

**COW-DUNG ENERGY PRODUCER'S IN MADURAI, COIMBATORE AND CHENNAI  
- A CASE STUDY**

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This study based on dung cake energy producers data taken from Sellur, Thattaneri in Madurai, Selvapuram in Coimbatore and Old Vanarapett, Othakadai and nearby Mambalam Railway Station in Chennai and mainly focused on. In India, organic matter derived directly or indirectly from forestry and agricultural or livestock activities, namely wood, crop residues, animal wastes is the main source of biomass. In the recent past, an increased level of activities in the agriculture sector, unabated rise in human and livestock population and rapid rate of urbanization and industrialization have resulted in large scale production of waste materials that have high cellulose content. It makes an attempt to identify the several environmental problems on dung cake related to mosquitoes breeding, odor, water pollution and invasion of insects. Production of the dung cake is dominated with female entrepreneurs (90.8 percent) than male (9.2 percent). Business of dung cake production can be the sanctuary of widow or widower, those being an illiterate and poor.

**Key Words: Energy producer's, Livestock activities, Urbanization and Industrialization, Environmental problems.**

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# **COW-DUNG ENERGY PRODUCER'S IN MADURAI, COIMBATORE AND CHENNAI - A CASE STUDY**

## **Introduction**

Dung cake is one of the non-commercial energy sources in addition to firewood/fuelwood, crop residues, charcoal. Albeit, dung cake is categorized under non-commercial energy sources, in reality, it is found as a commercial and tradable commodity in the market. The observations earned from the short and snappy critical review of literatures on energy sources in general and dung cake in particular cleared that the studies on dung cake from the social scientists' particularly economists' perspectives is very meager, whereas, it has been continuously given significant space in the science based research studies. In the recent times, the studies on energy sources and its related matters are bring crucial by which the world is looking for solutions to the world energy crises. Many of these kinds of studies have mostly anxious about the commercial energy sources and the non-commercial energy sources. Particularly, the dung cake is found as the negligible subject matter in the energy literature and energy research. In the developing countries like India, dung cake is one of the free or low cost energy commodities, which is mostly used not only by the rural poor but also by the poor households of semi-urban and urban centres. These contextual situations and reasons are being the causing factor of the emergence of present study entitled: A Case Study of Cow-Dung Energy Producer's in Tamil Nadu".

## **Statement of the problem**

- In India, Cow dung (usually combined with soiled bedding and urine) is often used as manure (agricultural fertilizer). If not recycled into the soil by species such as earthworms and dung beetles, cow dung can dry out and remain on the pasture, creating an area of grazing land which is unpalatable to livestock.
- In many parts of the developing world, caked and dried cow dung is used as fuel. Dung may also be collected and used to produce biogas to generate electricity and heat.
- The second category of the problem is that dung burning reduces the organic manure input to the fields, which is very vital to agricultural productivity.

- Using the dung as cooking fuel decreases the plant nutrient availability for the farms forcing the farmers either to use costly and environmentally unsafe chemical fertilizers or produce less food that leads to malnutrition to their family members. It has brought about indoor air pollution and deficiency on manure, which has impact on the agricultural productivity as well as soil quality.
- Thirdly, a study carried out by REDP (2000) showed that it has created a social burden on more than 78.0 percent of the rural women and children causing drudgery and extra work in making the dung cake in rural areas.
- Fourthly, the burning of animal dung releases carbon dioxide to the atmosphere. For centuries India and have used cow dung and urine for many purposes. Cow urine is used a bleach back. It has varied medicinal values –some use urine to treat acne. It is a seed protector, mosquitoes repellent and an ingredient in making bricks and can also treat skin sores.
- Therefore it is not uncommon to see villages houses in rural India splattered with round shaped on their houses, baking in the sun and one can almost get used to the smell. In Veda, cow's urine was compared to the nectar. In substrata, several medicinal properties of cow's urine have been mentioned and are known to cause weight loss, reversal of certain cardiac and kidney problems, indigestion, stomach ache, edema, etc.(US patent No 6410059/2002) (**Sarman Singh 2001**).
- Five liters of cow urine, a handful of soil and 50g of calcium chloride was added to this extract (**Sreenivasa et al 2009**). With this background the researcher has made an attempt to examine the economic analysis of dung cake production in selected metro Politian cities in Tamil Nadu.

