International Journal of Advanced Technology in Engineering and Science
Vol. No.3, Special Issue No. 01, September 2015
www.ijates.com
ijates
ISSN 2348 - 7550

OVERVIEW OF AN ENTREPRENEUR APPROACH OF FLY ASH BRICK IN INDIA

M.Wasi Baig[1], Shahbaz Ahmad[2], Imran Husain[3]

[1]*Assistant Professor & In-Charge, Integral University Campus Shahjahanpur (India)*

[2,,3]*Lecturer, Department of Civil Engineering, Integral University Campus Shahjhanpur (India)*

ABSTRACT

Material science is a complex composite, arising out of in-built judgment in orienting the characteristics and constituents of various products to serve the human race; and depending on the nature's gift, tapping the same for the application of human need.

Bricks made out of clay is one such product which proved its credence since the dawn of civilization. Brickwork is established as an age-old construction media right from the thatched house to multi-storeyed buildings. Nature's kind-heartedness in gifting the humankind with its bountiful resources, of course, has a threshold limit and the utilization of clay has reached such a point in construction.

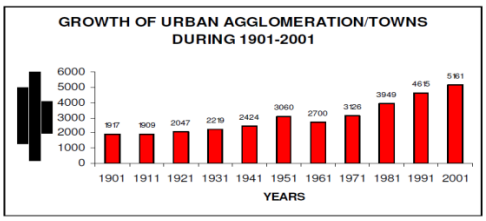
Hence in this paper we will discuss overviews of an entrepreneur approach of fly ash brick in India.

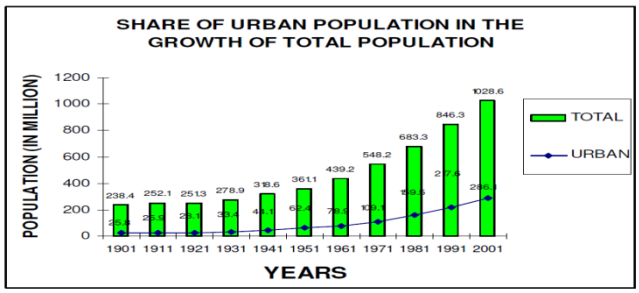
Keywords: EWS, LIG, MIG, MT, VAT

I. INTRODUCTION

In our India, where about 65% of the population is still living in economically weaker and rural segments, clay is unanimously the cost effective building material to make the walls and floors of their huts. But irreparable exhaustion has taken place for such versatile product, leaving no chances of replenishment for millennia to come.

For the development of entrepreneur approach of fly ash bricks in india, we require to practice of starting new organizations, new business in response to identified opportunities.





International Journal of Advanced Technology in Engineering and Science
Vol. No.3, Special Issue No. 01, September 2015
www.ijates.com
ijates
ISSN 2348 - 7550

GROWTH OF POPULATION (1901-2001)

Year	Total	Rural	%age share	Urban	%age share
1901	238.4	212.6	89.2	25.8	10.8
1911	252.1	226.2	89.7	25.9	10.3
1921	251.3	223.2	88.8	28.1	11.2
1931	278.9	245.5	88.0	33.4	12.0
1941	318.6	274.5	86.2	44.1	13.9
1951	361.1	298.7	82.7	62.4	17.3
1961	439.2	360.3	82.0	78.9	18.0
1971	548.2	439.1	80.1	109.1	19.9
1981@	683.3	523.8	76.7	159.5	23.3
1991*	846.3	628.7	74.3	217.6	25.7
2001	1028.6	742.5	72.2	286.1	27.8

(In Million)

Source: Registrar General of India

@ Includes projected population of Assam where 1981 census was not conducted.

* Includes projected population of J & K where 1991 census was not conducted.

GROWTH OF URBAN AGGLOMERATIONS & TOWNS BY SIZE CLASS/CATEGORY DURING 1901-2001

(In Numbers)

Year	Class/Category of Cities/Towns						
	All Classes	Class -I	Class -II	Class-III	Class-IV	Class -V	Class-VI
1901	1917	25	44	144	427	771	503
1911	1909	26	38	158	388	750	546
1921	2047	29	49	172	395	773	626
1931	2219	31	59	218	479	849	580
1941	2424	49	88	273	554	979	478
1951	3060	76	111	374	675	1195	629
1961	2700	107	139	518	820	848	268
1971	3126	151	219	652	988	820	296
1981*	3949	226	325	883	1247	920	348
1991**	4615	322	421	1161	1451	973	287
2001	5161	441	496	1388	1561	1041	234

Source: Registrar General of India

Size class by population

I- 100000 & above, II – 50000 – 99999, III – 20000-49999
IV – 10000-19999 V – 5000-9999 VI – Less than 5000

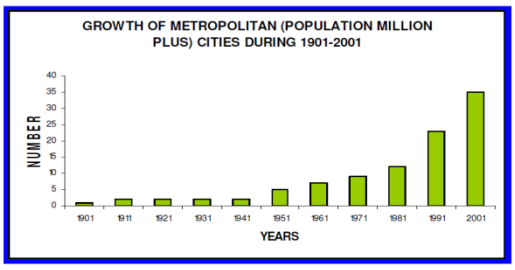
* Excludes figures for Assam where census of 1981 was not held.

