

CALCULATION OF HUMAN RESOURCE DEVELOPMENT INDEX
USING GIS SOFTWARE AND
GUI CUSTOMIZATION

Introduction:

Despite the undoubted importance of human resources there is little consistency between countries in how human resource strategies are monitored and evaluated. While growth in national production (GDP) is absolutely necessary to meet all essential human objectives, what is important is to study how this growth translates—or fails to translate—into human development in various societies. This paper aims at calculating the Human Resource Development Index (HRDI) on a GIS platform, to serve as an indicator for the growth of the area under consideration in all aspects.

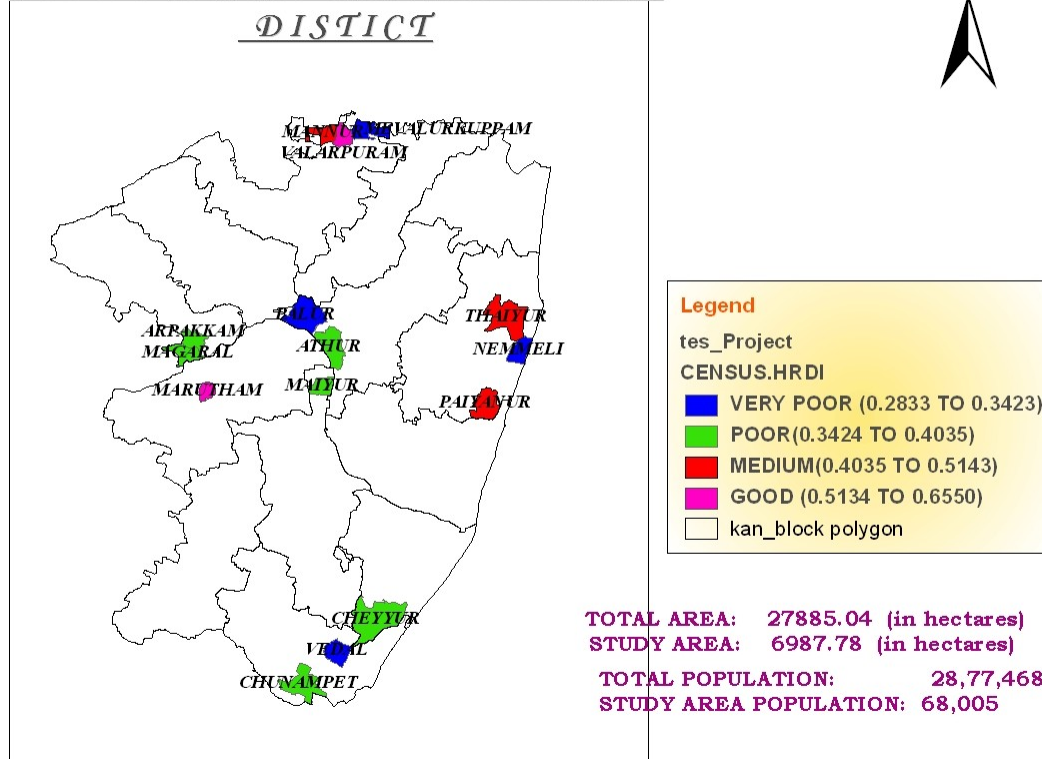
Methodology:

Study Area

Kancheepuram District in Tamilnadu.

Here, 15 villages were chosen in such a manner that they are geographically well distributed.

STUDY AREA: KANCHIPURAM
DISTRICT



Data collection:

- The required data were collected from Census department (**SOURCE : CENSUS 2001**)
- The data includes details regarding Population, Literacy rate, Household size, work Participation rate, Number of Schools/Hospitals/Telephone connections/Bank/Credit societies/ Drinking Water sources/Post Offices, Income.

Thus, all possible details about the village were collected.

Formulae:

As per U.N norms,

$$\text{Index Value} = \frac{(\text{Actual value} - \text{minimum value})}{(\text{Maximum value} - \text{minimum value})}$$

- ❖ HRDI → Weighted average of relevant indices,
where, Weight is considered to be 1 always.

With respect to the details and the socio – economic data available, we have made subsequent changes and introducing the following formulae for our research purpose:

1. Employment index →
$$\frac{\text{Total number of workers}}{\text{Total population}}$$

2. Education Index = $(1/3 \{ \text{Literacy Index} \} + 2/3 \{ \text{Education facility index} \})$

Literacy Index →
$$\frac{\text{Total number of Literates}}{\text{Total population}}$$

Education Facility Index →
$$\frac{\text{Total No. of schools and colleges}}{\text{Total population}}$$

3. Sex Ratio Index → No. of females per 1000 males

4. Health Facilities Index →
$$\frac{\text{Total no. of hospitals}}{\text{Total population}}$$

5. Living conditions Index →
$$\frac{\text{water communication Facility Index} + \text{commercial facility Index} + \text{facility Index}}{3}$$

$$6. \text{ Income Index} \rightarrow \frac{\text{Total income}}{\text{Total population}}$$

$$\text{HRDI} = \frac{\text{Income Index} + \text{Education Index} + \text{Living Cond. Index} + \text{Health Facilities Index} + \text{Sex ratio Index} + \text{Employment Index}}{6}$$

Procedure :

The map of Kancheepuram District is obtained in Digital format from Institute of Remote Sensing (IRS), Anna University. The necessary villages are extracted; all necessary attributes are added and saved as a separate *.mxd file.

Nextly, Visual Basic Editor is called in ARCGIS (Alt + F 11).

SIX forms are designed and coded. The forms are

1. for calculating HRDI
2. for varying weightages
3. For calculating percentage variations in indices.
4. For ranking villages based on indices.
5. For allotting funds to villages based on developments.

Lastly, all the villages are analysed for their performance.

The reasons that contribute for HRDI are noted down.

For example,

The HRDI of MEVALURKUPPAM village is the lowest due to low employment index, low sex ratio index and low health facility index.

For further analysis, remotely sensed data i.e. satellite data in digital format is acquired. Data Layers like drainage lines, drainage polygons and land use are overlaid. Thus availability of natural resources is studied in the context of enhancing/hampering development of the village.

✓ **DECISION SUPPORT SYSTEM**

Forms are designed and coded in ARCGIS such that a user can come to a conclusion while allotting funds for development. The fund to be allocated is calculated by assigning percentage values that are inversely proportional to HRDI.

CONCLUSION:-

Thus, HRDI corresponding to each village is calculated and factors affecting it are analysed. ARCGIS is used to create a decision support system that helps take important decisions on development activities of the village. Marrying the Socio-economic data and the satellite data we could come to a conclusion on the following things:

- THE ALLOCATION OF FUNDS FOR DEVELOPMENT BASED ON HRDI
- REWARDING THE VILLAGES THAT HAVE PERFORMED WELL.
- HAVE THE NATURAL RESOURCES BEEN UTILISED FULLY FOR THE DEVELOPMENT OF HRDI.

THUS, GUI HAS BEEN LINKED WITH THE HELP OF VISUAL BASIC AND INCORPORATED WITH ARCGIS FOR GOOD RESULTS.

Note:-

In our abstract we had specified our objective as calculation of HRDI only.

But, the guidance of our project guide

Dr, T. Natarajan,(PhD , TORONTO), Chair professor, OIDB., has made us carry out further improvisations. This led us into an expanded area of study -like formulating a decision support system.
