



Population Projections For Visavadar Town of Junagadh Distric

*Janki.H.Vyas **Dr.N.J.Shrimali ***Mukesh.A.Modi

* M.E.Civil (Hyd. Structure), Faculty of Technology & Engineering, The M.S.University of Baroda

** Associate Professor, Faculty of Technology & Engineering, The M.S.University of Baroda

*** Assistant Professor, Faculty of Technology & Engineering, The M.S.University of Baroda

ABSTRACT

Population projection is a scientific attempt to peep into the future population scenario, conditioned by making certain assumptions, using data relating to the past available at that point of time. The design population will have to be estimated with due regard to all the factors governing the future growth and development of the project area in the industrial, commercial, educational, social and administration spheres. Special factors causing sudden immigration or influx of population should also be foreseen to the extent possible. Different methods are used for population forecasting. | In the current paper we present the population projections for Visavadar town of Junagadh city. Population forecasting is carried out using Incremental increase method |

Keywords : Total population, projection, life expectancy, forecasting, incremental increase.

I. INTRODUCTION

Changes in population size, age structure, urban/rural place of residence and level of education matter for global change in two important ways. First, they are agents of change, inducing many of the environmental, economic and social changes in the world that give rise to concerns about the sustainability of current development paths. Second, the human population and its living conditions are the ultimate objects of development, and concerns about human survival, health and well-being are the reasons for our interest in global change.

Forecasts of the population and its various structures are not only among the most important inputs to global change scenarios, but are also indispensable when trying to assess the possible impacts of environmental change and societies capacities to adapt. Population forecasting is very important to know the growth of particular area. Agricultural resources and urban facilities are managed based on Population projection. Planning for the future requirements of the population, has therefore, became the major concern of the planners and requires accurate estimates of the future population growth. United Nations and several other national and international agencies, therefore prepare population projections and keep on updating them as and when fresh information are available.

Assumptions used and their probability of adhering in future, forms a critical input in this mathematical effort. Predicting the future course of human fertility and mortality is not easy, especially when looking beyond in time as medical and health intervention strategies, food production and its equitable availability, climatic variability, socio-cultural setting, politico economic conditions and a host of other factors influence population dynamics, making it difficult to predict the growth with certainty. Therefore, caution must be exercised while making or using the population projections in the context of various conditions imposed.

In the present study we develop population projection for Visavadar taluka of Junagadh city using Incremental increase method. Detailed implementation procedure and the outcomes are presented in the subsequent sections.

II. Population Projections: method and assumptions

The district of Junagadh is located in Saurashtra region of Gujarat. Administratively the district is divided into eleven towns and fourteen taluka, one of them is Visavadar taluka. It consists of 102 no. of villages and 1 town. Visavadar town is located on South-East of the district. The town is a small Commercial Centre for the people of 102 villages. The total land area is 26.12 Sq. kms. Geologically, it is a plain terrain but partially hilly.

Population projections have been made with 2011 as the base line using Incremental increase method. The Incremental increase method is the universally accepted method of making population projections because incremental increase in successive decades is considered. In this method the increment in arithmetical increase is determined from the past decades and the average of that increment is added to the average increase. This method increases the figures obtained by the arithmetical increase method.

For using this method to forecast the future population certain assumptions are made. The rate of growth of population increases with increasing year. This method is based on Arithmetical progressive method. The projected population is based on incremental increase. It does not provide information of migration, life expectancy rate and fertility rate. This method is used for predicting data like water supply, agricultural resources etc. based on population estimates.

For population forecasting increase in population from 1951 to 2011 i.e. in 6 decades is considered. These data are taken from decadal census of Junagadh district. Population data from 1951 to 2011 is given in Table.

**TABLE
POPULATION FORECAST & ITS SUCCESSIVE INCREMENT**

Year	Population	Increase	Incremental increase
1951	5918	-	-
1961	8415	2497	-

1971	11024	2609	112
1981	13870	2846	237
1991	16884	3014	168
2001	18061	1177	-1837
2011	21438	3377	2200
	Total	15520	880

Then the average mean value of increase & incremental increase is worked out. Now, using incremental increase equation future population is projected.

$$P = P_0 + n \cdot d + \frac{1}{2} n(n+1) C$$

Where, P= Future population

P_0 = Population of last deced

n = No. of decade

d = Average of decadal increase

c = Incremental increase

- **Population for Year 2016**
 $= 21438 + 0.5 \times 2587 + 0.5 (0.5 + 1) \times (176)/2$
 $= 22798$

- **Population for Year 2021**
 $= 21438 + 1.0 \times 2587 + 1.0 (1.0+1) \times (176)/2$
 $= 24122$

- **Population for Year 2041**
 $= 21438 + 3.0 \times 2587 + 3.0 (3.0 + 1) \times (176)/2$
 $= 30255$

III. Conclusion

the population projection carried out using Incremental increase method provides qualitative support. In this we have shown 0.6, 1, 3 decades population increase respectively for 2016, 2021, 2041 year with respect to base year 2011. Population projection for design period of 30 years is carried out in this paper so that water supply network design can be carried based on that for Visavadar town. We estimated the future population with incremental increase of successive decades.

REFERENCES

- [1] Nico Keilman, Dinh Quang Pham & Arve Hetland(2002). " Why population forecasts should be probabilistic - illustrated by the case of Norway", DEMOGRAPHIC RESEARCH VOLUME 6, ARTICLE 15, PAGES 409-454 PUBLISHED 28 MAY 2002, GERMANY [2] Wolfgang Lutz "World Population", POPULATION AND SOCIETY POP 2004 RESEARCH PLAN [3] Aslam Mahmood and Amitabh Kundu "Demographic Projections for India 2006-2051: Regional variations". JAWAHARLAL NEHRU UNIVERSITY NEW DELHI [4] Goutami Bandyopadhyay and Surajit Chattopadhyay "An Artificial Neural Net approach to forecast the population of India" [5] Google search: <http://demographicsofindia.htm/> | [6] Marija Mamolo and Sergei Scherbov. "Population Projections for Forty-Four European Countries: The Ongoing Population Ageing", EUROPEAN DEMOGRAPHIC RESEARCH PAPERS 2000. |