What is a Slum?

UN-HABITAT DEFINES A SLUM HOUSEHOLD AS A GROUP OF INDIVIDUALS LIVING UNDER THE SAME ROOF IN AN URBAN AREA WHO LACK ONE OR MORE OF THE FOLLOWING: 1. DURABLE HOUSING OF A PERMANENT NATURE THAT PROTECTS AGAINST EXTREME CLIMATE CONDITIONS. 2. SUFFICIENT LIVING SPACE WHICH MEANS NOT MORE THAN THREE PEOPLE SHARING THE SAME ROOM. 3. EASY ACCESS TO SAFE WATER IN SUFFICIENT AMOUNTS AT AN AFFORDABLE PRICE. 4. ACCESS TO ADEQUATE SANITATION IN THE FORM OF A PRIVATE OR PUBLIC TOILET SHARED BY A REASONABLE NUMBER OF PEOPLE. 5. SECURITY OF TENURE THAT PREVENTS FORCED EVICTIONS.

What is Vulnerability Assessment of a Slum?

VULNERABILITY ASSESSMENT IS DEFINED AS THE SYSTEMATIC EXAMINATION OF A SYSTEM TO IDENTIFY THOSE CRITICAL INFRASTRUCTURES OR RELATED COMPONENTS THAT MAY BE AT RISK FROM AN ATTACK AND THE DETERMINATION OF APPROPRIATE PROCEDURES THAT CAN BE IMPLEMENTED TO REDUCE THAT RISK.
IT IS A MULTI-STEP PROCESS, WHICH INCLUDES ANALYSES LIKE HAZARD IDENTIFICATION; CRITICAL FACILITIES, SOCIETAL, ECONOMIC AND ENVIRONMENTAL VULNERABILITY; AND MITIGATION OPPORTUNITIES

Parameters of Vulnerability Assessment of a Slum?

PHYSICAL VULNERABILITY

1. Type of building
2. location of the household
3. No. of habitable space
4. Roof Condition
5. No. Of habitable rooms (persons per room)
6. Water Connection
7. Water quality
8. Toilet
9. Sewerage
10. Electricity
> Drainage
> Distance to solid waste disposal site

SOCIAL VULNERABILITY

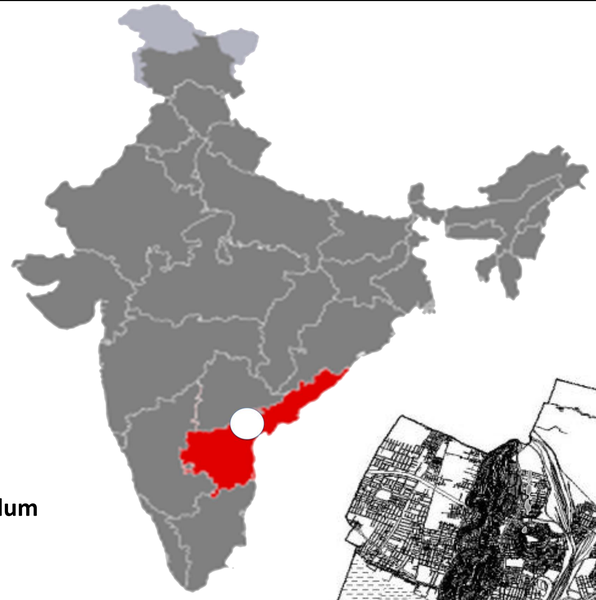
1. Type Of Family
2. Occupation
3. Episodes of harassment by any Groups in Power
4. Nutrition
5. Bank savings
6. Distance to work
7. Rent/ Income ratio
8. Identity Proof
9. Income/Expenditure ratio

ECONOMIC VULNERABILITY

1. Dependency Ratio
2. Migration status
3. Education
4. Overcrowding
5. Access/Distance to medical facilities
6. Health Condition (past 1 year)
7. Literacy

