CHAPTER - VIII

GROUND WATER
POTENTIAL
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GROUNDWATER POTENTIAL

8.1 General

Groundwater plays a vital role in catering to about 52% of the total irrigation requirement of the country. Its use has gained increasing popularity over the years because of various factors like easy accessibility, its ubiquitous nature of occurrence, control in the hand of the farmer, and high use of efficiency. As the economics of our state is basically agrarian, the development of the agrarian economy demands a stabilized agriculture and crop against natural calamities. The systematic and logical assessment of groundwater resources is one of the modern tools for sustainable micro level and macro level area planning. The groundwater potential of a region can be optimally harnessed to address several need-based programmes like assured irrigation, safe drinking water, cottage and small-scale industry etc. Hence, encouragement both in the form of technical and financial, are given to farmers for groundwater exploitation even in irrigated areas. Being in demand, the sustainable groundwater development in the areas requires scientific management estimation, development, conservation and protection.

Here, rainfall is the principal source of groundwater recharge in the district. Other sources of recharge are seepage from canals and return flow from applied irrigation water. The groundwater resources are utilized for irrigation, domestic and industrial purposes in the district. The base flow in Brahmani and Mahanadi rivers is a regenerated groundwater resource and part of it is utilized for lift-irrigation and surface irrigation.

It is recommended that 15% of total groundwater resources be kept for drinking and industrial purposes. The remaining 85% can be utilized for irrigation purposes.
8.2 Groundwater Draft

The groundwater draft in the district is mainly for irrigation through dugwells, borewells and dug-cum-bare wells. The net draft is 4900 Ham and block wise draft is shown in table-13.

8.3. Balance groundwater resource for future development

From the available groundwater resources for irrigation, the present annual irrigation draft was subtracted to get the resource available for future development. The block wise balance groundwater resource available for further development presented in column no 7 of table – 13. Since the groundwater balance in Angul district is 61931 Ham, therefore there is a vast scope for future development.

8.4 Stage / level of groundwater development and categorization

Based on the recharge and draft, the stage of groundwater development in an area is the percentage ratio of Annual net draft to Annual utilisable groundwater resources for irrigation i.e.,

\[
\text{Stage of Groundwater Development} = \frac{\text{Annual net Draft}}{\text{Annual utilisable groundwater resource for irrigation}} \times 100
\]

The level of groundwater development in different blocks is not uniform and varies from 1.54% in Pallahara to 19.98% in Banarpal block. The overall stage of Groundwater Development in Angul district as a whole is 7.33%.

8.5 Utilizable Irrigation Potential

It is kept as 90% of the ultimate irrigation potential in view of the following reasons:

(i) To ensure sustainable development, the level of groundwater extraction has to be kept at a level reasonably lower than the ultimate availability.
(ii) To maintain river ecology, minimum flows have to be ensured by limiting extraction of groundwater, which contributes to the lean season flows in the river.

The utilizable irrigation potential for the district is calculated and is found to be 176869 Ha. The block wise break up is shown in column 10 of table 13.
Table 13  Ground water resource and Irrigation potential of Anugul District (Talchir area)

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Source  CGWB, Bhubaneswar, Orissa