CHAPTER II

A REVIEW OF WATER SUPPLY PROGRAMMES
Provision of 'safe' water supply is one of the most important factors that improve the health of the population. 'Health' has a high priority in any Community and the economic and social development of the society are associated with 'Community Health'. It has been realised by the governments in the developing countries that inadequate supply of drinking water is one of the limiting factors for accelerated development.

The growing concern for the provision of safe water supplies all over the world can be estimated from the creation of special agencies at the International level, declaration of UNDD, financing of water supply schemes by International agencies, the surveys and programmes conducted all over the world etc. We may briefly review the situation and programmes with regard to water supplies at the Global, National and Regional levels.

2.1. Worldwide situation of drinking water supplies:

The WHO initiated a programme for community water supplies in 1959 and resolved that "priority be given in national programme for provision of safe and adequate
water supplies for communities."¹ But it is in sixties that the benefits of provision of adequate safe water were fully realised and a concerted effort was initiated in this direction.

The WHO conveyed the first Expert Committee Meeting in 1969 to consider specifically the problems of community water supplies. International Reference Centre for Community Water Supplies (IRC-CWS) was set up in the same year. The WHO requested its Director General to prepare guidelines and codes of practice in planning and design and management of community water supply and sanitation services with emphasis on public health aspects.²

2.1.1. **Position in 1970:** A special survey was conducted by the WHO in December 1970 and the statistical data relating to water supply and sewage disposal in the developing countries was consolidated. However, the WHO cautioned that these statistics should be treated only as indicative:

¹International Conference on water for peace, op. cit., Vol.5, p. 87.

The survey covered (91 countries) six regions - Africa, America (LA), Eastern Mediterranean Region (EMR), Europe, South East Asia (SEA) and Western Pacific (WP) - with a population of 1721 Mn. The details of population with 'reasonable access'\(^3\) to 'safe water'\(^4\) is shown in the following table.

It reveals that only 29 per cent of the population in these regions had reasonable access to safe water in 1970. It fluctuates between the regions and nearly 80 per cent of the population in SEA and Africa had no reasonable access to safe water.

The survey also noted the differences in the population coverage between rural and urban areas. Relatively, greater proportion of urban population had reasonable access to safe water than the rural population. This might be due to the difference between the levels of service in urban and rural areas.

\(^3\) Reasonable access in urban areas means within 200 meters of a public hydrant, and in rural areas sufficiently close so that family members don't spend a disproportionate part of the day in fetching water.

\(^4\) Safe water means treated surface water or untreated but uncontaminated water such as from springs, protected borewells and sanitary wells.
### 2.1.1. PERCENTAGE OF POPULATION WITH REASONABLE ACCESS TO SAFE WATER

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>183</td>
<td>38</td>
<td>21</td>
<td>29</td>
</tr>
<tr>
<td>America</td>
<td>274</td>
<td>152</td>
<td>55</td>
<td>61</td>
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<tr>
<td>Eastern Mediterranean</td>
<td>234</td>
<td>86</td>
<td>37</td>
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<td>Europe</td>
<td>66</td>
<td>36</td>
<td>55</td>
<td>70</td>
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<td>South East Asia</td>
<td>851</td>
<td>145</td>
<td>17</td>
<td>29</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>113</td>
<td>44</td>
<td>39</td>
<td>56</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>1,721</strong></td>
<td><strong>501</strong></td>
<td><strong>29</strong></td>
<td><strong>38</strong></td>
</tr>
</tbody>
</table>


Of the six regions surveyed by the WHO highest percentage (84) of the urban population in EMR had reasonable access and the lowest being in SEA at 53 per cent. Except in Europe, everywhere nearly two thirds of the rural population had no reasonable access. 82 per cent of the rural population in EMR and 91 per cent of the rural population in SEA had no such facility.

However, a comparison of results with 1962 survey reveals that the percentage of urban population served by Community water supplies increased from 59 to 68 in 1970. The rural water supply coverage increased from 10 per cent to 14 per cent of the rural population between 1961-71.

2.1.2. The Second UNDD 1971-80:

The UN set goals for the Second Development Decade are "provision of water supplies to the entire urban population - 60 per cent to be covered through house connections and 40 per cent through public hydrants, and a quarter of the rural population in the world. The total investment requirements, to meet these goals, are estimated at US $14,000 Mn (1970 prices) for urban areas and US $3,100 Mn for rural areas. Though, the investment requirements were modest, a substantial increase in real terms

was reported and in some countries to UNDD goals appeared almost unattainable. For instance, approximately a three fold increase was recorded in Africa and SEA.

1.1.3 The 1975 Survey:

It is revealed in the mid-decade survey that the coverage of population by community water supplies in the six regions increased from 29 per cent to 38 per cent. (See Table No. 2.1.1) between 1970 and 1975. During the period while the percentage of additional population covered was highest in Europe at 25, no additional population was covered in EM Region. The coverage in SEA and Africa increased to 29 per cent during 1970-75.

The coverage of population in rural and urban areas of the six regions is shown in the following Table. It reveals that the coverage of urban population increased from 68 per cent to 76 per cent and that of rural population from 14 per cent to 22 per cent. It is noted that by 1975 two thirds of the urban population in all the regions except Africa and SEA had been covered. The percentage coverage of rural population fluctuated widely between the regions and it was more than 20 in all regions except SEA and EM Region.
In view of this progress achieved during the first half of the Second UNDD, the WHO, in 1976, adopted revised targets to cover 68 per cent of urban population by house connections and 23 per cent through public hydrants, and 36 per cent of the rural population by 1980. (See Table No. 2.1.2) A report presented in the UN Conference refers to the differences in per capita consumption of water between cities in 1977 that it was 1045 litres in Newyork, 600 litres in Moscow and 263 litres in London. The lowest per capita consumption per day was at 3 litres in the semi-arid lands of Africa.

