

द्वितीय पत्र : सेवा सम्बन्धी प्राविधिक विषय

पूर्णाङ्क:- १००

1. Introduction

History of Groundwater development in Nepal
Hydrogeology of Nepal and present status of Hydro-geological mapping in Nepal

2. Water well construction

Contract Management, Well design, and Construction Material specifications

3. Groundwater pollution

Sources of pollution and their effects on groundwater quality (atmospheric, human and industrial waste, agricultural practices, disasters), groundwater quality monitoring. Preventive measures and mitigative approach

4. Sanitary protection for groundwater

Natural purification of groundwater, construction principles, travel of bacteria in aquifers

5. Conservation and utility of groundwater

Optimum development of aquifers, subsurface water storage & artificial recharge

6. Groundwater flow modeling

Groundwater flow, Concept of groundwater balance, flow computation & modeling, Calibration and Simulation, Geometry of basin aquifer characteristics

7. Groundwater resource management

Groundwater investigation, groundwater studies, groundwater resources evaluation, participatory approach in groundwater use. Trend of use of groundwater in the field of irrigation, industries and drinking water supply in Nepal

8. Project planning and evaluation

- Project identification, project formulation, implementation, appraisal, supervision, monitoring and evaluation
- Project planning, budgeting, and resource mobilization
- Project management, leadership, decision making and contract negotiation.
- National goal, purpose, policies, programmes, activities and inputs for current five year plan in water resources development including the surface and groundwater development.
- Project reporting

9. National policy on groundwater use and formulation of groundwater act, law and regulations

Groundwater development in tenth five-year plan, National water plan, water resources strategies of Nepal, Groundwater resources in poverty reduction paper, Groundwater in millennium development goal, groundwater as a component in integrated water resources management, subsidy issues in groundwater irrigation

10. Groundwater resources of Nepal

Methods of estimating annual groundwater recharge, scenario of groundwater balance at the end of Agricultural Perspective Plan (APP) period, issues and strategic options of groundwater development and management in the Terai of Nepal, scope and challenge in groundwater resources development

11. Water resource potential in Nepal and its prospects of development in terms of energy production, irrigation and water supply

12. Hydrogeology of Nepal

Geological setting of Nepal (Mountain, Hills & Terai) and its significance in hydrogeology of Nepal, significance of hydrogeological studies in water induced disaster mitigation, land subsidence, issues of groundwater use in Kathmandu valley

13. Structural geology

Effects of structural features in groundwater occurrence and distribution

14. Environmental Impact Assessment

Concept of environmental assessment in groundwater development projects

15. Global climate change and its impact in the water resources of Nepal

16. Assessment of the organizational structure of the Ministry related to Water Resources and institutional development of groundwater, prospects for improving structure

17. International conventions on multilateral and bilateral use of water resources, bilateral treaties and agreements between Nepal and its neighbors on water resources