FACTSHEET

Udaipur

Key Findings

- The projected rise in annual maximum temperature by 1.75-1.85 ^{0}C by the year 2050 may increase the direct impacts on children's health in terms of thermal stress, such as heat exhaustion, heat cramps, sun burns and dehydration.
- Inadequate solid waste management, lack of proper sanitation infrastructure, pollution of drinking water resources (lakes and rivers in the city), improper drainage and storm water management, lack of sewerage treatment facilities and open defecation are some important factors which may undermine the city's ability to emerge as a 'Resilient Smart City' as these development challenges may further exacerbate due to slow-onset climate change impacts.
- Children in the slum pockets, fringe areas of the city, at tourist places and children living near lakes in dejected settlements are found to be the worst affected by climate change impacts in terms of burden of diseases (heat stress, water and vector borne diseases), diminishing food security, increasing malnutrition and chid trafficking as well as child labour due to loss of livelihoods of parents.

Udaipur, also known as the "City of Lakes" is the district headquarters of Udaipur and one of the oldest cities of Rajasthan. The city lies separated from the Thar Desert by Aravalli Hills and is located at the centre of a saucer shaped valley basin sloping towards south-east. Today a major challenge for the city is to sustain the economic growth and the well-being of its inhabitants amidst increasing impacts of climate change. Increasing daytime summer temperature, heat waves, recurrent droughts and localised flooding and waterlogging during monsoon have been identified as the key challenges for the city due to climate change affecting the urban basic services, livelihoods and well-being of marginalised population, especially children.

I am a daily wage labourer and my livelihood completely depends on access to nearby markets. Erratic rainfall and waterlogging in our locality takes away my daily earning opportunities, leaving my family starving without food, creating family distress where I am not able to send my children to school."

– Bhagwan, a resident of Shivaji Nagar Slum, Udaipur

© Photo courtesy: Benoy Thapa

quick facts

Geography

Geographical Coordinates:**
Latitude 24.57 ^{0}N
Longitude 73.69 ^{0}E

Height from mean sea level*:**
1962 feet

Area of Municipal Corporation:**
64 sq. km

Wards:**
55

Demography

Population
4,51, 100
(Census of India, 2011)

Decadal Population Growth Rate***
15.83 (from 2001 to 2011)

Population Density***
7,048 persons per sq. km

Total Households***
94,704

Average Household Size***
4.76

Slum Population***
47636

Slum Households***
9529

Floating Population**
16000

Literacy Rate***
80%

Sex Ratio***
925

Climate

Climate
Tropical climate with three main seasons: Summer, Monsoon and Winter

Annual Rainfall**
637 mm

Major Disasters
Drought (moderate), Flood (moderate), Wind (low), Industrial Accident (low) and Earthquake (low)

Children

Child Population
0-6 years: 47932.
7-14 years: 61668.
(Census of India, 2011)

Children currently attending school % (Age 6-17 years, Udaipur-Urban)*
94.4

Children aged 5-14 years engaged in work % (Udaipur-Urban)*
0.6

School Dropout % (Udaipur-Urban, Age 6-17 years)*
4.7

Crude Birth Rate (Udaipur-Urban)*
21.2

Crude Death Rate (Udaipur-Urban)*
5.7

IMR (Udaipur-Urban)*
44

U5MR (Udaipur-Urban)*
51

Sex Ratio at Birth (Udaipur-Urban)*
808

MMR (Rajsamand, Udaipur, Dungarpur, Banswara, Chittaurgarh)*
27

Children Suffering from Diarrhoea (%) Udaipur-Urban*
5.9

Children Suffering from Acute Respiratory Infection (%) Udaipur-Urban*
18.8

**Data from Annual Health Survey-Rajasthan, 2012-13*
*** Data from Udaipur Municipal Corporation Annual Report, 2015-16 (spatial limits considered include area under the ULB and the outer growth areas)*
**** Data from City Development Plan for Udaipur-2041*

