
| 18 | Method of distribution | By dead end |
| 19 | Status | Fully Functioning |
| 20 | Number of storage tanks | 2 (two) Nos. |

| Details of Nongrimumkyrpiang supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Nongrim Umkyrpiang WSS |
| 2 | No of Habitation covered | 3 (three) Nos. |
| 3 | Ultimate Population | 283 People |
| 4 | Type of scheme | Piped Gravity - Scheme |
| 5 | Name of source | "Wah - Umsohbala" Stream |
| 6 | Type of source | Surface |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | Rs. 10.811 Lakhs |
| 8 | year of Sanction | 2007 |
| 9 | year of completion | On-going Scheme |
| 10 | Total expenditure | Rs. 7,00,404.00 (Upto March '09) |
| 11 | Type of treatment | Through Slow Sand Filter |
| 12 | Capacity of Sedimentation tank | Nil |
| 13 | Capacity of Slow Sand Filter bed (sq m) | (3.20x1.60x2.50) m |
| 14 | Clear water Reservoir capacity (l) | 4913.00 Litres |
| 15 | Size of clear water reservoir (m) | (1.70 x 1.70 x 1.70)m |

| | | |
|---|---|---|
| 16 | Size (diameter) of GI pipe gravity main (mm) | 40mm dia |
| 17 | Length of Gravity main (km) | 600.00 Rm |
| 18 | Method of distribution | Through Public Platforms (8 nos.) |
| 19 | Status | Fully Functioning |
| 20 | Number of storage tanks (Zonal Reservoir) | 2 Nos. |

## West Khasi District

| Details of Wahlakhaw Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Wahlakhaw Water supply Scheme |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 1135 |
| 4 | Type of scheme | Pumping |
| 5 | Name of source | (i) Mawkynniang Stream<br>(ii) Sangjer Stream |
| 6 | Type of source | Stream Source |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 33.57 |
| 8 | year of Sanction | 2005 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 16.8 ( under central share upto feb 2009)<br>8.75 ( under state share upto feb 2009) |
| 11 | Type of treatment | Sedimentation, Slow sand Filtration,<br>Chlorination and Storage |
| 12 | Capacity of Sedimentation tank ( cu.m) | 15.3 |
| 13 | Capacity of Slow Sand Filter bed (cu m) | 45 |
| 14 | Clear water Reservoir capacity (cu.m) | 18.23 |
| 15 | Size (diameter) of GI pipe gravity main (mm) | 80 mm and 65 mm ( 960 Rm & 860 Rm) |
| 16 | Length of pumping main (km) | 2.5 km of 50 mm dia |
| 17 | Method of distribution | Dead End ( 14 nos platform) |
| 18 | Status | Fully functional |
| 19 | Number of storage tanks | 4 (Nos) |

| Details of Nongbahbynther Water supply Scheme | | |
|---|---|---|
| 1 | Name of Scheme | Nongbahbynther Water supply Scheme |
| 2 | No of Habitation covered | 2 |
| 3 | Ultimate Population | 758 |
| 4 | Type of scheme | Gravity PWS |
| 5 | Name of source | (i) Umkyrwing, (ii) Kroh U Ngoh |
| 6 | Type of source | Stream Source |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 36.37 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2008 |
| 10 | Total expenditure | 32.73 ( Upto Feb 2009) |
| 11 | Type of treatment | Slow sand Filtration,Chlorination and Storage |
| 12 | Capacity of Sedimentation tank ( cu.m) | NA |
| 13 | Capacity of Slow Sand Filter bed (cu m) | 30.625 |
| 14 | Clear water Reservoir capacity (cu.m) | 21.168 |