** Excludes fieures of Jammu & Kashmir where census of 1991 was not conducted.

NUMBER, POPULATION AND PERCENTAGE SHARE OF METROPOLITAN CITIES (MILLION PLUS POPULATION) IN THE TOTAL URBAN POPULATION DURING 1901-2001

Year	No. of Metropolitan Cities	Population (In million)	Share in Total Urban Population (%)
1901	1	1.51	5.84
1911	2	2.76	10.65
1921	2	3.13	11.14
1931	2	3.41	10.18
1941	2	5.31	12.23
1951	5	11.75	18.81
1961	7	18.10	22.93
1971	9	27.83	25.51
1981	12	42.12	26.41
1991	23	70.66	32.54
2001	35	108.34	37.87

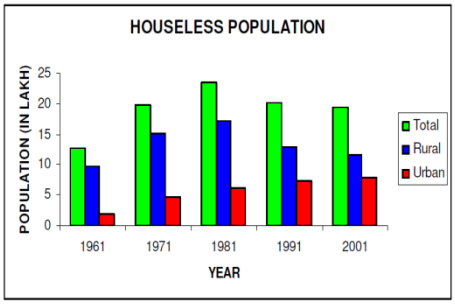
Source: Registrar General of India



NUMBER OF HOUSELESS HOUSEHOLDS & HOUSELESS POPULATION

(In lakh)

Year	Houseless Households			Houseless Population		
	Total	Rural	Urban	Total	Rural	Urban
1961	...	...	...	12.65	9.70	1.95
1971	5.65	3.88	1.77	19.86	15.20	4.66
1981	6.16	4.13	2.03	23.43	17.24	6.19
1991	5.22	3.05	2.17	20.07	12.82	7.25
2001	4.48	2.60	1.88	19.44	11.65	7.89

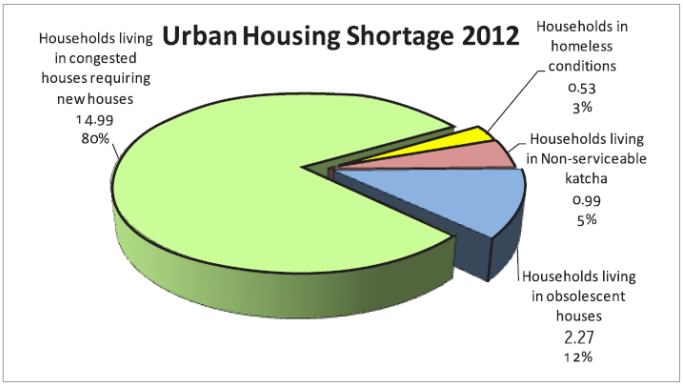


HOUSING STOCK, HOUSEHOLDS AND HOUSING SHORTAGE IN URBAN INDIA, 1991-2007

(In Million)

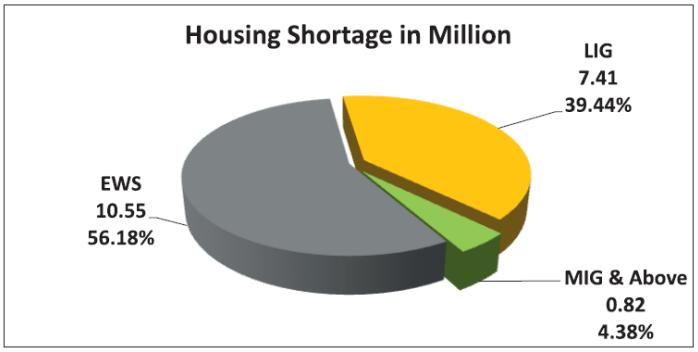
	1991	1997	1998	1999	2000	2001	2007
Pucca	29.8	40.07	42.13	44.28	46.55	41.17	47.49
Semi Pucca	6.2	6.64	6.72	6.80	6.83	8.08	09.16
Kutcha	3.2	3.35	3.37	3.40	3.42	2.74	02.18
Households	40.7	50.08	51.85	53.67	55.56	55.8	66.30
Housing shortage	8.23	7.57	7.36	7.18	6.93	10.56	24.71

ijates
ISSN 2348 - 7550



	Severe congestion	Congestion
Households living in non-serviceable katcha	0.99	0.99
Households living in obsolescent houses	2.27	2.27
Households living in congested houses requiring new houses	14.89	14.99
Households in homeless condition	0.53	0.53
Total	**18.68**	**18.78**

Category	Distribution of Housing Shortage among different Economic categories as on 2012	
	No. (in Millions)	In Percentage
EWS	10.55	56.18
LIG	7.41	39.44
MIG and above	0.82	4.38
Total	18.78	100.00



ASH GENERATION AND UTILISATION IN VARIOUS COUNTRIES

S. No.	Country	Annual Ash Production (Million Tonne)	Ash Utilisation % of Ash Produced	Major Area of Utilisation
1	USA	75	65	Cement, concrete, bricks, fil material
2	China	100	45	Concrete, bricks, fil materials, cement
3	Germany	40	85	Cement, concrete, minefil
4	UK	15	50	Cement, fill material
5	Japan	8	60	Cement, concrete agriculture, fil material
6	Australia	10	85	Blended cement, fil material
7	Canada	6	75	Cement, fil materials, building materials
8	France	3	85	..... do .....
9	Denmark	2	100+	..... do .....
10	Italy	2	100	..... do .....
11	Netherlands	2	100+	..... do .....
12	India	112	38	..... do .....