Climate Scan of the City:

Observed Climate

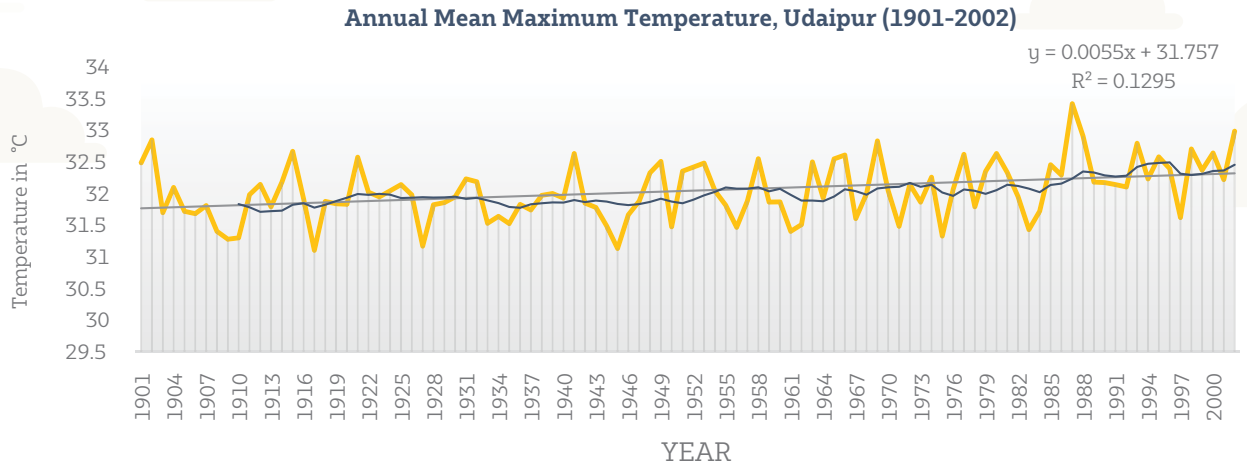
- Tropical climate with three main seasons: summer, monsoon and winter.
- Summer season prevails from March to June and temperature ranges from 23 °C to 46 °C.
- Heat waves prevail when day time summer temperature rises to 4 - 6 ° C above normal.
- Winter season minimum temperature remains around 5-10 °C.
- Annual mean rainfall is 654.7 mm with 31 per cent coefficient of variation.