2.1.4. International Water Decade (1981-90):

In November 1980 the General Assembly of the United Nations formally launched the International Drinking Water Supply and Sanitation Decade 1981-90. Its official target is "clean water and adequate sanitation for All by 1990".6

A recent report of the United Nations notes that in the first three years of the Decade, safe drinking water was provided for about 345 million people in the

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6 Anil Agarwal, James Kiwondo, Gloria Moreno, Jon Tinker, "Water, Sanitation, Health-for All? An Earthscan Publication, p. 2."
### 2.1.2. Percentage of Rural and Urban Population with Reasonable Access to Safe Water

<table>
<thead>
<tr>
<th>Region</th>
<th>Rural population</th>
<th>Urban population</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Africa</td>
<td>11</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>America Eastern</td>
<td>24</td>
<td>30</td>
<td>50</td>
</tr>
<tr>
<td>Mediterranean</td>
<td>18</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td>Europe</td>
<td>44</td>
<td>63</td>
<td>80</td>
</tr>
<tr>
<td>South East Asia</td>
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<td>19</td>
<td>35</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>21</td>
<td>30</td>
<td>35</td>
</tr>
</tbody>
</table>

**Source:** Col. 2&5: WHO, World Health Statistics Report, op. cit.

Third world. The report further says that a 14 per-cent increase in rural water services has surpassed the achievements of the entire 1970s. In the urban areas of the world the total population served has risen from 49 per cent in 1980 to 59 per cent in 1983. However, the UN Report calls on governments to strengthen their commitments to implementing the report's recommendations.

2.1.5. SUMMARY:

The WHO surveys are the best available data on community water supply and sanitation. The modest targets recommended by the WHO Assembly give us an idea of enormous efforts and resources needed. The Adhoc working group of WHO summarised the current situation and concluded that "important though the provision of water supply and sanitation in rural areas (and urban fringes) is, past experience has shown that many efforts of providing these basic facilities have ended in failure."\(^7\)

Factors such as insufficient finance, inadequacy of materials, lack of trained personnel, inappropriate

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administrative framework, lack of general plan and motivation, lack of co-ordination, delays in the execution of works, lack of information, lack of community participation, excessive subsidy etc., are responsible for its failure.

In many developing countries in the world, even the low and modest investments were found to be beyond their capacities. It is realised that an appropriate technology that can bring about a real reduction in the marginal cost and easy to maintain would help reach the goals of UNDD.

On a closer examination, however, it is noticed that the rapid expansion of water supplies was held up not for the lack of finances or appropriate technology but because of the governmental indifference and lack of strong political will to recognise it as a priority scheme of development.
2.2. Public Water Supply Programmes in India

2.2.1. Arrangements before Independence:

In India, public water supply programmes, though not organised, were first introduced in 1870s in major cities like Bombay, Calcutta and Madras. Most of these schemes were started out of local need than according to a systematic plan. Grants and subsidies were offered to maintain these schemes.

The importance of providing water supply and sanitation facilities on a nation wide basis was first advocated by Bhore Committee in the post-war period. But, it was in 1947 that the first attempt at evolving a plan for water supply and sanitation services was made by the Water Supply and Drainage Committee (also known as Madras Committee) set up by the government of Madras. The Committee designed a plan for urban and rural areas of the state and estimated the requirements of finances and material. It also prepared a list of urban towns to be served on a priority basis.

In 1948-49, another attempt was made by the Environmental Health and Hygiene Committee to extend the facilities. The committee prepared a comprehensive plan to cover 90 per cent of the total population over a period
of forty years. This failed to make a significant headway as no concerted effort was made to implement the proposals. Thus, as reported in the draft First Five Year Plan, on the eve of planning in India, only 6 per cent of the towns with 48.5 per cent of the urban population had public water supplies. From this, we may understand that the reported coverage of towns must have been mostly cities and towns.

2.2.2. Public water supply programmes under Five Year Plans in India:

In India, provision of water supply and sanitation is mainly the responsibility of the State governments. The Central government will assist the setting up of public Health Engineering Departments in the States. The Departmentalill be incharge of estimating the requirements, designing of the schemes and executing the works relating to water supply.

First Five Year Plan (1951-56): (FFYP)

The FFYP did not mean anything specific or particu

9Planning Commission; "The Fourth Five Year Plan," Govt. of India, New Delhi, 1969, p.
when it recognised that provision of water supply perhaps to urban people was a basic requirement and highest priority should be given. It inferred that in the 3 decades 1921-51, the increase in population from 27m to 62\(^\text{10}\) would have further worsened the problem of water supplies in large towns.

The well known NES and CD schemes were thought to include water supply programmes in the rural areas, financed and operated largely through local initiation and finance. That the programme did not result in satisfactory progress surprised none, including the planners.

In 1954 a separate organisation called the NWSSS under the Ministry/Department of Health was set up both by the Central/State governments. A formula was evolved by which the cost of approved urban water works were to get some central loan assistance, and half the rural programmes were to get grant in aid assistance. The centre approved 252 urban water supply schemes with estimated to cost Rs. 45 crores and 132 rural water supply schemes estimated to cost Rs. 13.50 crores, and allocated Rs. 12 crores and Rs. 9 crores for them respectively.

\(^{10}\)Planning Commission: "The First, Five Year Plan" Government of India, New Delhi, p. 568.
and Rs.9.0 crores for them respectively.\textsuperscript{11}

An outlay of Rs.24 crores was originally proposed in the plan - Rs.12.12 crores for urban water supply schemes, Rs.11.37 crores for rural water supply schemes, and Rs.0.50 crores was provided for training programmes for Public Health Engineers, sanitary inspectors etc. But, the actual outlay appears to have been only Rs.11 crores - Rs.3 crores on urban water supply and Rs.8 crores on rural water supply schemes or less than one per cent of the total plan outlay.\textsuperscript{12}

The Second Five Year Plan 1956-61:

The Second Plan document observed that "water-borne and other allied diseases are responsible for a large incidence of mortality and morbidity in the Community which can be brought under control by establishing protected water supplies and sanitary methods of excreta disposal." The benefits of water supply were stressed by many agencies and the state governments expanded their

\textsuperscript{11}Ministry of Health: "Report of the National Water Supply and Sanitation Committee, 1960-61", Govt. of India, New Delhi, 1962, p. 5.

\textsuperscript{12}No plan document provided details of actual outlays.
Public Health Engineering Departments.

The spill over schemes of the first five year plan were continued and 208 new schemes for urban areas and 214 schemes for rural areas at an estimated cost of Rs. 27.9 crores and 5.48 crores respectively were included in the Second five year plan. Rs. 91-50 crores was envisaged in the plan - 70 per cent to urban water supply schemes, and 30 per cent to rural water supply schemes, but the actual expenditure appeared to have exceeded by Rs. 22.50 crores.

