

## JOINT ANNUAL REVIEW OF NWSSIP YEAR 2005

### WATER RESOURCES MANAGEMENT

#### 1. Key Issues

There are a considerable number of important issues that eventually needs to be addressed, and are as follows:

##### 1.1 Institutional & Capacity

- The amended water law which is still at the parliament since 2004 is not yet ratified. The amended items includes that which allows to drill upto sixty meters without prior permission
- Enforcement of the water law, and various water regulations, and particularly the decree that relates to regulate the activities and movements of the drilling rigs.
- Lack of sufficient qualified staff, while the available one's are looking to work for private sectors.
- More than 30% of NWRA staff is still under contract basis.
- Smuggling of drilling Rigs and into the country and the un awareness of some local authorities increased the illegal drillings
- Lack of financial incentives for the local staff

##### 1.2 Water resources

- Overexploitation of groundwater has become a critical issue since 1980s, which has resulted the annual decline in groundwater level in most of the critical basins. The natural groundwater flow patterns were seriously changed being replaced by flows in random directions determined by local pumping. Many hand - dug wells had fallen dry because of declining water levels.
- The groundwater quality in some of the basins continues to deteriorate, and the seawater intrusion also continues to take place in most of the coastal aquifers, where it increases more the environment concern.

##### 1.3 Agriculture

- Irrigated area in Yemen is rapidly expanding and mostly depends on groundwater
- Farmers are pumping ground water for irrigation free of charge, and as much as they can, and in addition they get a subsidy on diesel fuel.

## 2- Summary Analysis

### 2.1 Capacity Development and Organisational Strengthening

#### 2.1.1 Organizational strengthening

- Under the decentralization process, NWRA during 2005 has established two new branches , and has now in total 7 branches : Sana'a ,Aden, Taiz, Hadramout, Sada'a, Hudaidah and Dhamar
- Develop and implement of a proper system for, licensing the Drilling Companies, and permits for drilling wells with conditions that the applicants for well permits ( WP ), and licenses for drilling contractors are required to submit a bank guarantee against the violation of the condition set in the permits and licenses, which include installation of water meter, improve irrigation system, and obligation not to exceed the abstraction quantity identified in the plan( Water Resources Management Action Plan).
- Strengthening the legal department within NWRA, and train some selected staff on write-up of citations for violators, and coordination with the attorney General office to grant them the legal power to effect citation.
- Strengthening the existing Training Departement to be able to identify the required short and long term training programme, to analyse and evaluate the trainees
- Establish three new important departments namely: Geophysical, surfacewater and water quality.
- There are many institutional reforms has taken place; apart from that which previously took place; in the consolidation of water resources management functions under one sole authority (NWRA), and later on the creation of MWE, where all water institutions came under the umbrella of the Ministry; is the assignments of staff in various positions, improve the decentralization process, establishment of more branches and coordinating units in several water basins.
- The NWRA information centre was modernised with a new server and other computer equipments, most of the data collected from monitoring network operated by NWRA are stored in the data bank. Other agencies involved in the water monitoring activities forward their data, but not in regular basis to Nwra, they are collected manually by NWRA staffs.
- NWRA's website has been developed and regularly updated, water resources data presentation on the internet has already started. All technical and professional staff are provided with access to Internet
- More preparation for organisation strengthening were conducted during 2005(updating of office and field equipments, procurement of laboratory equipments, transportations, construction of NWRA building in saada etc)

## **2.1 .2 Capacity Development**

- Training was also one of the main issues where more efforts were given. Various courses were conducted in different fields. During 2005 training courses has been conducted for 40 NWRA staff in technical and administrative fields. Training were also provided to the members of water basin committees.
- Assessment study on capacity building for NWRA staff has been conducted during 2005 by an international consultant.

## **2.2 Outcome indicators**

### **2.2.1 Legislation**

- The by Decree declared Protected Groundwater Zones are Sana'a, Ta'iz and Sadah.
- The Prime Minister Resolution No. 277 of 25<sup>th</sup> October 2004 was issued as supporting regulation in order to provide the proper basis for registration of water well drilling activities, organization of the movement of drilling rigs as well as to facilitate the protection of water resources, and to increase an income from licensing activities of the NWRA.