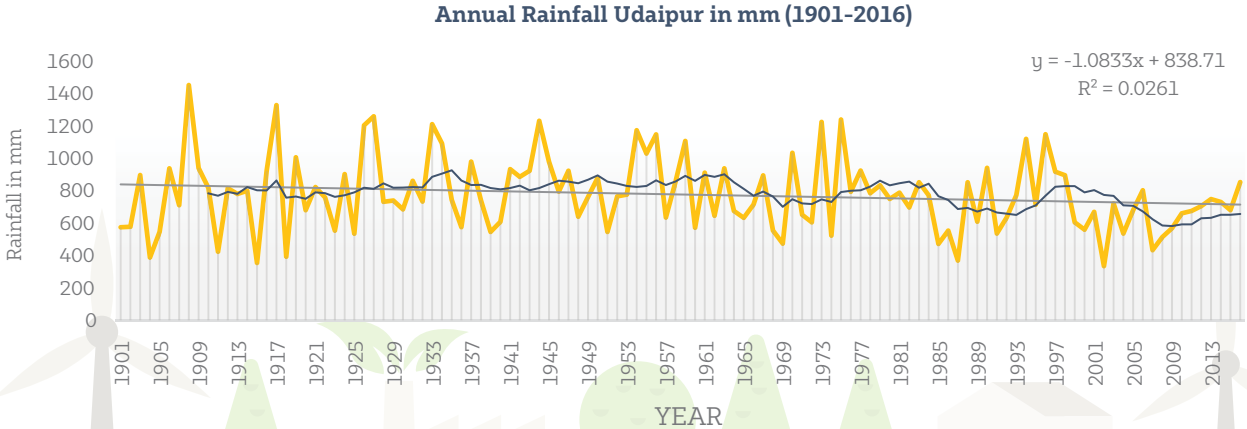
Annual Climate Change Trend

- Significant increasing trend was found in the mean annual maximum temperature over Udaipur (0.60 ^{0}C) during last century.
- The maximum increase in annual mean maximum temperature was observed after 1960.
- Annual mean minimum temperature has significantly increased in the last century over Udaipur (0.07° C/decade).
- Spatially coherent decreasing trend in annual rainfall was found over Udaipur (11.5 mm/ decade) during 1901-2016.

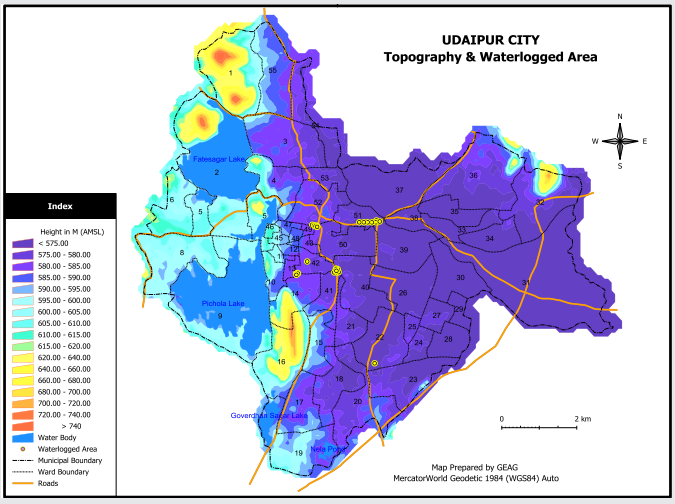
Future Climate Change Projections

- Annual maximum temperature is projected to increase by 1.75-1.85 ^{0}C by 2050.
- Annual minimum temperature is projected to increase by 2.1 to 2.2 ^{0}C by 2050.
- Hot days and warm night might increase.
- The probability of occurrence of mild to severe drought is high.
- Mean annual rainfall is likely to increase by 6 to 10 per cent by 2050.
- Mean monsoon rainfall is likely to increase by 40-60 mm by 2050.
- Extreme rainfall is expected to increase in frequency and intensity. 2050 projections show an increase of 20 mm for maximum 1-day rainfall and 30 mm for maximum 5-day rainfall.





RISK FRAME OF UDAIPUR CITY



The combination of a large number of lakes, reservoirs, rivers and the adjoining hilly systems created a situation which maintained an urban ecosystem able to absorb small changes and disturbances. However, the deterioration of this natural ecosystem based urban system has made the city vulnerable to external shocks and emerging climate change variations have posed new challenges. The mal-development and inadequate basic services in the city and the changes in population and inhabitation patterns have contributed in increasing the intensity of such challenges. Incidences of waterlogging are also reported to be increasing in the city. Lack of sewerage system and water treatment facilities have resulted in availability of contaminated drinking water to city people and hence increase in incidences of water borne diseases, particularly in children. The resulting situation due to the close inter-connectedness of such natural, developmental and human factors of urban system enhance vulnerability of the city in the events of climate variability (current and projected future) leading to enhanced shocks and stresses of urban people and hence the risk of the city. These shocks and stresses are further aggravating poor children's vulnerabilities, adversely impacting their health, education, water & sanitation aspects, nutrition and physical protection.