The third conference of Public Health engineers held in 1958, assessed the water problem comprehensively and estimated the requirements for providing water supply facilities to the urban and rural areas at Rs. 900 crores and Rs. 600 crores respectively. In the following year, a panel of public health engineers, set up by the Planning Commission, reviewed the entire programme and discussed the reforms. The 1960 Conference of the Public Health

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Engineers revised the requirements to Rs. 1300 crores for urban water supply programmes.

During the first two plans about 1,100 villages were covered under various rural water supply schemes at a cost of Rs. 33 crores.

The Third Five Year Plan 1961-66:

From the experience of the first two plans it was learnt that great care was needed in the preparation of technical design and estimates for rural water supply schemes. Hence, it was felt that these plans were to be taken up under the local Department works, Community Development Programmes, NWSSS and programmes for the welfare of Backward classes.

The 1963-64 National Sample Survey revealed that about 66 per cent of India's 5.40 lakh villages drew their drinking water from wells and almost another 6 per cent from tanks and lakes. In view of this during the third plan it was felt that priority to be accorded to areas suffering from acute scarcity, areas where water is saline and endemic to water borne diseases. Further, the plan called for an intensive effort, effective coordination between various agencies and mobilisation of local initiative and contributions.
The plan earmarked Rs.67 crores for rural water supply schemes, of which Rs.35 crores were to be spent under village water supply programmes to cover the backward areas not covered under the Community Development schemes. Rs.10,000 was fixed as the maximum expenditure for each village and half the expenditure to be matched by contributions from the public. 1764 rural water supply schemes were completed during the plan period.

For executing urban water supply schemes, the Municipalities and Corporations were allowed to obtain loans from the Central and State Governments. The third plan listed out the priorities to be given in the execution of urban water supply schemes: a) municipal areas without any public water supply arrangements, b) improvement or expansion of existing facilities where present arrangements are inadequate or unsafe, c) pilgrim centres, and d) areas having public water supply and therefore requiring new sewerage or improvements to the existing sewerage.

Further, some suggestions were offered in the plan with regard to urban water supplies: a) the schemes are to be phased carefully to realise the returns at every stage; b) allocation of funds too thinly over a large
number of schemes was to be avoided, and c) the local bodies should assume the responsibility of sharing the capital costs. In this context, to ensure co-ordination the plan felt that Public Health Engineering Department to be set up in all states.

In addition to the 53 spill over schemes, 529 new schemes for urban water supply at an estimated cost of Rs. 135 crores were taken up during the Third Plan. A provision of Rs. 89 crores was made available in the plan for urban water supplies.

Under the Annual Plans (1966-69), 478 new schemes including 150 urban water supply schemes were taken up. As a result, between 1961-69 about 6,000 villages were provided with piped water supply. As reported in the fourth five year plan, by the end of 1968-69, 1.2 Mn wells were constructed or renovated under various schemes.

The Fourth Five Year Plan 1969-74:

Public water supplies were not given adequate governmental consideration during the first three plans. The National Water Supply and Sanitation Committee found that water supplies were 'notorious for inadequacy and bad service.' From the fourth plan onwards, the water supply programmes received high priority and the benefits
of public water supplies were stressed in the successive plans.

It was mentioned in the fourth five year plan that in designing rural water supply schemes, water available from major and medium irrigation projects would also be integrated for supplying drinking water. Further, "in rural areas water supply schemes should be looked upon as a service which has to be paid for, whenever possible, capital contributions and levies should be collected from the beneficiaries."\(^{15}\)

A centrally sponsored scheme known as Accelerated Rural Water Supply Programme was introduced in 1972-73 to deal with difficult villages. In the review of the fourth plan it was said that UNICEF assistance in the form of 118 high speed drilling rigs also accelerated the exploitation of ground water in hard and rocky areas. Under the central social welfare scheme hundred per cent assistance was given to the states for executing the water supply schemes in villages. During the plan period Rs. 407-29 crores for water supply and sanitation of which Rs. 125 crores for rural water supply schemes, was allocated. Nearly 36,000 difficult

\(^{15}\)Planning Commission: "The Fourth Five Year Plan", Govt. of India, New Delhi, 1969, p. 404-405.
villages benefitting a population of nearly 21.6 million have been provided with water supply. Wells were constructed or renovated in nearly 12,000 villages benefitting an additional population of 25 lakhs.\textsuperscript{16}

Priority was accorded to the completion of the spill over schemes and during the plan 200 spill over schemes and 497 new schemes were undertaken. In metropolitan areas the water supply schemes were accompanied by sewerage and drainage schemes as far as possible but no reference was made to the sanitation in villages. During the fourth plan, with concerted efforts made to provide water supply, the actual outlay of Rs.574 crores exceeded the amount originally proposed.

The Fifth Five Year Plan 1974-79:

The importance of providing safe water supply and sanitation as a 'basic minimum need' without meeting which no improvement in the living standards of people could take place was reiterated in the Draft Fifth Five Year Plan 1974-79. The provision of drinking water supply

was included in both Minimum Needs Programme and Twenty Point Programme. It was stated that the Minimum Needs Programme should attempt to deal with "difficult and problem villages."

The plan provided for an expenditure of Rs. 381 crores on rural water supply and sanitation schemes as compared to a total of Rs. 289 crores provided in all the previous plans. In addition to this Rs. 100 crores was made available under the Accelerated Rural Water Supply Programme, a centrally sponsored scheme, launched in 1972-73.

During the first three years of the plan it was estimated that about 57,800 villages would have been covered at a cost of Rs. 201.10 crores and the remaining period it was proposed to cover 53,900 villages. While formulating water supply programmes preference would be given to villages inhabited by weaker sections - SCs.

One of the objectives of the fifth plan was to

18 Ibid., p. 398.
"intensify the efforts for provision of water supply in urban areas."\(^{19}\) It was estimated that, during the first three years of the plan about 266 towns should have been provided with water supply at a cost of Rs. 257.54 crores. With an outlay of Rs. 281.63 crores it was proposed to cover 254 towns in the last two years of the plan. Subsequently the outlay on urban water supplies was revised from Rs. 431 crores to Rs. 539.41 crores. Efforts were continued for providing training to Public Works and Health Engineering staff at various levels at a cost of Rs. 10.27 crores.

An outlay of Rs. 1030.68 crores was provided for water supply and sanitation during the fifth plan period - Rs. 920.41 crores from state plans and Rs. 110.27 crores from central plan.\(^{20}\) According to information supplied by the state governments, out of a total of 3119 towns 2092 towns were served with drinking water. It is said that 84 per cent of the urban population was served by water.