| | | |
|---|---|---|
| 15 | Size (diameter) of GI pipe gravity main (mm) | 65 mm dia reduced to 40 mm dia (1.3 km) |
| 16 | Length of gravity main (km) | 5 |
| 17 | Method of distribution | Dead End ( 23 nos platform) |
| 18 | Status | Fully functional |
| 19 | Number of storage tanks | 4 (Nos) |
| Details of Wahlakhaw STC | | |
| 1 | Name of Scheme | Wahlakhaw Water supply Scheme |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 819 |
| 4 | Type of scheme | Spring Tapped Chamber |
| 5 | Name of source | (1) Pung Thanblong<br>(2) Pung Lawbah<br>(3) Pung Kohnoh<br>(4) Pung Lawsiej<br>(5) Pung Nohriat |
| 6 | Type of source | Spring Source |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 0.76 |
| 8 | year of Sanction | 2005 |
| 9 | year of completion | 2006 |
| 10 | Total expenditure | 0.72 |
| 11 | Status | Fully functional |
| 12 | Number of storage tanks | |

| | | |
|---|---|---|
| Details of Mawjahksew STC | | |
| 1 | Name of Scheme | Mawjahksew |
| 2 | No of Habitation covered | 1 |
| 3 | Ultimate Population | 259 |
| 4 | Type of scheme | Spring Tapped Chamber (3) |
| 5 | Name of source | Mawjahksew |
| 6 | Type of source | Spring Source |
| 7 | Sanctioned Amount of the scheme (Rs lakhs) | 0.97 |
| 8 | year of Sanction | 2006 |
| 9 | year of completion | 2007 |
| 10 | Total expenditure | 0.97 |
| 11 | Status | Fully functional |
| 12 | Number of storage tanks | |

# ANNEXURE 5: List of persons met

| Sl.No | Contact Person | Designation |
|---|---|---|
| **1** | Mr. Barkos Warjari | Principal Secretary, Planning, Shillong |
| **2** | Mr Ajay Tewari | Director, Programme Implementation & Evaluation, Shillong |
| **3** | Mr. S. Lyngdoh | Dy. Director Programme Implementation & Evaluation, Shillong |
| **4** | Mr. T.G. Abraham | Chief Engineer, PHED, Shillong |
| **5** | Smti I.Hooroo | Additional Chief Engineer, Shillong |
| **6** | Mr. Manbha Allya | Additional Chief Engineer/Director HRD, Shillong |
| **7** | Mr. Maxwell Momin | Supt. Engineer, East Garo Hills |
| **8** | Mr. Talukdar | Supt. Engineer, West Garo Hills |
| **9** | Mr. Tamal Bhattacharya | Supt. Engineer, Monitoring, Shillong |
| **10** | Mr. A. Tandon | Dy. Director, HRD |
| **11** | Mr. Challam | Executive Engineer, PHED, Jowai Division, Jaintia Hills |
| **12** | Mr. C.Kharwanlang | Executive Engineer, Mairang Division, West Khasi Hills |
| **13** | Mr. M.N Tiwari | Executive Engineer, Sohra Division, East Khasi Hills |
| **14** | Mr. D. Devroy | Executive Engineer, Baghmara Division, South Garo Hills |
| **15** | Mr. A. Lyngkhoi | Executive Engineer, Nongpoh Division, Ri-Bhoi District |
| **16** | Ms. Lyndem | Executive Engineer, Investigation Division, East Khasi Hills |
| **17** | Mr. G. Kharmawphlang | Executive Engineer, Hills Division, East Khasi Hills |
| **18** | Mr. Sanjay | Executive Engineer, Ampati Division, West Garo Hills |
| **19** | Mr. Patric Marak | Executive Engineer, Tura Division, West Garo Hills |
| **20** | Mr. M P Gupta | Executive Engineer, Resubelpara Division, |
| **21** | Mr. D D Umdor | SDO, Nongpoh Division, Ri-Bhoi District |
| **22** | Mr. K. Khonglah | SDO, Investigation Division, East Khasi Hills |
| **23** | Mr. Raju P. Marak | SDO, Tura Division, West Garo Hills |
| **24** | Mr. Teilang | SDO, Sohra Division, East Khasi Hills |
| **25** | Mr. Denice Shabong | SDO, Ampati Division, West Garo Hills |
| **26** | Ms. R. Kynjing | SDO, Jowai Division, Jaintia Hills |
| **27** | Mr. Sujeet P Marak | SDO, Ampati Division, West Garo Hills |
| **28** | Mr. Dhar | SDO, Umsning Division, Ri-Bhoi District |
| **29** | Mr. Marak | SDO, Simsangiri Division, West Garo Hills |