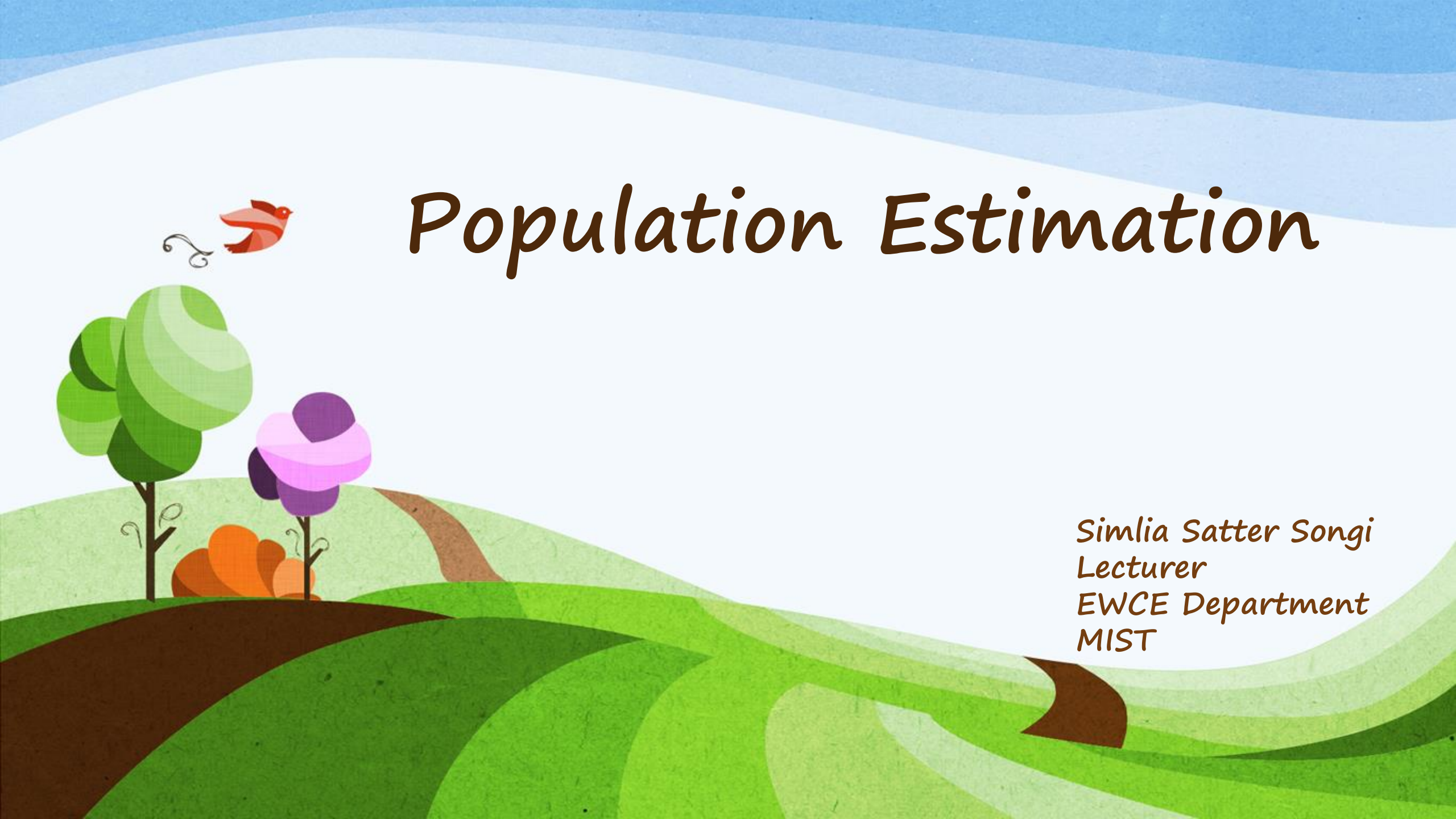


Population Estimation

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OBJECTIVE

- The organogram of the industrial village is the basis for the estimation of the population.

- Population estimation and prediction for future is an essential element for planning an industrial village so that it can accommodate the future water demands.