\(^{19}\) Planning Commission, "The Fifth Five Year Plan", 1974-79", New Delhi, 1976, pp. 82-83.

\(^{20}\) Planning Commission, Sixth Five Year Plan, op. cit., p. 401.
supply but the coverage was partial and uneven. It is in the smaller towns that the population served by drinking water facilities is 50 per cent or even less.\(^{21}\)

Even in the larger cities many of the newer settlements and areas inhabited by the economically weaker sections continue to be without adequate water supply.

**Sixth Five Year Plan: 1980-85:**

With an increasing awareness of the importance of safe drinking water supply in sustaining the process of economic development the Sixth Plan was launched in this International Drinking water supply decade. Utmost priority was given to provide water supply to villages with at least one source. On the eve of the sixth plan, there were 1.90 lakh difficult and problem villages with a population of nearly 160 million\(^ {22}\) yet to be provided with potable water supply.

State governments have given high priority to the needs of the scheduled castes and scheduled tribes while implementing the rural water supply programme. Where it

\(^{21}\)Ibid., p. 400.

\(^{22}\)Ibid., p. 397.
is logistically and technically not impossible to do so, every new source of water in a village is located in the scheduled caste habitations, open to all communities. In the case of piped water supply, a fair proportion of water stand posts are located in the scheduled caste habitations. Under the Twenty Point Programme 54,526 villages were provided with water supply during the first half of the plan period.

During the first three years of the plan 99,965 problem villages and 20,897 other villages were provided with water supply at an expenditure of Rs.1611.19 crores \(^2\) on rural water supply schemes (under Minimum Needs Programme). Several external agencies have agreed to assist the water supply schemes: a) World Bank (IDA) credit of US $72.0 Mn to assist the Gujarat water supply and sewerage project b) Netherlands grant of 31.5 Mn DFL to assist the water supply programmes in Kerala and Himachal Pradesh, c) Govt. of Denmark's equipment assistance to the extent of 7.8 Mn Danish Kroners for projects in Tamil Nadu and d) European economic community's assistance of ELU (in

rupees) 88 Mn for projects in Himachal Pradesh. It is estimated that around 76,000 villages are to be covered in the last year of the plan.

The situation in urban areas is relatively better but here too, particularly in small towns, water supply and sanitation arrangements are far from adequate. Water supply and sewerage programmes in the urban areas should be considered an integral part of urban development. Greater attention need to be given to the needs of small and medium size towns which have been neglected in the past. It was expected to complete 30 spill over schemes and take up 550 new schemes.

As the local bodies were unwilling to levy water rates, maintenance in small towns became a problem. In view of this, it was suggested in the plan that "together with measures to increase water rates or municipal taxes; the state governments and local bodies will need to examine the possibilities of imposing adhoc capital levies on the beneficiaries to raise the necessary finance."

A sum of Rs.3,922.02 crores was allocated in the plan, of which Rs.1554.24 crores for rural water supplies

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24Planning Commission, "Sixth Five Year Plan", op. cit., p. 400.
and Rs.1753.56 crores for urban water supplies. It is to be noted that outlays for urban water supply and sanitation are provided wholly in the state sector. In addition to it, Rs.614.22 crores was provided for centrally sponsored schemes on prevention of pollution and rural water supply programmes etc.

The outlays on water supply programmes under the five year plans in India are shown in the following table (No. 2.2.1). It reveals that the proposed outlays increased steadily indicating the increased attention bestowed by the government on the water problem in successive plans. A steep rise in the proposed outlay noticed from the fourth plan is due to high priority given to water supply programmes. The fourth plan outlay on water supply was double that of the third plan proposed outlay on these programmes and a three fold rise was recorded in the sixth plan outlay proposed on water supply over the Fifth plan outlay on water supply.

However, Col.No.8 shows that less than one percent of first plan total outlay was allocated to water

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### OUTLAYS ON WATER SUPPLY PROGRAMMES UNDER THE FIVE YEAR PLANS IN INDIA

2.2.1.

<table>
<thead>
<tr>
<th>Plan period</th>
<th>Proposed outlay (Rs. in crores)</th>
<th>Actual outlays (Rs. in crores)</th>
<th>Total plan outlay (Rs. in crores)</th>
<th>Percentage of Col.7 to Col.8</th>
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<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>Total</td>
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<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>First Plan</td>
<td>11.37</td>
<td>12.12</td>
<td>23.49</td>
<td>3.00</td>
</tr>
<tr>
<td>Second Plan</td>
<td>28.00</td>
<td>63.50</td>
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<td>Third Plan</td>
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<td>Fourth Plan</td>
<td>125.00</td>
<td>282.29</td>
<td>407.29</td>
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<tr>
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<td>539.41</td>
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</tr>
<tr>
<td>Sixth Plan*</td>
<td>1554.00</td>
<td>1753.56</td>
<td>3397.80</td>
<td>-</td>
</tr>
</tbody>
</table>

* indicates provision under Central Plan.

Source: Col.2-4: The Relevant Five Year Plan documents—Planning Commission, Govt. of India, op. cit.;
Col.8: Report on currency and Finance' on relevant years.
supply works and programmes; Nearly 2.5 per cent of the total outlay of the next two five years plans was spent on water supply schemes. It was in the fourth plan that 3.64 per cent of the total outlay was allocated to water supply programmes.

The distribution of water supply outlays between rural and urban programmes during the five year plans in India are shown in Table No. 2.2.2. It reveals that the percentage outlays on water supply programmes in urban areas increased during the first three five year plans and declined gradually during the next three five year plans.

The percentage of outlay on urban water works and schemes was more than 70 per cent in the first three plans. Later the rural water supply schemes attracted greater attention and priority was given to them. Hence, the share of outlays on rural water supply schemes increased from 35 to 65 per cent in the next three five year plans.

