Health for All in New Millennium – Is This Possible Without GIS Applications?

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KEYWORDS GIS. Spatial Analysis. Mapping. Health Management

ABSTRACT There will be many challenges in effective health care delivery system in the new millennium. A health administrator can implement & use Geographical Information System (GIS)- a powerful computer based technology for evaluation, planning, assessment and management due to the options and capabilities for data maintenance and manipulation through add/ delete/ change, move/ rotate, stretch/ rectify, transform projection and scale, zoom/ window, clip and modifications, 3-D projection and display and data retrieval and reporting etc. of any feature or entity. Management and handling of large data base of spatial and aspatial nature in context of communicable and non-communicable diseases, reproductive and child health (RCH), environmental health, health sector reforms, decentralization and role of various institutions, role of various agencies and Government etc for analysis and solutions of complex and difficult problems is simple, time and cost effective by GIS. Non-spatial data (viz. number of vehicles, well, schools, HIV infected persons, name of roads, forests, population or census data, number of patients, number of *anganwadi* in a village or block or district, number of SCs, number of PHCs, number of CHCs number of hospitals etc.) directly and spatial data (viz. location of a SC, PHC or a CHC or a hospital) through digitization can be entered in the GIS system. Non-spatial information can be represented as spatial information using GIS on a map or a monitor. GIS can generate maps in various combinations and permutations as initial and final output (ranged colour maps or proportional symbol maps to denote the intensity of a mapped variable) to depict various health and family welfare programmes for general monitoring, demographic, programme performance, health infrastructure, maternal & adolescent health, status of various methods used and position of various diseases etc. This technology provides overlay of different pieces of information in desired and required manner and can create a buffer zone/ area around any required parameter or object. All type of calculations & measurements are possible by interactive queries of information contained within the map, table or graph. It is helpful in determining geographical distribution and variation of diseases (prevalence and incidence) and various disease causing parameters/ agents, monitoring diseases, stratifying risk factors and mapping population at risk e.g. HIV prevalence in a State or a Country. Wide ranges of extrapolation techniques are also possible in GIS. Final output can be in the form of maps, graphs and tables for future planning, course of action and management for better health.