Pilot Study on "Preparation of Climate Change Adaptation Plan for Industrial Areas"

Under the ASEM Programme of the Indo German Development Cooperation, GIZ has initiated a pilot study on "Preparation of Climate Change Adaptation Plan for Industrial Areas" in Gujarat. The study has been taken up for Naroda Industrial Estate located near Ahmedabad main city.

The Naroda Industrial Estate, established in 1964 is located in the north-east part of the Ahemdabad. The Naroda Industrial Estate - the first industrial estate promoted by the Gujarat, today an agglomeration of several sectors industries and technologies at one location is a result of the advanced IE planning exercise by the Gujarat Industrial Development Corporation. It accommodates more than 600 industries employing more than 30,000 persons directly and a further 40,000 people indirectly. While the Naroda Industrial Estate has predominantly chemical industries (26%) of dyestuffs and dye-intermediates type, which generally falls under the red category of Gujarat State Pollution Control Board. The other types of productions are plastics (5%), pharmaceuticals (3%), and pesticides (1%). Engineering (24%), textiles (5%) and trading companies (9%).

The Naroda Industrial Estate faces various concerns ranging from the financial viability of the individual industry, aging infrastructure needing replacement and more recently the adaption for the changing climate. A study was taken up by the Centre for Environmental Planning & Technology (CEPT), with the support of GIZ, for preparation of Climate Change Adaptation Plan and identifying pilot interventions for Naroda Industrial Estate.

The methodology developed through a consultative and multi-disciplinary team includes four major steps, as below:

- Baseline surveys & profiling of the industrial estate
- Vulnerability assessment
- Preparation of climate change adaptation plan
- Detailed planning and designing of pilot interventions

The study components for profiling, assessments and planning focus on:

- Land use vulnerability
- Vulnerability to hazards (erosion, floods, temperature rise etc.)
- Vulnerability of industries
- Environmental vulnerability
- Socio-economic vulnerability

The methology followed is summarized in figure below.

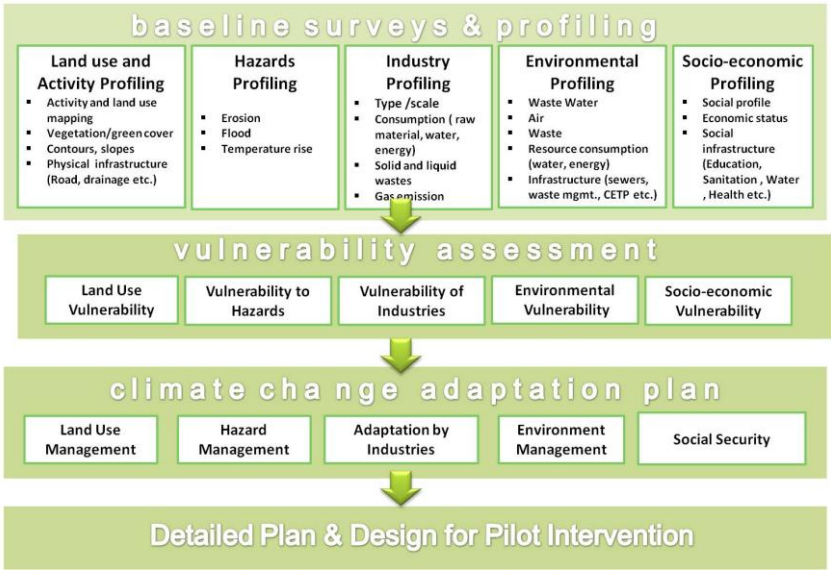


Fig: Methodology for Preparation of Climate Change

Adaptation Plan for Naroda Industrial Estate

The study involves a step-by-step approach (ref. figure below) and a strong stakeholder involvement for ensuring:

- Proper assessment,
- Prioritization of issues,
- Identification of viable solutions, and
- Ensuring their implementation.