2.2.3. SUMMARY:

The position of water supplies in the country is well summarised in the sixth Five Year Plan. Although a national water supply programme was launched in 1954 during the first five year plan and progressively larger allocations were made for water supply and sanitation in
### 8.2.2. PERCENTAGE OUTLAY ON RURAL AND URBAN WATER SUPPLY PROGRAMMES UNDER THE PLANS IN INDIA

<table>
<thead>
<tr>
<th>Plan period</th>
<th>Total outlay Rs. in crores</th>
<th>Percentage outlay on water supply schemes</th>
<th>Rural</th>
<th>Urban</th>
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<td>11.00</td>
<td>27.27</td>
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<td>114.00</td>
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<td>Sixth Plan (Proposals)</td>
<td>3922.02</td>
<td>54.93</td>
<td>45.07</td>
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</tr>
</tbody>
</table>

Source: Table 2.2.1.
the succeeding five year plans, the progress made so far in the provision of safe water supply and basic sanitation can hardly be called satisfactory.

Two decades ago the NWSS committee found that the facilities where water supplies existed were "notorious for inadequacy, bad service etc.," and observed that "water supply and sanitation schemes for communities do not seem to receive their legitimate priority yet." The committee's observations appear to be true as water supplies were not given high priority until the fourth plan period and the sixth plan also observed that "there was an insufficient appreciation of the magnitude and complexity of the problem as poor maintenance of the systems was a source of concern."

On the eve of the fourth five year plan about 1.2 Mn wells had been constructed and 1700 villages were covered with piped water supply. Barely 1 per cent to 4 per cent of the total outlays were allocated to water supplies and it was only since the fourth plan, the programmes were accelerated. The centrally sponsored programmes, during the fifth plan period, benefitted 1.84M villages and nearly 160 Mn population are to be covered on the eve of the

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sixth plan.

It is noticed that 'provision of water supply to difficult and problem villages' has been stressed by the successive plans. But, proper account of villages covered is not available and their number seems to have a tendency to increase continuously. 0.90 lakh difficult villages - having no source within a distance of 1.6 KM, were identified by the special Investigation Divisions in 1971-72. During 1972-80, the estimated number of villages provided with water supply was 0.95 lakhs.

The state governments reported that Special Investigation Division's survey was incomplete and unrepresentative, and there were 1.9 lakh villages still needing water supply on a priority basis, in 1980. This increase in the number of problem villages might be for the reasons that some sources had dried up and the recurring drought conditions reduced the water table. Obviously, to design a comprehensive programme, proper assessment of the situation is mostly needed.

All this, of course, is not based on the closer examination of the situation in all states in detail. But, we find that the coverage of rural population at the end of March 1969, ranged between 100 per cent in Kerala and 29 per cent in Bihar. More than 80 per cent of the rural population was covered in Kerala, Gujarat, Tamilnadu, Uttar Pradesh, West Bengal and Madhya Pradesh and only less than half the rural population was covered in Andhra Pradesh, Karnataka, Rajasthan, Jammu and Kashmir, Bihar and Haryana.28

During the last decade the coverage of urban population increased from 75 per cent to 84 per cent, but it was uneven and partial. The sixth plan noted that areas inhabited by economically weaker sections continue to suffer from inadequate supplies. It is noted that of the 3119 towns 2092 were covered with water supplies and of the remaining 902 were small towns with less than 2000 population. It can be said that the percentage of coverage varied inversely with the size of the towns29 and the position of


urban water supplies appears to be relatively better.

In 1980 while a fifth of the urban population has sewerage facilities hardly any village had this facility. Only 46 per cent of the first class cities and 198 towns had sewerage facilities. As observed by the NWSSS twenty years ago "sewerage still seems to be an unattainable luxury".30

Very often, the reasons cited for the failure of water supply system are inadequate finances and materials, particularly pipes, but the real reasons must be elsewhere. NWSSS Committee observed that, the state governments could not handle the programmes financed by the central government for lack of information on coverage of villages and population, and for lack of proper planning, and absence of preliminary surveys.

Rural water supplies were provided by different agencies under different schemes both at central and state level and there seems to be no coordination among them and no agency seems to have a long term programme.

Inspite of their heed and urgency in providing water supplies the state governments yielded to local pressures. There are instances of chronically drought prone areas being neglected and no acute scarcity areas being served. Ignoring the areas inhabited by economically weaker sections wells are being dug in areas inhabited by affluent sections of the community.

The state governments had the problem of maintenance of the systems that is as important as providing a water supply system. It was recognised that many systems set up cannot be maintained without local involvement and participation. For this it is necessary to examine the three tier mechanism introduced in Tamil Nadu, with a caretaker at the village level, a mechanic at the Block level and a mobile repair team at the district level. 31

At present there are about a thousand towns and two lack villages without adequate water supply. The fifth group on Public Health Engineering in Rural and urban environment estimated the total requirements at Rs. 49,000 crores - Rs. 650 crores for problem villages, Rs. 1,250 crores for other easy villages and Rs. 3,000 crores for continuous supply in urban areas. This only shows

that while much has been discussed about water supplies, much remains to be done. For the successful provision of adequate water supplies to the millions in the rural areas and smaller towns in the country, real appreciation of the problem, recognition of the problem, a comprehensive programme for the country and above all the "political will" to implement the programmes are most essential.
2.3. Public Water Supplies in Andhra Pradesh:

Andhra Pradesh, the fifth largest state in the country extends over an area of about 2.77 lakh K.Ms and accounts for 7.8 per cent of the country's population as per 1981 census (Provisional). There are 23 districts, 225 towns and cities and 63,801 inhabited villages and hamlets in the state.

For the first time an organised effort was made and "The Rural Water Supply Scheme" was formulated in 1937-38 and a ten year programme was drawn up to construct new wells, borewells, infiltration galleries. Subsequently a five year plan was drawn up in 1947-48 and 5 of the 393 panchayats were provided with protected water supply. Since then, efforts are being made by the State government in successive five year plans and several organised programmes and schemes were implemented to provide drinking water facilities in towns and villages.

2.3.1. Review of Water Supply Programmes under five year Plans in Andhra Pradesh:

On the eve of the first plan, one half of the municipal towns in the state had some sort of protected water facilities. 

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water supply arrangements and the rate of per capita per diem ranged from 15 gls in Vijayawada to 4 gls in Proddatur. Water supply schemes were included in the State "Health Plan" and in the first plan period improvement works in nine municipalities and seven new schemes were taken. Visakapatnam scheme was taken up outside the plan.

Water supply works were taken up in 479 villages but only one panchayat was covered with water supply in the terminal year of the first plan. In 1954, National Water Supply and Sanitation Schemes were started in the state and 7,175 wells were sunk at a cost of Rs. 188.31 lakhs during the first plan period. Under this scheme 60 works were started at a cost of Rs. 41.38 lakhs but only 17 were completed.

