

### III. DEFICIENCIES AND CONSTRAINTS

Considering the present situation in the water sector in view of the functions and responsibilities of the different institutions operating in this sector, their governing legislation, and the past experience and grievancies in regard to domestic water supply from which the country suffers occasionally, we can pin point several deficiencies and constraints which can be grouped under two major topics, i.e.:

1. Legal
2. Organizational and Financial

1. Among the legal deficiencies the most outstanding is the fact that none of the operating institutions is legally in charge of:

- (1.1) The formulation and processing of the national water policy.
- (1.2) The overall control of the national water resources and acquisition of the data base deemed necessary for the formulation and updating of policy decisions.

When NRA was established in 1966, the concept stressed in its law was to formulate a central body

acting on the national level to deal among others with water affairs of the country, their development, utilization, management, and control, and to be capable of delineating the national water policy, priorities, and allocations for different purposes in view of the availability of resources and trends of demand and its growth.

This concept is no more in effect due to the fact that the more recent laws which have been passed since 1973 superseded NRA Law No. 12 of 1968. The provision of this law which stated that NRA "is responsible for establishing the water policy for the Kingdom and submitting the same to the Council of Ministers for approval" effectively has no meaning at present. The ground for its application is no longer valid, especially as it relates to data acquisition and control of resources all over the country, since the laws of the other institutions gave absolute powers for them to define their own water policies, investigate and acquire data and resources without provision to coordinate or get a prior approval from a central coordinating agency.

In time, this situation will become more difficult and with the trend at present being to force development plans into regional packages in Amman, Irbid, Aqaba and other regions along the same line now being implemented in the Jordan Valley region, the process of water control

and acquisition of a data base on a national level will be decentralized more and more. We will be approaching a stage where the decision makers have to deal with conflicting interests and sometimes may make conflicting decision without having the means to define priorities and allocations of water resources properly.

It is believed that we have not yet drifted too deeply into this situation and the chance is still there to recover the situation before it collapses. It is good to see that the Government and all concerned national institutions are realizing that the achievement of the national development targets is very much dependent on well coordinated policies for the utilization of the country's scarce water resources. This realization was in fact the motive behind this National Water Symposium; and it was very well demonstrated when the Government made the formulation of the national water master plan and of a water resources policy one of the major objectives of the 1976-1980 Five Year Plan for Economic and Social Development.

The first attempt to define such policy was initiated by NRA in 1976 in collaboration with the German Technical Aid. The result of this attempt was the National Water Master Plan which was briefed by Dr. Frantz of Agrar and Hydrotechnik on the first day of this Symposium.

In the synopsis of the Plan it is described as "the first approach to the formulation of a coordinated water allocation policy for Jordan. The constraints originating from the existing data base have been noted. Nevertheless, the most urgent policy decision can be based on it, as long as the documentation remains the subject of a systematic updating work. The conclusions may have to be modified in due course, and there might then have to be a corresponding adaptation of policy decisions " .

This assumes that there should be a consolidated legislative and institutional system with a continuous and systematic feed of information maintained so the Plan can be kept always up to date. This would also serve to provide a capability for formulating and recommending the adaptation of policy decisions and, after such decisions had been made, to enforce them and see that all involved parts of the system are operating in harmony with this policy.

Such a consolidated system does not exist and there are no provision for it in the present legislation though many people think that Law No. 12 of 1968 provided for it.

Somebody might think that the approach to overcome this deficiency and get to a consolidated legislative and institutional system is to pool all institutions

and get them under one management. This is not realistic or even practically possible and it is believed that no matter how many institutions are operating in the water sector by virtue of special laws, consolidation and policy adherence can be maintained by having what we can call here the Water Act which would provide for the following:

- a. The establishment of a water board capable of processing and formulating the water budget and policy for the Kingdom and having means to conduct water studies and investigation.
- b. Such law should supersede every other law in matters related to the allocation and control of water resources and any party whether public or private should get a license or permission from the water board whenever it wants to utilize a water source or drill a water well or build a dam or anything which might have an impact, major or minor, on the water balance of the country.
- c. All parties whether public or private having access for water or utilizing it in bulk for any purpose should report regularly their consumption to the board and they should maintain meters and records for this purpose.

- d. No agency would be allowed to license any new industrial, urban, or agricultural project that requires water in any part of the country without the approval of the board.

The necessary measures should be taken also to amend the existing laws to be in line with the concept of the proposed Act.

Consideration should be given to development of the existing NRA and its Law to take the role of the water board with the necessary enabling act. This subject will be treated more thoroughly in the following sections of this paper.