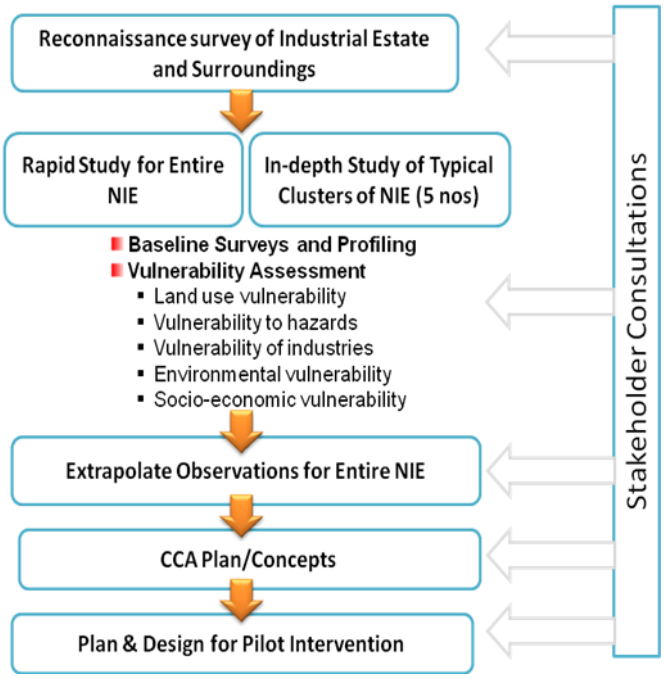


Fig: Approach for Preparation of Climate Change Adaptation Plan for Naroda Industrial Estate

The highlights of some of the key observations are given below:

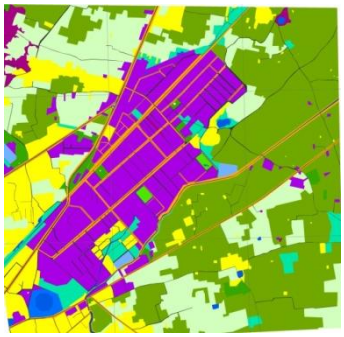
- Industrial plots that that are severely flood-prone and may have to close down their operations have been identified. The reasons identified include excessive rains, lack of storm water drainage system and disturbances made to the natural drainage by constructing roads and buildings

- Areas prone to erosion in elevated areas were identified. It was observed that these areas could be protected through simple measures such as plantation.

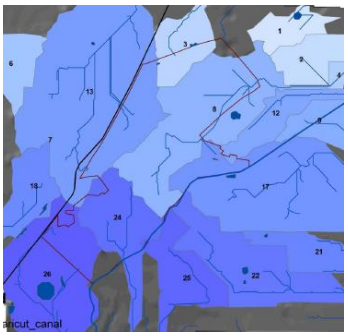
- The industrial estate has inadequate vegetation, and is unplanned as well as haphazardly and unscientifically developed. It was observed that if properly planned and developed, it could be highly beneficial in adapting to climate change issues such as flooding, ground water recharge and temperature reduction. Additionally, this would benefit in improving landscape, aesthetics as well as biodiversity.

- In the case of individual industries, it was observed that most of them are unaware of the climate change impacts, but are willing to take up adaptative measures if capacities are built. Some of the measures immediately acceptable to industries are changes in design of the industrial building with better ventilation, lighting and energy conservation, water conservation, and improving vegetation inside and outside the industry premises.

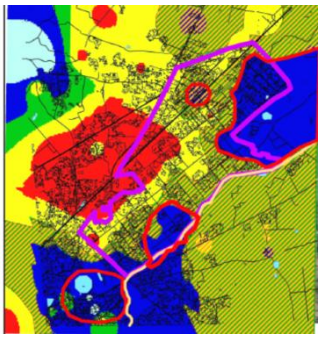
- The living areas of workers in and around the industrial estate were identified, the availability of basic amenities and services for drinking water, health etc. were assessed and vulnerability to climate changes were identified. It was observed that some of their living areas are prone to floods, their mode of transportation is by bicycles which are affected by weather variability and they have inadequate incomes and savings to cope with climate change impacts.



Pic: Land Use



Pic: Drainage Pattern



Pic: Flood Hazard Areas

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