An expenditure of Rs. 685.50 lakhs was incurred on water supply and drainage schemes during the first plan period. Of the works taken up in 17 municipalities, only one was completed by the end of the first plan.

With the reorganisation of the State in 1956, the number of municipalities increased to 82 besides a municipal Corporation. Not much of an effort appears to...
have been made during the second plan period. While continuing the schemes started in the first plan only 2 new schemes - Bhadrachalam and Srisailam, the pilgrim centres, were started in the second plan.

A sum of ₹270.79 lakhs - ₹113.36 on Rural Water supply schemes and ₹157.43 lakhs for urban water supply schemes was incurred during the Second Plan. In addition to this, ₹240.00 lakhs was provided under the central sector and 15 spill over schemes were completed. Thus, 35 municipal towns were covered with water supplies by the end of the second plan period. Arrangements were also made to train the public Health Engineering staff.

It was during the Third Five Year plan that greater attention was paid to the provision of this basic requirement. With an expenditure of ₹547.15 lakhs24 28 schemes including 6 municipal towns were completed by the end of the Third plan. It was reported that 80 per cent of the population living in the municipal towns of the State was covered with water supply facilities.

A survey conducted in the third plan period

revealed that all the villages in the state suffer from no or inadequate sources of drinking water less than 16 per cent of the villages had a good source. In the Third and the three Annual plans 160 villages were covered with protected water supply at a cost of Rs. 1.82 crores.\(^{35}\)

The total expenditure incurred on rural and urban water supply programmes during the Third plan was Rs. 1048.02 lakhs. Relatively, very less attention was paid to rural water supply schemes and only 2 per cent of the total expenditure on water supply was incurred on these schemes. On the other hand the 33 new urban water supply schemes were taken up besides 2 spill over schemes during this plan period and 27 were completed. Thus, the urban population appear to have been a better served group.

During the fourth five year plan, accelerate the efforts of the state government in meeting the needs of the rural areas a centrally sponsored scheme known as Accelerated Rural Water Supply Programme was launched in 1972-73 to deal with difficult villages. By March 1973 a total of 4,178 borewells were drilled

\(^{35}\)Ibid., p. 242.
and a population of 42.88 lakhs was benefitted by sinking open wells and bore wells in 8575 villages. UNICEF assistance in the form of high speed drilling rigs provided drinking water facilities in hill and rocky villages.

During the plan an amount of Rs. 753.81 lakhs was incurred on rural water supply schemes and in all 40,571 villages and hamlets were provided with water supply facilities by the end of the plan period.

It was reported in the Fourth five year plan draft that urban water supply and drainage schemes were aimed "to cover as many municipalities as possible with protected water supply schemes." High priority was assigned to these schemes. A sum of Rs. 1,722.00 lakhs was incurred on urban water supply schemes and by the end of the Fourth plan 49 municipalities were covered with drinking water supply facilities. The coverage was inadequate and uneven.

At the beginning of the fifth plan, water supply schemes were operated by one department i.e., Chief Engineer, Public Health and the Department was expanded further to serve the needs of entire population. The fifth plan proposed to take up schemes in 300 villages
at a cost of ₹15.00 crores and the planning commission allocated ₹25.00 crores for rural water supply schemes. A programme for sinking borewells in 4080 problem and difficult villages was also approved.

To provide drinking water facilities in all the villages and hamlets, the Rural water supply schemes were included in the Minimum Needs Programme. The expenditure on water supply schemes under the Minimum Needs Programme during 1974-81 is shown in the following table No.2.3.1. It reveals that on an average, 30 per cent of the total expenditure on Minimum Needs Programme was incurred on water supply schemes. The expenditure on these schemes increased in march of time and was highest in the last two years. During the fifth plan period 6,350 villages were provided with drinking water facilities at an expenditure of ₹1080.28 lakhs.\(^{36}\)

On the eve of the fifth plan 34 municipalities were not provided with water supply facilities. It is noted in the review of the progress, fifth plan 1974-78 that an expenditure of ₹2,012.61 lakhs was incurred against a provision of ₹3,513.95 lakhs on urban water

\(^{36}\)Finance & Planning Department, "A.P. Review of Progress, Fifth Plan, 1974-78, Govt. of A.P., Hyderabad, November 1978, p. 156.
### TABLE: 2.3.1.

EXPENDITURE ON WATER SUPPLY UNDER MINIMUM NEEDS PROGRAMME

**IN ANDHRA PRADESH**

(Rs. in lakhs)

<table>
<thead>
<tr>
<th>Year</th>
<th>Expenditure on Water supply</th>
<th>Total expenditure on Minimum Needs Programme</th>
<th>Percentage of Col.2 to Col.3.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1974-75</td>
<td>217.89</td>
<td>679.69</td>
<td>32.06</td>
</tr>
<tr>
<td>1975-76</td>
<td>200.00</td>
<td>784.00</td>
<td>25.51</td>
</tr>
<tr>
<td>1976-77</td>
<td>331.96</td>
<td>1335.85</td>
<td>24.85</td>
</tr>
<tr>
<td>1977-78</td>
<td>368.28</td>
<td>1542.20</td>
<td>23.90</td>
</tr>
<tr>
<td>1978-79</td>
<td>670.00</td>
<td>2245.30</td>
<td>29.84</td>
</tr>
<tr>
<td>1979-80</td>
<td>1016.94</td>
<td>3096.65</td>
<td>32.84</td>
</tr>
<tr>
<td>1980-81*</td>
<td>1195.00</td>
<td>3820.33</td>
<td>31.28</td>
</tr>
</tbody>
</table>

* Anticipated expenditure

Source: Table: Outlays and Expenditure during 1974-80
supply schemes during 1974-78. 20 municipal towns were provided with drinking water facilities during the plan period and thus leaving 14 municipalities to be covered in the next plan.

The total expenditure on water supply and drainage during the fifth plan period was Rs. 8903.89 lakhs. 65 per cent of this expenditure was incurred on urban water supply schemes. In all during the plan period 20 urban and 293 rural water supply schemes were completed.