Climate change vulnerabilities of urban poor children

Key Issues	Responsible Factors	Special Categories of Affected Children
Health: Heat stress, vector borne diseases- malaria, dengue (in post monsoon), water borne diseases- typhoid, hepatitis, cholera, jaundice, diarrhoea, dental and skeletal fluorosis in in-migrants, respiratory diseases- asthma and allergies, skin diseases- eczema, dermatitis, other health issues including infections in children due to usage of sewerage water for irrigation.	Rapid rise in temperature, increase in air pollution (factories/mining/traffic), localised flooding and waterlogging, lack of proper irrigation infrastructure.	• Children in slum settlements • Children in the fringe areas of the city • Children living near water bodies in slum like settlements • Children at tourist places mostly involved in begging • Floating children (Climate change induced migration)
Education: Damage to school infrastructure affecting access to education, accidents due to school building collapse, burden of diseases after disasters affecting school attendance, absenteeism due to involvement of children as domestic labour, lack of interest in higher education.	Floods and waterlogging, heat waves, cold waves, inadequate school infrastructure with lack of basic services and poor maintenance of school building leading to seepage during monsoon, loss of livelihoods of parents due to climate change and disasters leading to lack of willingness to send their children to schools, stagnant growth of employment opportunities in the city.	
Nutrition: Diminishing food security, increasing malnutrition- protein energy malnutrition (2% children), mental retardation, iodine deficiency, birth deficiency, repeated infection, diarrhoea, vomiting, tuberculosis.	Decreasing water availability due to higher evaporation and less rainfall, decreasing primary productivity, droughts, loss of livelihoods, lack of awareness about nutritious and balanced diet, unhygienic food intake habits.	
WASH: Lack of potable water due to high TDS/fluoride, nitrates in lake water, water borne diseases, increasing malnutrition.	Waterlogging and floods, lack of proper sanitation infrastructure, lack of sewerage treatment infrastructure, excessive use of chemical fertilisers in infrastructure, open defecation, diminishing drinking water quality due to less rainfall and higher evapo-transpiration in summers, lack of health and hygiene awareness among parents and children.	

Key Issues	Responsible Factors	Special Categories of Affected Children
Child Protection: Child Trafficking (for harvesting Bt Cotton in Gujarat), Child Labour- Hotels, Factories, Domestic, Child Marriage especially in migrants, Drug abuse.	Loss of livelihoods due to climate change impacts (higher unemployment), domestic violence due to unemployment, lack of education and awareness among parents about child safety issues, Desertion - illegal child, female child, Nata Pratha- female members of family elope due to illicit relations leaving children behind.	

Strategic directions to build climate resilient and child friendly Udaipur City

Health	Education	WASH	Nutrition	Child Protection
- Plantation in the city and in peri urban areas. - Reforestation around the city in the Aravalli hills. - School timings can be changed to avoid extreme temperatures; time and days modification (April and May should be vacations). - Awareness on water, vector and food borne diseases. - Development of integrated underground sewerage system in the city. - Development of effluent treatment plants and sewerage treatment plants in the city.	- Implementation of school safety plans. - Renovation of old school buildings and construction of new disaster resilient school buildings. - Awareness among school children on climate change and disasters and essentials of self safety.	- Rainwater Harvesting. - Treatment of drinking water at household/ school level - to be taught to children. - Creation and monitoring of STPs and ETPs in the city. - Awareness among children on good hygiene practices.	- Awareness building on seasonal and local fruit consumption. - To increase employment opportunities planned development of the city should happen.	- Strict enforcement of laws relating to child safety and protection. - Awareness among parents and children on child safety and protection issues

Climate Change and Disaster Resilience for Urban Children:
An Initiative of UNICEF, India and Gorakhpur Environmental Action Group, Gorakhpur, Uttar Pradesh

For further information, please contact:
Gorakhpur Environmental Action Group (GEAG)

unicef
for every child

Delhi Office:
A-187, First Floor Shivalik, Malviya Nagar, New Delhi 110017,
Phone: +91 11-41667754,
Email: geagdelhi@geagindia.org

Gorakhpur Office:
HIG First Phase 1/4,
Siddharthpuram, Tara Mandal,
Gorakhpur, Uttar Pradesh 273001
Phone: +91 551 2230004
Fax: +91 551 2230005
Email: geagdelhi@geagindia.org