### **2.2.2 Awareness**

- Aware of water crisis has become a serious issue among majority of the population in different levels, and NWRA has become more visible as a body responsible for managing water resources.

## **2.3 Results Indicators**

### **2.3.1 Decentralisation**

- Total number of NWRA branches is 6 at the end of 2005. In 2005 1 new branch was established (Hodeidah). All the branches are totally independent in implementing their work plan based on the strategies framework of NWRA. Based on their working plan/ activities and associated outcome a total required budget is usually transferred.
- In some basins (Sanaa, Saada, Taiz, Tuban/Abyan, Amran) water basin committees and/or water users groups have been established, and were trained how to manage locally the water resources. Three water basin committees were established during 2005 in Sana'a, Taiz, and Sada'a.
- The only Water Resources Management basin plan under implementation is for the Ta'iz area. Preparation activities for plan development for the Sana'a and Sadah basins have been conducted in 2005. In addition, NWRA has prepared the water resources management plan for Hadramout, but the plans needs to be present to the local communities in a series of workshop, and negotiate the plan recommendation with the local stake holder.

### **2.3.2 Studies & monitoring network**

- A set of local and national monitoring networks have been established and routine monitoring observations are carried out in order to control and predict possible changes in groundwater level and quality, including control of seawater intrusion. Up-to the end of 2005 there are 547 monitoring points, groundwater 304, surfacewater 34, meteorological stations 26 (manual + autom.), and rainfall 109 automatic,.
- Up-to-date NWRA has inventoried about 55000 wells (Sanaa, Taiz Saada Hadramout, Radaa, Amran, IBB, Southern part of Tihama, Tuban /Abyan,) during 2005 only about 21000 wells.
- Since enacting of the Water Law and issuing of supporting regulations, the most critical measure being implemented by NWRA in the field of water quality protection is the establishment of water quality protection zones at several public wellfields located in different stressed basins, including Sana'a Basin (Musayk, Hadah, Asser, Western and Eastern wellfields), Taiz-Ibb region (Al-Qaidah, Ibb-South and Jiblah wellfields), Tuban-Abyan region (Bir-Ahmad, Bir-Nasser, Upper Tuban and Upper Abyan wellfields), Wadi Hadhramawt (Seyun and Tarim wellfields) and Tihama (Hudaidah wellfield).
- Implementation of the Rural-Urban water transfer has been started in a pilot area in Taiz ( Dhabab Area).
- Tendering for the Groundwater economic incentive structure has been announced in 2005, 14 companies have purchased the TOR, and four companies have submitted their proposals. NWRA have finalized the technical and financial evaluation of the proposals. Awarding of contract will take place in July 2006.
- Preparation of formalities for the registration of water rights has been completed

### **2.3.3 Enforcement of drilling regulations**

- In 2005, 73 drilling rig contractors have been licensed. The number of unlicensed drilling contractors inventoried at the end of 2005 is 231.
- Number of applications received for Well Permits increased from 83 during 2003 to 177 during 2004 and 889 during 2005.( 287 drinking water, 284 for irrigation, 224 for deepening, and 89 for cleaning and maintenance)
- Number of Well Permits issued increased from 29 during 2003 to 91 during 2004 and 360 during 2005. (169 for drinking, 93 for agriculture, 64 for deepening, and 24 for cleaning and maintenance)
- NWRA established an operational room operating 24 hrs linked with a hotline (173 ) where the general public can reach to report violations/ illegal drillings, up-to-date 103 report violations has been recorded through this room since november 2005. The total violation of water law registered at NWRA-HQ and the Branches reached to 518 cases.

- Processes for collecting 7 million Rials as part of fined charges, due to random drilling, have been complete, and will be collected through MWE, and transferred to NWRA account.

**2.3.4 Public Awareness**

- Considerable numbers of public awareness actions were conducted, various programmes and flash spots at the local TV were conducted, and different awareness campaign at the schools, mosques, cultural centres have taken place.

