

# Cost-Effective Housing for Urban Poor

## Ahmedabad

### Urban Development Authority

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As part of its initiative to house the urban poor population of the city, Ahmedabad Urban Development Authority (AUDA) has been constructing units for Economically Weaker Sections (EWS) for past few years. One of the more far-reaching initiatives is the use of cast-in-situ technology for the new EWS units. The technology is highly cost-effective and requires only unskilled labour and less technology. It is also very versatile and can be completed. Furthermore, the framework used for this technology is highly reusable.

## Situation Before The Initiative

As the city of Ahmedabad expanded, infrastructure in the newer areas grew at a fast rate. However, there was felt a need to provide quality housing to the EWS of the city. Typically, AUDA reserves approximately 10 % of the land under Town Planning Scheme (TPS) development for economically weaker section housing under the Gujarat Town Planning and Development Act, 1976. However, the practice of making reservation without requisite financial outlay has been discontinued. The city grew, but the urban poor felt marginalised.

## Implementation Strategies

AUDA began building residential units for the urban poor at reasonable rates. It also gave the owners the option of an insurance cover on the property. The aim of the initiative was to provide all amenities to the EWS. It used the cast-in-situ low-cost and effective Mascon Construction System to build the housing units.

Mascon is a system for forming cast-in-situ concrete structure of a building. It is also a system scheduling and controlling the work of other construction trades such as steel reinforcement concrete placement and mechanical and electrical trades. The technology is highly cost-effective and requires only unskilled labour and little high technology. It is also very versatile

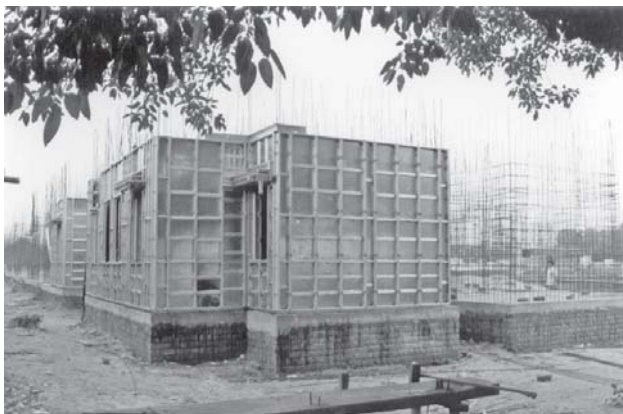
and can be completed fast (multi-storeyed structures are completed at the rate of one floor in four days- regardless of floor size and single-storeyed structures are completed at the rate of one house per day). Furthermore, the framework used for this technology is highly reusable.

## Cost Effectiveness

- Highly reusable formwork.
- All forms are in concrete in a building.
- Rapid construction cycle.
- Requires unskilled labour only and no cranes.

## Versatility of the Technology

- An architect is not required to change the building layout to suit the Mascon System. Furthermore, the system is capable of adapting itself to any type of structural design.
- The system is unique because the entire building (walls, columns, beams, floor slabs, staircases, balconies, window hoods, storage lofts) is built with concrete set in situ).
- As the entire construction is of exposed R.C.C., no plastering is required and this saves cost and labour time. The tendency of plastering to break away is well known.



## Speed of Construction

- Multi-storeyed Housing - structures are completed at the rate of four days per floor - regardless of floor size.
- Single storeyed Housing - structures are completed at the rate of one house per day.

## Quality

- Precision in fabricating the Mascon formwork results in accurate and consistent forming of the concrete.
- The quality of the concrete finish is the same regardless of whether the system is used for low-cost housing or luxury housing.

## Durability of Housing Units

- All concrete (walls, slabs, staircases etc.) are poured monolithically, therefore, there are no construction joints and no problems of leaking joints.
- All four walls in a room, as well as the floor and ceiling, are cast- in-place reinforced concrete.
- The result is a rigid reinforced “box” structure, which has no joints and is quite resistant in seismic conditions.

## Durability of Framework

- Framework is made with an aluminum alloy, which has high tensile strength and is also very hard.
- Aluminum does not rust like steel; therefore, the aluminum framework can be reused hundreds of times.

Despite the low-cost of the units, the housing schemes are reasonably attractive and of reasonable quality. Unlike many other schemes in the country,

the units are not considered substandard and inferior and therefore are in high demand. One of the key features of the scheme is the cost effectiveness of the units. The cost of Rs 66,000 per unit makes them highly accessible to the urban poor. The following table details the financing of the units at one of the schemes, the *Nandan Awas Yojna* in Ahmedabad.