Indian Scenario
Fly Ash Generation and Utilisation
.....PROJECTIONS.....

2012

FA Generation --- 170 Million Tonne
FA Utilisation --- 100% (Target)

Indian Scenario
Fly Ash Generation and Utilisation

1994

FA Generation --- 40 Million Tonne
FA Utilisation --- 3% (1.2 Million Tonne)

March 2005

FA Generation --- 112 Million Tonne
FA Utilisation --- 38% (42 Million Tonne)

II. PROPERTIES OF FLY ASH BRICK / BLOCK

Compressive strength : 50 - 160 kg/sq.cm.

Water absorption : 10 – 15 percent

Density As pure mix : 1.4 gm/cc.

As mortar brick: 1.6 – 1.8 gm/cc.

Coefficient of softening (depending on water consistency factor) : 2 -15 %

III. WHY FLY ASH BRICKS/BLOCKSARE ATTRACTIVE?

Fly Ash bricks do not lose strength unduly even on soaking in water continuously. Hence plastering is optional rather than necessary.

On account of size accuracy, plastering can be rationalized adding additional savings on cement.

Well cured fly ash bricks absorb 4 – 12% of water only.

On account of less absorption, rationalization of plastering & mortar, a finished fly ash brick wall is lighter and cheaper in comparison to finished clay brick wall.

Fly ash bricks can be made to order with engineering properties comparable to cement concrete, befitting for specialized applications such as canal lining, dam construction, water tanks, etc.

IV. ENVIRONMENT FRIENDLY

Fly ash bricks are environment friendly and can reduce carbon emission reductions earning in terms of Kyoto protocol implement of their types of production will be energy conservative .If we compare fly ash bricks with conventional bricks ,we can say fly ash bricks do not lose strength, specially soaking in water continuously .Hence plastering optional is not very muchnecessary.Well cured fly ash bricks absorb only 4-12 % of water ,due to this bricks become lighter .Due to this quality, its application can be utilize in canal lining, damconstruction,water construction etc.

Ministry of Environment& Forest government of India the notified no : S. O. 763 (E) dated : 14th. September, 1999 "Whereas it is necessary to protect the environment, conserve top soil and prevent the dumping and disposal of fly ash discharged from coal or lignite based thermal power plants on land ;And whereas, there is a need for restricting the excavation of top soil for manufacture of bricks and promoting the utilization of fly ash in the manufacture of building materials and in construction activity."

CONCLUSION

If we compare fly ash bricks with ordinary bricks/conventional bricks then we can say that fly bricks have better finish ,high strength ,less water absorption ,no efflorescence ,lower unit weight and less load on foundation, reduce energy consumption ,no excavation of top soil (which is other suitable for cultivation) lower cost of bricks & less mortar consumption compare with ordinary bricks or conventional bricks.

If we want to enrich entrepreneurship approach of fly ash bricks in India then we have to organize, Entrepreneurship orientation programs/workshop/special lecture/seminar etc,especially our youth, Micro,small medium entrepreneur so that they can take more interest towards development of fly ash bricks of our country.

REFERENCE

[1]. Cramer, J.S., Hartog, J., Jonker N., Van Praag, C.M., (2002). "Low Risk Aversion Encourages the Choice for Entrepreneurship: An Empirical Test of a Truism", Journal of Economic Behavior and Organization, 48 (1), 29-36

[2]. Hewitt-Dundas, N. (2006). "Resource and Capability Constraints to Innovation in Small and Large Plants", Small Business Economics, 26 (3), 257-277

[3]. Lowe, R.A. and Ziedonis, A.A. (2006). "Over-optimism and the Performance of Entrepreneurial Firms", Management Science, 52 (2), 173-186

[4]. Parker, S.C. (2004). "The Economics of Self-Employment and Entrepreneurship", Cambridge, U.K., Cambridge University Press

[5]. JayeshPitroda (2010); paper on "A study of utilization aspect of fly ash in Indian context"

[6]. Indian Standard Specification For Fly Ash, IS : 3812 (Part I) - 1966 For Use As Pozzolana IS : 3812 (Part II) - 1966 For Use As Admixture For Concrete, Indian Standards Institution, New Delhi.

[7]. Indian Standard, Guidelines For Utilisation and Disposal of Fly Ash, IS: 10153 - 1982, Indian Standards Institution, New Delh

[8]. D.L. NarsimhaRao, Editor "Cement and Building Materials Form Industrials Wastes Proceedings of the national conference" July 24-25' 1992 (India)

[9]. Samir Mistry (2002); "Thesis report on study on compressive strength of fly ash bricks", Sardar Patel university, V.V.Nagar