**2.4 Financial Indicators (MUSD)**

Comparison between NWSSIP investment and NWRA approved budgetary plan is illustrated in Fig.1 as following:

2005:

- a. NWSSIP WRM investment plan 8.64
- b. Approved NWRA budget 5.35
- c. NWRA actual expenses 3.40

2006:

- a. NWSSIP WRM investment plan 8.06
- b. NWRA approved budget 5.41

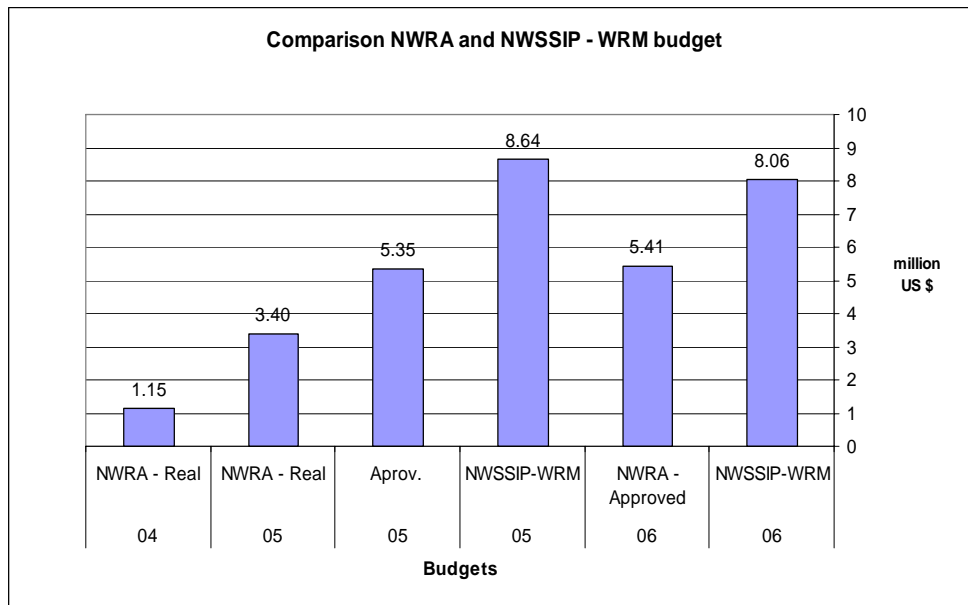


Fig.1: Comparison between NWISSEP and NWRA WRM budgetary Plan

Similarly the comparison between the recurrent and Investment NWRA budgetary plan for the years 04, 05,06 ( MUSD ) is shown in Fig.2 as following:

		Recurrent	Investment
04	Requested	0.62	3.00
04	Approved	0.45	1.53
04	Real	0.46	1.15
05	Requested	1.07	5.39
05	Approved	0.58	5.35
05	Real	0.58	3.40
06	Requested	0.49	9.71
06	Approved	0.60	5.41

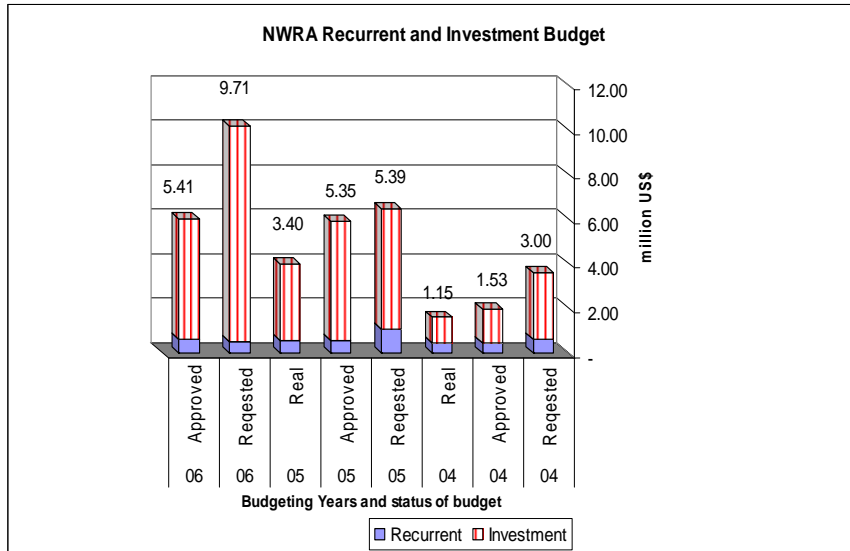


Fig.2: Comparison between the recurrent and Investment NWRA budgetary plan for the years 04, 05,06