Nandanvan Awas Yojna (1999-2001)	
Unit Built up Area	21.00 sq. mt.
<b>Total Cost/unit</b>	<b>Rs.62,500/-</b>
Loan Amount/unit	Rs.50,000/-
Balance	Rs.12,500/-
Administrative Cost	Rs.2500/-
Society Share Capital	Rs.1000/-
Sub total	Rs.3500/-
<b>Financing Structure</b>	
Break-up of Initial Amount Collected	Amount
Deposit	Rs.1000/-
Within 45 days	1st Installment
	2nd Installment
	Rs.5000/-
	Rs.6500/-
<b>Total</b>	<b>Rs.12500/-</b>

The total cost of the unit can be financed through a loan of Rs 50,000, an initial installment of Rs 12,500 and an additional Rs 3,500. A penalty charge of 2% is charged on delayed installments. The unit is not for resale for 10 years and small monthly installments of Rs 550 are made by owners over a period of three and a half years.

So far, 3,754 EWS residential units have been constructed at Niraynagar, Jodhpur and Vejalpur localities of Ahmedabad city for those displaced as a result of the enhanced infrastructure.

Some of the key schemes that have been completed include:

Name of the Scheme	No. Of Units
Nandan Avas Yojna	624
Gokul Avas Yojna	660
Vejalpur Vrajnagar	1,100
Bodakdev Sandesh Press	268
E.W.S. Valmiki Ambedkar Avas Yojna (Vastrapur)	168

The following table shows number of houses completed, allotted and commissioned:

Description	No. Of Units
Total number of houses built	5,600
Number of houses allotted	4,000
Number of houses ready under new schemes	1,500 (1,000 in Krishnadham, Vejalpur and 500 in Thaltej areas)
Number of new houses for which tenders issued	8,023

## Maintenance of the Units

Most of AUDA colonies of EWS consist of 1,000 housing units each. Earlier, each of the colonies were cleaned and maintained by AUDA itself. Now, under a new initiative, maintenance cost - which is a nominal sum - is collected from residents. One Coordinating Officer is appointed for each housing colony, and who is on the ground and in constant contact with the owners. The maintenance fee is added to the installment and the Coordinating Officer is responsible for its collection. Each housing colony forms a society and funds are transacted from a bank account in the joint name of the coordinating officer and the society. This move has made the residents more

responsible towards the units and do not have to depend on the civic authority for minor maintenance issues.

## Results and Impact

In many cities, houses provided to the EWS by the city governments are located mostly outside the city limits. This makes the population residing in these houses cut-off from the city. There is little or no social integration. Contradicting this trend, AUDA has built housing units inside city limits. Also, many of the colonies for EWS are located in posh localities.

## Social Benefits

To empower women, AUDA allots the houses in joint names of husband and wife, the first name being the wife's. This does not allow the husband to sell off the property without her consent.

AUDA has taken care that in the eventuality of disasters, the families are not rendered homeless. It has insured each of the houses for Rs 1 lakh for a period of 10 years covering the residents from 14 natural perils like earthquakes, cyclones, floods etc. The cost of premium - which comes to Rs 360 for 10 years - towards the insurance has not been included in the cost of the units.

To see to it that only those allotted the houses reside in them, AUDA has introduced a biometric verification system. Earlier, people used to sell off the houses and often resorted to illegal means to show that they were still the owners. This practice has been discontinued with the help of biometric verification. At the time of allotment, AUDA takes a photograph of the family and biometric data of the owners. These are verified during checks conducted time to time by inspectors carrying portable biometric machines.

## Lessons Learnt

Any association looking into a city's development need not necessarily spend huge amounts on providing basic amenities like housing to the urban poor. AUDA used a cost-effective yet sustainable and efficient technology.

Making efforts to mainstream the society's EWS through innovative ideas can make a huge difference on lives of the marginalized. Such efforts can help them gain employment, education and improve their quality of life.

## Sustainability

AUDA's aim behind this is that new housing does not displace the city's poor population and does not

affect its livelihood. This ensures social integration, stability and improved living conditions with civic amenities and that children of economically weaker families grow up in a better environment.

## Replicability

Low-cost housing schemes for the poor can be implemented in each city. Cities are growing, leading to an increased demand for infrastructure. It is mostly the EWS which get displaced due to urban growth. It becomes imperative for every city to providing them with housing. AUDA's innovation can be replicated in all cities of India as it is cost-effective and ultimately leads to overall development of the society's EWS.