2. Among the organizational and financial constraints, the most outstanding ones are:

- (2.1) The lack of coordination which is very much interrelated to the legislative deficiencies discussed hereinabove; this will be overcome automatically once the legal umbrella for a consolidated system is maintained.
- (2.2) The centralized management, where everything in the institution all over the country has to be run from the headquarters

in Amman, even minor day to day things. The staff of the district departments or offices have no independent authority but are only operators, nothing else. Such a situation in some of our water institutions puts a heavy burden on the top management, decreases the efficiency of the agency, and acts as retarding and demotivating factor. In time it becomes detrimental, especially when the responsibilities of the institution grow bigger and more widely spread.

(2.3) The conflict between diversified functions such as in the case of NRA, where originally it was intended, in relation to water, to be mainly research, investigation and controlling agency. For these purposes it acquired some drill rigs for exploratory purpose. Though there is no mention in its law that it should offer drilling service, we find now that such service is becoming its major function and very little time and effort is spared for water studies.

(2.4) Lack of finance. This constraint is traditional and applies to all development sectors in the same magnitude but in the water fields, its consequences could be

extremely detrimental, especially in relation to drinking and domestic water supply. We all know that a community can live without paved streets, but it cannot live without water. Without extensive elaboration on it we should realize that we could have avoided the water shortages which Amman and Irbid suffered from during the past four years if enough allocations had been made in the appropriate time. We are still on the safe side when it comes to water resources and the shortages suffered are in fact due to the absence of the necessary facilities to bring this water to where it is needed.

- (2.5) Lack of manpower. To this constraint we can relate a lot of other things such as weak planning, low grade skills, shortage of staff, etc. Though Jordan is rich and very proud of its human resources and the Jordanians are very well known for their high calibre we do suffer from the lack of manpower because we are paying a tax in the form of brain drain on being a none oil producing country. Our friends and brothers should realize that all of our institutions are functioning as training



centres for all kinds of jobs needed  
in the area without anybody contributing  
to that except Jordan.

During the past few years, NRA lost more than 75 of its best drillers, 100 hydrologists, hydrogeologists, geophysicists, drilling engineers, chemists and civil engineers and more than 300 mechanics, electricians, welders, blacksmiths, carpenters, and fitters. The same is happening with the Water Supply Corporation; from July 1977 till January 1978, 125 of its staff quit. The same thing goes on in the JVA and AWSA and in every public and private agency in Jordan. Everybody now is considering importing skills and manual labour.

This situation should be remedied, otherwise we shall come to a standstill.

Except for the above deficiencies and constraints plus some other minor ones, the overall trend in our water legislative and institutional frame work is not bad and with some careful amendments and modifications they can be put along the proper track to cope with the requirements of the country.

#### IV. FUTURE OUTLOOK

Water is a basic national resource which is very essential for the human life as well as for animal life, agriculture and industry.

In an arid to semi-arid country like Jordan with very limited water potential and with its only access to the sea for desalinization comparatively far from the densely populated areas, it seems that the only choice we have to maximize the life of our limited water resources and to avoid national water shortages or hazards in the long run is to apply a wise management and well coordinated policy of tapping and utilizing such resources.

Before trying to delineate the general layout of such complex managerial process, it is worthwhile to envisage first the main relevant features of Jordan and how they will change seven years from now, in view of the development process affecting our community at present.

In 1985 the population will be around 3.5 millions, with more than one third of them situated in Amman Greater Area, about one quarter in Irbid District, another one third in the Balqa, Karak, Ma'an and Aqaba areas, with the balance which would not exceed 3% of the total population spread over the desert area which is about 85% of the Jordan territory.

New regional development authorities having similar responsibilities and powers to those of (JVA) will be established in Amman, Irbid, Aqaba regions and may be in other parts of the country. The present borders of the Governorates may have to be ammended to coincide with the borders of the development regions. New major industries shall become operational such as the potash, the fertilizers, the new phosphate mines at Zarqa, Wadi el-Abyad and Sheidia. A consideration for retorting the oilshale deposits might be given which would require lot of water for cooling purposes, and many other new projects shall be initiated which would have a great bearing on the water balance of the country, over and above the per capita water needs which will be appreciably increased due to the expected improvements in the standard of living. The requirements for drinking and domestic water supply will be sharply increased which indicates the importance of a well coordinated water resources strategy to allow and satisfy the domestic water supply in first priority. Requirements are estimated to be about 190 MCM/year in 1985 and 300 MCM/year in the year 2000. Present requirements are 50 MCM/year.