PRINCIPLES

I. Population calculation should be made for each zones, i.e. Residential, Administrative, Industrial, and Common Services.

II. For the residential zone proper considerations should be made in calculating family size and accommodation size of different staff members.

III. The assumptions (% of worker/staff staying inside or outside the village) should be clearly stated for each calculation.

PRINCIPLES

IV. Future population calculation should be made with a set of assumptions on increase of population in different zones of the village.

V. For the administrative, industrial, and common service zones proper considerations should be made for calculating the number of staffs working.

STEPS

- Category Wise Division
- Assumptions
- Population Calculation
- Summary

CATEGORY WISE DIVISION

Category Name	Designation
Class A	Chairperson, MD, Directors, General Managers
Class B	Executive Officer, Managers, Chief Security Officer
Class C	Asst. Manager, Merchandiser, Technician, Supervisors
Class D	Operator, Helper, Staff, Guards

ASSUMPTIONS

- Growth of Industry
- Allotted Employee
- Percent having residential facility
- Percent having family quarter or dorm
- Family Member
- Growth Rate for family Quarter
- Dorm Capacity Increase

ASSUMPTIONS

- 1st class:

  a)Designation of allotted employee: Chairperson, MD, Director, COO etc.

  b) 100% have residential facilities

  c) Family member = 7

  d) Growth rate = 0.7%

ASSUMPTIONS

- 2nd class:

  a)Designation of allotted employee: Managers, Heads and Chiefs etc.

  b) 100% have residential facilities

  c) 80% have family quarter, 20% have dorm

  d) Family member = 5.7

  e) Growth rate for family quarter = 1.2%

  f) The dorm capacity has increased by 5 units in every 10 years.

POPULATION CALCULATION

- Zone Wise Population Calculation

- Estimation for Design Period
  - 10 years
  - 20 years
  - 30 years

FORMULA

- Formula for calculating future population

Future Population= P * (1+r)^n

P= Present Population

r= Growth rate (%)

n=Design Period

SAMPLE CALCULATION

- Residential Area
- 1st class officers:
  - Chairman (1)
  - Managing Director (1)
  - Director (2)
  - Chief Executive Officer (2)
  - Chief Operating Officer (4)
- Total employee number = 10

SAMPLE CALCULATION

- Accommodation given 100%
- Assumed family member = 7
- Total present population = 10*7 = 70
- Annual growth rate = 0.70%
- Population after 10 years = 70*(1+0.007)^10 = 76
- Population after 20 years = 70*(1+0.007)^20 = 81

Table 2.8: Population Estimation for Residential Zone (contd.)			
3rd class		**4th class**	
Resident Type	Senior officer, Officer, Assistant officer etc.	Resident Type	Operators, Workers, Guards and Helpers.
Total number of employee	260	Total number of employee	883
% having residential facilities	75	% having residential facilities	75
% having family quarter	60	% having family quarter	40
% having dorm	40	% having dorm	60
Residential employee(quarter)	117	ployee(quarter)	265
Assumed family member	5.7	Assumed family member	5.7
Total Present Population	670	Total Present Population	1511
Annual Growth rate (Assumed)	0.015	Annual Growth rate (Assumed)	0.017
Population after 10 years	778	ears	1790
Population after 20 years		Population after 20 years	2120
Dorm. Population	78	on	398
Population after 10 years	91	Population after 10 years	480
Population after 20 years		20 years	560

260*0.75*0.6

117*5.7

670*(1+0.015)^10

260*0.75*0.4

78*(1+0.015)^10

Table 2.9: Summary of Population Calculation

Time / Zones	Residential								Administrative	Industrial	Commercial	Social Welfare	HR & IT
	1st class		2nd class		3rd class		4th class						
	Family	Dorm	Family	Dorm	Family	Dorm	Family	Dorm					
Present	70	0	274	12	670	78	1511	398	128	590	102	819	275
10 years later	76	0	309	14	778	91	1790	480	154	708	123	901	303
20 years later	81	0	348	16	903	106	2120	560	180	826	143	983	578

128*1.2

THANK YOU