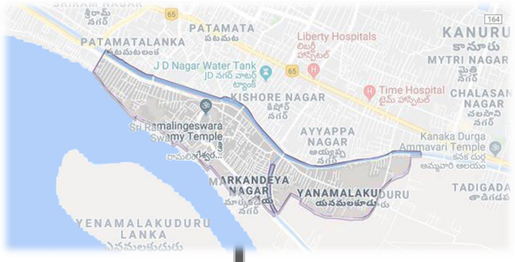
Ramalingeswara Nagar-Tarakarama Slum

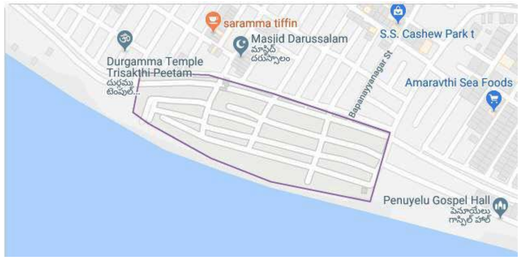
Vijayawada City Profile:
- Is a Municipal Corporation (MC)
- Population: 1.3 million (2018) of MC
- Area: 437 sq.km
- Pop Growth Rate: 8.9% / decade
- Capital of Andhra Pradesh
- History dates back to 7th century AD
- No of City Wards: 59
- No. of Slums: 136
- Notified: 111
- Slum Pop: 0.3 million (29% of city pop)
- Along sewer canals: 21 slums
- Literacy: 69%



Ramalingeswar Slum Profile:Tarakarma Slum
- Pocket No-26
- No of streets-2
- Average width of the street-12m
- Street area-6000 sq.m
- No of household-347
- Commercial spots-19
- Total number of waste generation units-366

= 2082





SLUM VULNERABILITY – RAMALINGESWARA SLUM

GROUP MEMBERS-
NILAKSHI CHAKRAVARTY/AAKASH/POOJA PILLA/RAHUL ROY/RAJEEV MENON

Steps Of Weighted Index

- **INTRODUCTION OF PARAMETERS OF THREE SECTORS**
- **A COMPREHENSIVE SURVEY OF THE SLUM BASED ON THE PARAMETERS**

VULNERABILITY

PARAMETERS | **SCORING LOGIC** | **WEIGHTS TO EACH PARAMETER**

- **ASSIGINGMENT OF SCORES FOR EACH PARAMETER BASED ON SCORING LOGIC VARYING FROM 1 TO 3.(NORMALISATION)**
- **ASSIGNMENT OF WEIGHT TO EACH PARAMETERS BASED ON SUBJECT OF IMPORTANCE CONTRIBUTION FOR VULNERABILITY**