With these most probable expectations and development trends it will be perilous situation if we leave the control and management of our water resources fragmented so that every institution or authority can have free access to acquire the water resources within

the area under its jurisdiction without any serious consideration to the national priorities or proper coordination with other authorities through a coordinating national agency who have a full view and knowledge of the water strategy and priorities of the country.

In a situation like this where there are multi institutions involved in the utilization of water resources, achievement of the national goals requires a consolidated legislative and institutional system to secure the enforcement of the national water strategy. This will avoid conflicting interests and decisions, and maintain an updated and comprehensive data base to help the process of policy decisions.

Such a managerial process can theoretically be carried out in many different ways, where any of them may satisfy the objective. However, to achieve the optimum results, the process implemented should be planned with utmost care.

In view of the outstanding facts and most effective development theories and trends in Jordan at present, it is believed that a satisfactory arrangement can be achieved if the process is carried out on three levels of responsibility tied together in a pyramidal setup (Diagram 1) by means of the water act in the following manner:

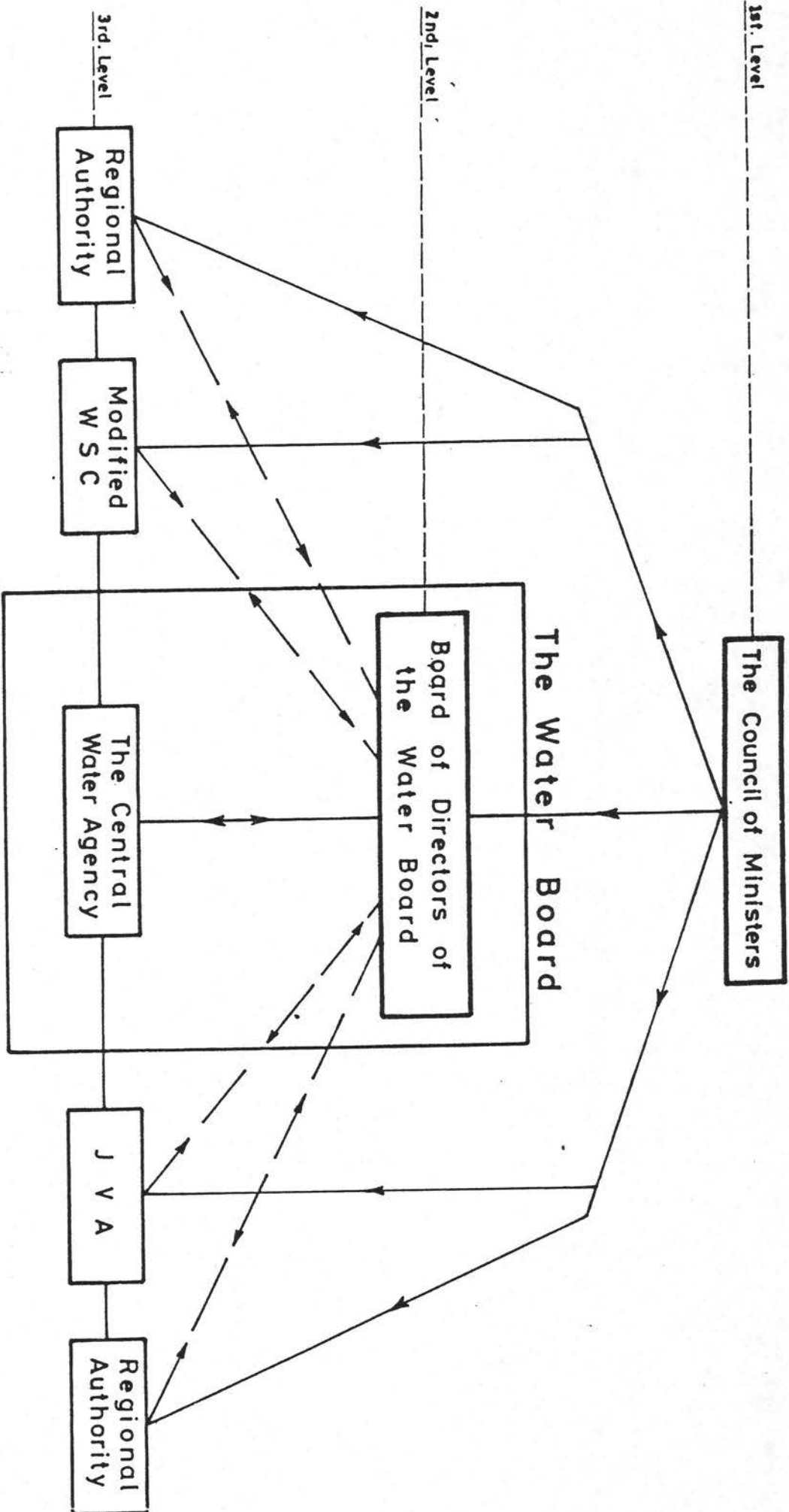


Diagram № 1

Level No. 1, or the higher level, is that of policy and decision makers, which in our opinion should be the Council of Ministers.