The Sixth plan, on the suggestion of Government of India, intended to cover 30 per cent of the population with piped water supply and the rest with spot sources in all problem villages. It is also proposed to cover 171 villages under Netherlands Assistance Programme at a cost of Rs. 1155.00 crores and 343 villages under State government Programmes. Under the borewells programme and mini-protected water supply programme Sixth plan proposed to drill 42,000 borewells with hand pumps and 3,500 borewells with power pumps. Thus, Rural water supply programmes received greater attention and an amount of Rs. 14,300.00 lakhs was allocated to these programmes.

The objective of urban wafer supply in the Sixth Five year plan was 'total coverage of entire urban population with assured and adequate drinking water supply. Hence, schemes were taken up in all the uncovered (14) municipalities in the state at a proposed outlay of Rs. 14,425.67 lakhs.

The expenditure on Rural and Urban water supply programmes in Andhra Pradesh are shown in Table No. 2.3.3. It reveals that the expenditure on water supply and drainage accounted for 7 per cent of the total expenditure of the first five year plan and declined afterwards. Its share was 4.5 per cent of the total plan expenditure of the fourth plan and increased to nearly 9 per cent of the total fifth plan expenditure.

The expenditure between rural and urban areas fluctuated during the plans and larger share of funds were allocated to urban water supply schemes. The expenditure on urban water supply was highest during the third plan accounting for nearly 98 per cent of the total expenditure on water supply. During other plans, its share was more than 65 per cent of the total expenditure on water supply.

The details relating to the number of urban water supply spill over, new schemes and schemes taken up and completed are shown in Table No. 2.3.3.
## 2.3.3. EXPENDITURE ON RURAL AND URBAN WATER-SUPPLY PROGRAMMES IN ANDHRA PRADESH

### (Rs. in lakhs)

<table>
<thead>
<tr>
<th>Plan period</th>
<th>Expenditure on water supply and drainage</th>
<th>Total expenditure</th>
<th>Total plan expenditure</th>
<th>Percentage of Col. 3 to Col. 4</th>
<th>Percentage of Col. 4 to Col. 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Rural</td>
<td>Urban</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>First Plan</td>
<td>N.A.</td>
<td>N.A.</td>
<td>685.50</td>
<td>9,678.09</td>
<td>-</td>
</tr>
<tr>
<td>Second Plan</td>
<td>113.36</td>
<td>157.43</td>
<td>270.79</td>
<td>18,860.30</td>
<td>58</td>
</tr>
<tr>
<td>Third Plan</td>
<td>23.26</td>
<td>1,024.76</td>
<td>1,048.02</td>
<td>35,241.60</td>
<td>98</td>
</tr>
<tr>
<td><strong>Annual Plans</strong></td>
<td>110.08</td>
<td>570.74</td>
<td>680.82</td>
<td>N.A.</td>
<td>84</td>
</tr>
<tr>
<td>Fourth Plan</td>
<td>753.81</td>
<td>1,722.00</td>
<td>2,475.81</td>
<td>42,748.59</td>
<td>70</td>
</tr>
<tr>
<td>Fifth Plan</td>
<td>3,089.94</td>
<td>5,813.95</td>
<td>8,903.89</td>
<td>1,00,427.79</td>
<td>65</td>
</tr>
<tr>
<td>Sixth Plan</td>
<td>11,300.00</td>
<td>17,162-57</td>
<td>28,462.57</td>
<td>3,96,660.54</td>
<td>41</td>
</tr>
</tbody>
</table>

Source: Planning and Co-operation Department, Govt. of Andhra Pradesh, "Fifth Five Year Plan of Andhra Pradesh" Technical papers, I-Review of Development, Hyderabad, p. 99.
### DETAILS OF URBAN WATER SUPPLY SCHEMES TAKEN UP AND COMPLETED DURING THE FIVE YEAR PLANS IN ANDHRA PRADESH

<table>
<thead>
<tr>
<th>Plan period</th>
<th>No. of Spill over Schemes</th>
<th>No. of New Schemes</th>
<th>Total on going schemes</th>
<th>Total schemes completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Plan</td>
<td>-</td>
<td>17</td>
<td>17</td>
<td>1</td>
</tr>
<tr>
<td>Second Plan</td>
<td>16</td>
<td>2</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Third Plan</td>
<td>2</td>
<td>33</td>
<td>35</td>
<td>27</td>
</tr>
<tr>
<td>Annual Plans</td>
<td>8</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Fourth Plan</td>
<td>5</td>
<td>34</td>
<td>39</td>
<td>14</td>
</tr>
<tr>
<td>Fifth Plan</td>
<td>25</td>
<td>28</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>Sixth Plan</td>
<td>6</td>
<td>12</td>
<td>18</td>
<td>-</td>
</tr>
</tbody>
</table>

It is noted that an attempt is made during the first five year plan to provide water supplies in 17 urban areas and only one was completed. Most of these schemes were completed in the next plan period. With the allocation of 98 per cent of the total expenditure on water supply, 33 new schemes were taken up and 27 were completed during the third plan period. In the next plan period 47 urban water supply schemes were completed and thus leaving 14 municipalities to be covered in the Sixth Plan period. Thus, relatively the provision of urban water supplies, though partial and uneven, appear to be better than that of the provision of Rural Water Supplies in Andhra Pradesh.
2.4. Public Water Supplies in Rayalaseema:

2.4.1. Rayalaseema Region:

The southern plateau districts of Andhra Pradesh State Kurnool, Anantapur, Cuddapah and Chittoor districts (as shown in the map) are referred to as Rayalaseema region or ceded districts. This region is treated as one of the natural divisions of India. It was prone to the incidence of famines and in the last 6 years World Bank has bestowed its attention on this area under its Drought Prone Area Programme.

Rayalaseema, one of the three major divisions of Andhra Pradesh extends over an area of 28,000 square miles. The soil of the region is said to be highly porous, poor in organic matter and fertility in possessing low holding (water) capacity. The rainfall of the region is very low and perhaps, as a consequence there are no major rivers in the region except Krishna and Tungabhadra. The average flow of all other minor rivers is confined to 20 days in a year.

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There are 16,891 villages and hamlets and 42 towns in Rayalaseema Region. The drinking water supply schemes and programmes implemented in the region are not mentioned separately in the five year plans of the State. However, the reference made to the drinking water supply programme in the four districts in the five year plans help review the water supply programmes of the region.

2.4.2. Drinking water supply schemes in Rayalaseema.

The water supply programmes were started in the selected villages and towns of Rayalaseema prior to the planning era. The progress made by these schemes appear to be unsatisfactory and on the eve of the first five year plan it was found that some sort of protected water supply arrangements were made in some towns and villages of the region.

