Web GIS Based Education Information System

A Case Study of Pakistan

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• Education system in Pakistan:
  • 267,955 institutions working under different sectors of education.
  • These institutions are facilitating 44.44 million students by hiring the services of 1.65 million teachers.
  • Public sector institutions: 180,296
  • Private sector institutions: 87,659.
  • The share of private sector institutions in overall education system is 33% which is increased from 31% in 2013-14.
  • Different education systems are running under public and private education sectors which include formal education system, non-formal education system, deeni madaris and special education system.
• National Education Management Information System (NEMIS) is responsible for consolidating and analyzing national education data from all provincial/area EMIS units.

• Educational Statistics since 1992-93

• Categorized by Institutions, Enrollment, Facilities and Teachers.

• More than 1000 variables disaggregated by sector stage and gender.

• Annually updated and published
Introduction - Target Audiences

• Education Managers
• Policy Makers and Strategy Planners
• Donors funding education interventions
• UN Agencies working in Education
• Researchers
• The Pakistan Education Atlas is a joint collaboration between WFP and NEMIS since 2010
• Five education atlases have been published
• Aim is to disseminate educational indicators through the use of GIS in the form of hard copy as well as web GIS based interactive online application
Atlas Design Model

- Stakeholder Consultation
- Atlas Indicator
  - Data on Selected Indicators
  - Atlas Map
    - Map Series Compilation
      - Proof Reading of Draft
      - Printing Test
      - Printing
    - Book compilation
  - Mapping Template Design
    - Map Layout
    - Map components
    - Projection System
    - Title text
    - Symbology

- NEMIS Database
- Spatial Database
Methodology – Architectural Design

- **SQL Server**: Education indicators database
- **ArcMap**: Education Indicator maps
- **ArcGIS Server**: Publish services
- **Develop application using ArcGIS API for Flex**
- **Pakistan Education Atlas (Flex application)**
- **Deploy to Web Server**
- **User**

**REST**
Pakistan Education Atlas interface (district level)
Pakistan Education Atlas interface (tehsil level)
1. Search by Admin Level

2. Search by Indicator
3. Graph Analysis

4. Dynamic Thematic Analysis
5. Draw

6. Export / Print Map

7. Bookmarks
5. Education Indicators List

6. Legend
Other functions

• Pop-up window

• Basemaps
Conclusion

- Lack of GIS based online application to access education data publically
- ArcGIS Server, SQL Server and Adobe Flex framework used for this application is high performance based that allows storing of large amount of data, can be easily managed and configured.
Thank You