WEIGHTS	PHYSICAL VULNERABILITY	SCORE	WEIGHTS	SOCIAL VULNERABILITY	SCORE	WEIGHTS	ECONOMY VULNERABILITY	SCORE
	X			X			X	

WEIGHTED INDICES OF EACH SECTOR

- **AVERAGE OF WEIGHTED INDEX OF EACH PARAMETERS TO FIND THE COMOPSITE VULNERABILITY INDEX.**

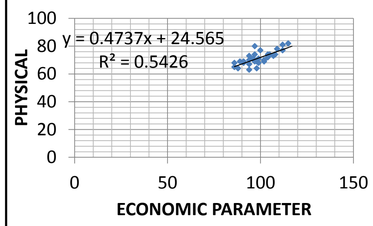
COMPOSITE VULNERABILITY INDEX

CORRELATION REGRESSION & SCATTER PLOT

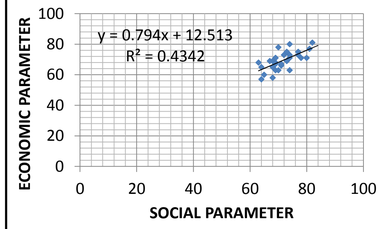
Scoring Logic And Weight Table

Social Vulnerability	Parameters	Weightages	Highly Vulnerable	Moderately Vulnerable	Least Vulnerable
-30			(Score : 3)	(Score : 2)	(Score : 1)
	Type of Family	2	Child Headed household/Women headed household/Single parent family/Single male	b. Nuclear Family with only one earning member with informal employment	Joint family with one earning member with regular income
	Occupation	5	Unemployed/daily wage labourer	Seasonal employment/contractual employment	Permanent employment
	Episodes of harassment by any Groups in Power	1	Very often	rarely	Not at all
	Nutrition	2	children not enrolled in Anganwadi centre	Government ration not available but children are enrolled in Anganwadi centre	Children enrolled in AWC and access to PDS/Government ration
	Bank savings	4	less than 20k	20k	more than 20k
	Distance to work	4	> 5km	2-5 km	< 2km
	Rent/ Income ratio	4	> 0.7	0.3 - 0.7	< 0.3
	Identity Proof	3	Do not have any documents	b. Have at-least one legal documents (BPL Card, Ration card, voter ID, Aadhar Card etc.)	a. Have all the necessary documents
	Income/Expenditure ratio	5	> 5	5 - 1.5	< 1.5
Economic Vulnerability	Dependency Ratio	5	> 0.7	0.3 to0. 5	< 0.3
	Migration status	3	Seasonal/Recent migration (Less than one year	Living in the area from last few years (1 to 5 years)	Living in the area from more than 5 years
	Education	5	Upto Class 5	Class 5 to Class 10	Above Class 10
-30	Overcrowding	4	> 10 per 200 sqft	5-10 per 150 sqft	< 5 per 15 sqft
	School Going %	3	< 30%	30% - 70%	> 70%
	Access/Distance to medical facilities	5	> 2km	500m to 2km	< 500m
	Health Condition (past 1 year)	5	Major Illness with bed rest/hospitalization	Minor illness without bed rest/hospitalization	No health issues
Physical Vulnerability	Type of building	5	kutcha (Mud wall, Huts, No bricks, Dilapidate)	Semi-dilapidate, Either roof or wall made of pakka material	Entire structure including floor, roof and exterior walls are made of pucca material
	location of the household	1	hazardous ground	surrounded by slum dwelling only	surrounded by open space
-40	No. Of habitable rooms (persons per room)	5	> 3	3 to 2	< 2
	Roof Condition	5	Thached roof	Tiled/ Asbestos Roof	Cement Concrete Slab
	Water Connection	4	No Water Source	Community Taps	Individual conncetion
	Water Quality	5	Worst(bad taste & colour)	average(suspended particle)	Best
	Toilet	3	No toilet	Public Toilet	Personal Toilet
	Sewerage	3	No provision for sewer disposal	Septic Tank	Sewer Lines
	Electricity	3	No electricity at all	illegal electricty connection	metered connection
	Drainage	3	No drainage line	Open Drains	Closed Drain/ Drainage Pipes
	Distance to solid waste disposal site	3	No Garbage Bins are provided	Provision of Garbage bins Nearby	Door to door Collection

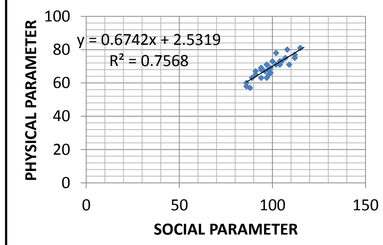
Results And Inference



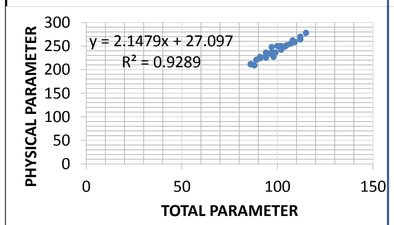
Y= 0.4737x + 24.565
R square= 0.5426
Inference: slope is 25.34˚ i.e
With increase in economic parameter by 1 ,there is increase in social parameter by 0.56.
The change is linearly correlated



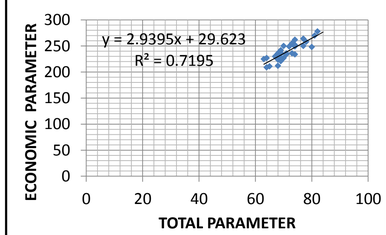
Y= 0.794x + 12.513
R square= 0.4342
Inference: slope is 38.30˚ i.e
With increase in economic parameter by 1 ,there is increase in social parameter by 0.85.
The change is linearly correlated



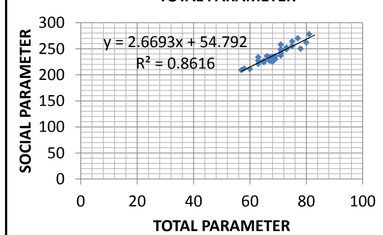
Y= 0.6742x + 2.5319
R square= 0.7568
Inference: slope is 33.97˚ i.e
With increase in social parameter by 1 ,there is increase in physical parameter by 0.75.
The change is linearly correlated



Y= 2.1479x + 27.097
R square= 0.9289
Inference: slope is 64.95˚ i.e
With increase in Total parameter by 1 ,there is increase in physical parameter by 1.44.
The change is linearly correlated



Y= 2.9395x + 29.623
R square= 0.7195
Inference: slope is 71.18˚ i.e
With increase in Total parameter by 1 ,there is increase in physical parameter by 1.58.
The change is linearly correlated



Y= 2.6693x + 54.792
R square= 0.4342
Inference: slope is 69.39˚ i.e
With increase in Total parameter by 1 ,there is increase in physical parameter by 1.542.
The change is linearly correlated

SLUM VULNERABILITY – RAMALINGESWARA SLUM

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