2.4.3. Rural water supply schemes:

In 1937-38 Rural water supply schemes with a ten year programme and the 1947-48 scheme with a five year programme were executed under the local development works in the State. These schemes could not make a significant headway in the region.
"Provision of protected water supply was considered to be one of the essential ameliorative measures to improve the health conditions of villages in rural areas." During the first five year plan rural water supply programmes received attention and under the National water supply and Sanitation programme works were undertaken in one of the small towns of the region. A rural sanitation unit was established to evolve designs for latrines and water supplies for rural areas.

Not much of an attention was paid to these schemes during the Second Five Year plan except for sinking borewells in the villages. The protected water supply schemes started in the earlier plan were continued with only 2 per cent of the total expenditure on water supply.

It was in the Third Five Year plan that the need for providing rural water supplies were realised and larger allocations were made for these schemes. An enquiry conducted into the adequacy of drinking water revealed that 90 per cent of the villages in the region did not have even one good source of drinking water and the rest of the villages suffer from inadequate supplies.

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40 First Five Year Plan, Andhra State, An Appraisal, p. 115.
Rural water supply schemes were included under the Minimum Needs Programme and priority was given for the provision of drinking water facilities in "Problem Villages". With the efforts made in the Third and subsequent Annual plans 74 per cent of the total villages and hamlets were provided with drinking water facilities.

A separate 'Planning and Development Board for Rayalaseema' was constituted by the State Government during the fourth five year plan. However, during this plan period improvement works were not executed under the MNP due to lack of sufficient funds.

During 1974-79 a special programme for the development of the region namely 'Six point formula programme' was introduced. The rural water supply schemes of the region were included in this programme and greater attention was paid to the village water supply schemes. In all, 6,000 borewells were drilled during 1974-79 with an expenditure of Rs.381-96 lakhs.

The rural water supply programmes received greater attention during the Sixth Five Year Plan and larger amounts were allocated to these schemes. A borewells programme and mini-protected water supply programmes were introduced by the state government.
2.4.4. **Urban water supply programmes**

On the eve of the first plan four municipal towns of the region were provided with some sort of water supply facilities. The per capita per diem was 4 gallons a day in Proddatur, the lowest in Andhra State. Efforts were made during the first plan to augment water supply facilities in 3 towns and to provide drinking water to 4 towns. These 4 schemes were continued in the next two plans by adding one in each plan financed by the central sector. Thus, for a decade 1956-66 no concerted effort was made by the state government neither to introduce new schemes nor to finance the on going schemes from the state funds.

The draft outline of the fourth plan stated that it will be possible to cover all the municipalities in Rayalaseema and Telangana regions. But, only 13 out of 18 municipalities in the region were served with protected water supply facilities. Schemes were started in the remaining 5 municipalities by the end of the fourth plan. It was in the fifth plan that all the municipalities in Rayalaseema were covered with protected water supplies. During the plan 8 augmentation schemes were taken up at a cost of ₹.297.00 lakhs.
The coverage of urban water supply seem to be better than that of the coverage of rural water supplies. Though, all the municipal towns had water supply systems, the low per capita availability of water, the ever growing urban population, the drought conditions of the region responsible for the depletion of water table.

The frequent failures of the system calls for a thorough modification and expansion of the distribution net work and constant efforts to augment the supplies without any financial inadequacies, to serve a larger proportion of the urban population with higher standards of drinking water.

We thus find that only since the fourth plan period that intensive effort has been made to cover larger population with protected water supply. The failure of the municipalities and panchayats to share the expenditure on water supply schemes and their dependence on the state government and central sector assistance placed heavy burden on them. There are several inconsistencies in the information and data presented in different sources and a separate and detailed study needs to be made in this area.
2.5. **Summary:**

With an increasing awareness of the importance of safe drinking water supply in sustaining the process of economic development, many international agencies and national governments have formulated programmes for the provision of this basic requirement.

It was revealed in the 1970 WHO survey that nearly a third of the population had no access to safe water and the situation differed between countries and between rural and urban areas within the country. The position in European and Latin America regions was better than that of in Africa, South East Asia and Eastern Mediterranean regions. In all these regions greater proportion of the urban population had reasonable access to safe water than the rural population.

At the beginning of the International Drinking water supply and sanitation (1981-90) over half the peoples of the Third World did not have safe water to drink and the situation is getting worse. About 100 million more Third world people were drinking dirty water in 1981 than in 1975. It was found that efforts of providing water supply and sanitation ended in failure in the past and in view of this a multisectoral approach was recommended by WHO.
The importance of providing safe water supply as a 'basic minimum need' to improve the living standards of people has been recognised by the Government of India. The five year plans stressed the role and importance of public water supplies and to intensify the efforts for provision of water supply in rural areas was incorporated as one of the objectives of the Fifth Five Year Plan. The actual investments ranging between 1% - 4% of the total outlay did not reflect the 'high priority' accorded by the governments.

There were inter state differences in the rural population coverage ranging from more than 80 per cent in Kerala, Gujarat, Tamilnadu, Uttar Pradesh, West Bengal and Madhya Pradesh, to less than 50 per cent in Andhra Pradesh, Karnataka, Rajasthan, Jammu and Kashmir, Bihar and Haryana. The coverage of urban population increased from 75 per cent to 84 per cent during the last decade. Though it was uneven and partial, relatively, it was better than that of the coverage of population in rural areas.

In Andhra Pradesh the water supply programmes have a long history. A Rural water supply scheme was formulated and a ten year programme was drawn up in
1937-38. Rural water supply facilities were provided in the state under programmes such as state plan for public health, NWSSS, Local Development works, Rural water supply and piped water supply which were a part of Minimum Needs Programme, programme for sinking bore wells, mini-protected water supply programmes etc. In addition to them, in Rayalaseema, a part of Andhra Pradesh State rural water supply schemes were executed under six point formula programme introduced for the development of the region.

The urban water supply agencies in Andhra Pradesh and Rayalaseema have been providing water facilities since the last quarter of the last century. Though efforts were made to augment the systems to serve better during the five year plans, it was only since the fourth five year plan (1969-74) intensive efforts were made by the State Government to cover the entire population in the towns. About 86 per cent of the municipal towns have been covered by public water supplies and no reliable source could provide consistent statistics about the coverage of villages. A separate and detailed study needs to be conducted in this area.