Level No. 2, is the planning and coordinating board or the water board in which all the functional institutions in the water field are represented in its board of directors, so they can participate jointly and effectively in the role of delineating strategies and policy decisions and proposing them to the Council of Ministers for ratification. This board should supervise a specialized agency which is acting on the third level and is directly responsible to the water board. It would process and formulate the water policy and water budget for the Kingdom and have the power and means to acquire the water data base, conduct studies and investigation as may be necessary and to act as the agency to satisfy the major requirements of the Water Act summarized in section (3) of this paper.

Level No. 3 is the institutional network which includes the above agency, a modified version of the present Water Supply Corporation, the (JVA) and the regional authorities of Amman, Irbid, Aqaba regions..etc.

The whole system is supposed to be governed and coordinated by the Water Act proposed earlier beside the special laws of every individual institution which should be amended or modified to meet and become consistent with the objectives of the Water Act.

The organization of Natural Resources Law No. 12 of 1968 can be restated and modified to become the proposed Water Act and provide for NRA to take the role of the proposed agency which is supposed to be the active agency of the Water Board and entrusted to look after the implementation of the Water Act.

Such a modified NRA beside being responsible for the processing and formulation of policy decision for the consideration and approval of the water board and the Council of Ministers respectively, is supposed also to conduct water studies in those parts of the country not under the jurisdiction of any other regional authority. A provision should be made in the Water Act to allow similar studies needed by the regional authorities to be either conducted by the modified NRA or delegated to the authorities to conduct them directly, subject to the condition that all data and informations resulting from such studies should be the property of NRA.

To secure that the future setup of NRA or its substitute will operate efficiently to meet the objectives of the Water Act in the best possible manner, some side issues which do not fall within the scope of this paper, should be treated concomitantly. These issues are:

- a. The viability of detaching the Geological Survey and Bureau of Mines and the Petroleum Department from NRA.
- b. The viability of detaching the job of drilling and pumping tests of water wells from NRA and transferring it to a mixed public-private firm to offer such services to both the public and the private sectors.
- c. Releasing NRA from the responsibility of operating and maintaining the irrigation projects in the Plateau.

All of these issues, together with some other minor issues should be treated in the course of formulating the proposed Water Act.

The Water Supply Corporation Law No. 56 of 1973, should be also amended so that the Corporation, beside being responsible for formulating the domestic and industrial water supply policy in the Kingdom, becomes responsible only for the planning, design, construction, operation and maintenance of water supply and sewerage projects in those areas not under the jurisdiction of any regional authority working with a capacity similar to JVA.



Whenever a new authority is established in any region, such projects under the control of WSC in this region should be handed over to the newly established authority.

This in fact assumes that the concept of the local water councils provided for in the Water Supply Corporation Law No. 56 of 1973, should be eliminated. It also assumes that AWSA shall become in the future a part of the Amman Regional Authority.

Due to the fact that the priority and importance of domestic water supply in any water policy will be outstanding, it is recommended that the Jordan Government should consider the possibility of linking up the whole country or most of it, as may be applicable, with one or more national water conveyors for domestic supply requirements.

Another consideration should be given also for the establishment of a bank for the supply of traditional equipment and materials not locally manufactured and usually needed for water supply projects to avoid prolonged interruption of service caused by sudden breakdowns and late deliveries which we occasionally suffer from.

If we can introduce such ancillary measures to implement our water projects, operate them properly and efficiently, and make the individuals as well as our national institutional network operate within the proposed consolidated system and abide with it, so that nobody can acquire a water source unless his need for it is justified in view of the national allocations and priorities, we can then eliminate cases where persons owning rich water wells within the municipality areas of some of our major cities and towns are draining the national aquifers for their own interest, while the inhabitants in these cities and towns are thirsty.

We also would not see aquifers like the one of Dhuleil committed and mined for irrigation when it could have offered a better alternative than King Talal Dam to meet Amman water needs.

Such problems which we are now facing because of the absence of a national water policy and a lack of coordination and control, with an overall look to the future economic and social development of the country, should guide those who will formulate and define the means by which we will handle our water affair in the future.

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