Regarding GoY and Donors investment budget (MUSD) for the years 04 and 05 is described in Fig. 3 as following:

	Donors (inv.)	Goy(inv.)	Rec-Op	Rec-Sal
04	0.61	0.54	0.19	0.27
05	3	0.44	0.26	0.34

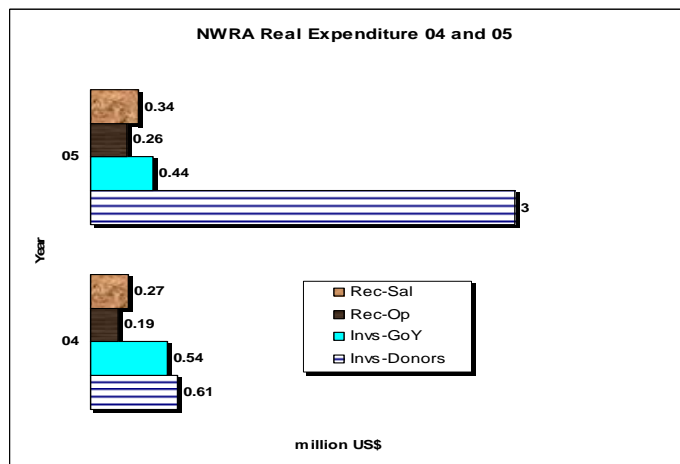


Fig. 3: GoY and Donors investment budget for the years 04 and 05

### III Conclusions on 2005 performance

- The NWRA organisation is continuing to develop and integrated during 2005, 59 new employees in its headquarters and branches and has now (244) total staff. While Sana'a, Ta'iz and Aden branches are well developed, the Sadah, Hodeidah, Dhamar and Hadramawt branches have sub-critical staff levels. A large number of contracted staff (49) is still on the pay role of the donor community.
- The authority has acquired a great deal of technical capacity over the past eight years. The National Water Resources Information Center has been improved at the HQ

- The growing technical capacity of NWRA supporting by available legislation network, allows the authority to extend – in the line with its mandate - regulatory functions in the fields of licensing, registration and water quality protection. These includes the expand implementing licensing and registration system, incorporating the newly established branch offices of the NWRA.
- NWRA intensive awareness campaign lunched during last two years has eventually raised the concern of the current water resources situation among wide sector of the population
- The activities of NWRA are a conglomerate of donor funded projects and government of Yemen. Selective NWRA activities are overtaken by the external financed projects and the government budget. Under the strategic framework, NWRA is exercising at the HQ and branches a considerable number of strategic activities related to over all integrated water resources management( IWRM).
- A number of surveys and technical studies on resource assessment, including comprehensive inventories of water wells, socio-economic and water use survey have been completed in different parts of the country such as Tuban and Abyan Deltas, Wadi Hadhramawt, Sa'adah Plain, Amran, Ibb, and Sana'a Basin. The results of these studies are considered to be the basic for the preparation of water resources management action plans in the above areas as well as the establishment of adequate regulatory measures such as restrict abstractions and ban hazardous activities to protect resource from depletion and/or contamination.
- Reporting in general is weak due to request of various format of reporting from different projects funded by different donors, although the HQ and some branches produce reasonable reports.
- NWRA is the main executive agency of the planned water resources management activities in the NWSSIP. Requested funds for 2005 were then the NWSSIP 2005 plans and indicative budget. The real expenditures of NWRA in 2005 were about 62% of the planned budget in NWSSIP for 2005 for water resources management. Real expenditures of NWRA in 2005 were around 64 % of approved funds.
- Cooperation and coordination between different institutions is an essential precondition to avoid further overlapping, duplication and competition between their mandates, roles and responsibilities. In this context, the formulation of the National Water Sector Strategy and Investment Program (NWSSIP) in May, 2004 appears to be the fundamental joint action of the MWE and MAI to consolidate the national water sector as a whole.
- The limited absorption capacity of the entire NWRA organisation is mainly related to the following facts:
  - Generally all NWRA activities are mainly targeted to the protection (saving) of water resources through making changes in the current water use behavior. Capacity building is the main tool for achieving the above target. Normally such specific activities are continuous and need longer implementation period.

- Shortage of experienced staff
- Positive response other water management institutions and related agencies
- Poor donors coordination
- Limited premises particularly at the HQ

#### **IV Recommendations**

- Enhance other concerned authorities and Agencies to be active in enforcing the water law and other regulatory measures.
- Assess organizational options for NWRA as lead organisation for WRM. This includes also assessing the option of a fast-track decentralisation of WRM and thus NWRA (delegation of responsibilities and task to the water basins and strengthening NWRA branches).
- Accelerate the regional planning process and prepare water resources management plans for several critical basins such as Tihama, Rada'a, etc. These plans in combination with the existing ones already made by NWRA would be a basis for a formulation of the National Water Master Plan as required by the Water Law.
- Strengthen the branch offices in Hodeidah, Dhamar, and other locations as well as assist in establishing Basin Committees for extending decentralization of water resources management and mobilize stakeholders and communities to participate in such institutions.
- Improvement of managerial and technical capacities at NWRA's headquarters and branches is needed
- Improve collaboration of NWRA with other sector organizations. Improve communication channel of NWRA with MWE "according to the Presidential Decree regarding the establishment of NWRA".
- Improve reporting system within HQ and Branches and set up a national data base on water relevant activities, researches and outcomes.
- Integration within the ranks by 2007 of the 49 contracted NWRA staffs that are on the payroll of donors.
- Clear plan development with time frame for the roll-out of basin management plans for the critical basins.
- Improve the link between NWSSIP plan and budget with the NWRA plan and budgeting for 2007. Consider real existing capacities.
- Considering NWRA's future participation on all charged water usages collected as a contribution to NWRA's budget to be able to fulfill the tasks as NWRA taking full responsibility for all necessary water conservation activities.
- Incorporate more hot water issues in educational syllabus and mass media
- Assign water treatment and re-use experts in selective industries factories as encouragement for these institutions as to save and protect the groundwater aquifers from depletion and pollution.

**VI Indicative targets for 2006 and 2007**

**a. Capacity Development and Organisational Strengthening**

- Construction of NWRA HQ and Sada'a branch buildings
- Strengthening capacity of NWRA HQ and branches
- Prepare a design for the central laboratory for water quality

**b. Outcome indicators**

- Establishment of Water basin committee on Amran, Tuban, Abyan and Hadramout Governorates
- Continue enforcement of water law and other related regulations

**c. Results Indicators**

- Based on the proposed national monitoring network expand installation new monitoring stations.
- Implement water resources assessment studies in the Tihama and Dhamar region.
- Continue well inventory in the Tihama basin
- Implement ground water incentive structure study
- Finalizing Tuban/ Abyan, Hadramout, Sada'a and Sana'a WRMPs and start implementing
- Preparation WRMP in the Dhamar region
- Continue implementation of Taiz WRMP
- Establishment of fleet tracking system to monitoring random drilling via satellite
- Improve National Water Information Centre

**d. Financial Indicators ( MUSD)**

<b>2006:</b>	<b>a. NWSSIP WRM investment plan</b>	<b>8.06</b>
	<b>b. Approved NWRA budget</b>	<b>5.41</b>
<b>2007:</b>	<b>a. NWSSIP WRM investment plan</b>	<b>9.45</b>
	<b>b. NWRA expected budget</b>	<b>5.67</b>

# JAR NWSSIP YEAR 2005 – Water Resources Management Summary Sheet