## **Review of Literature**

**Divy Ninad Koul, et al (2011)** have argued that livestock are an essential component of lives of rural farmers of India and it is important to assess how proper Soil and Water Conservation (SWC) can lead to improvement in the status of fodder and livestock and in turn improve the livelihood of the poor. The present paper tries to report fodder and livestock status through soil and water conservation taking a case of two semi-arid district of Madhya Pradesh in India. They reported the improvement in fodder ranged from 30.0 per cent to 100.0 per cent in Ratlam

district and Mandsaur district and most fodder development had taken place in the tribal belt of Ratlam district. The net change observed in number of local breed cows in Ratlam district in 0.37 units of cow/household which implies that almost every third household had purchased a new cow. In Mandsaur district, almost every fifth household had purchased a cow. Net increase in income of Rs.2214.67 from sale of milk and other products was recorded in Raklam district and in Mandsaur district it was Rs.1625 in Lower Reaches and Rs.1278 in Upper Reaches. The paper also suggested the species those utilized for moisture conservation as well as for fodder purpose during lean periods.

**Kathiravan and Selvam (2011)** have carried out to determine the versatility of different districts of Tamil Nadu state of India for milk and meat production, using secondary data collected from various sources. Factor analysis with principal component extraction was carried out to detect the interrelationship among attributes of livestock production. The district-wise potentials for cow and buffalo milk production, mutton and chevon production were worked out based on resource availability in each district and presented.

**Sathasivam et al (2010)** have studied Antimicrobial activities of cow urine distillate against some clinical pathogens from an ancient period cow's urine has been used as a medicine. In India, drinking of cow urine has been practiced for thousands of years. Panchagavya is a term used in Ayurveda to describe five important substances obtained from cow namely Urine, Dung, Milk, Ghee and Curd. The present study analyzes the antibacterial and antifungal activity of Cow Urine Distillate against the clinical pathogenic microorganisms.

**Gorakh Nath, et al (2009)** have estimated the effect of various animal agro and kitchen wastes on the growth and development of an epigeic earthworm *Eisenia foetida* was studied under identical laboratory condition. There was observed significant growth and development of earthworm among different combination of animal agro and kitchen wastes. Maximum number of earthworm was observed in dung with gram bran even when they were counted after one night. Highest significant growth was observed in gram bran with cattle dung. The maximum significant gain in weight and length attained in combination of gram bran with buffalo dung and highest number of *Eisenia foetida* were observed in combination of gram bran with horse dung.

**Goel, et al (1996)** have briefed the task of providing traditional energy supplies for domestic use is commonly the responsibility of women. General trends towards higher woodfuel prices, lower woodfuel quality and reduced access to wood-fuels increases their burden. Fuel availability and its price often have disproportionately negative implications for women, especially those of the lower income groups. They have as yet insufficiently benefited from several development schemes and research programs currently running in the country. Women in villages spend most of their time collecting wood. In several cases, they travel several miles each day to collect wood. A good part of the day is wasted in this exercise. They are also exposed to smoke caused by burning wood in chulhas. This is worse when the wood is of poor quality.

**Objective of the Study Follows:**

- i. To study the socio-economic profiles of dung cakes producers in the cities of Madurai, Coimbatore and Chennai.
- ii. To find out the production and marketing methods and procedures for selling dung cakes and
- iii. To suggest viable strategies for improving the living conditions of dung cakes producers.

**Hypotheses of the study**

The objectives stated above the several causes for dung cake protection. Hence the following hypotheses have been enunciated to be tested in this study.

- 1) The cause of environmental problems like mosquitoes breeding, odor, water pollution and invasion of insects.
- 2) The price of the dung cake fluctuates due to the market conditions like non-availability of raw dung and increasing demand, and heavy rain.

**Data sources**

The primary data has used with the help of secondary data, in major urban cities in tamilnadu; there is abounded of dung cake producers especially women.

**Primary data**

**(Table 1)**

Sl. No	Particulars	Study Areas	Total	Percentage
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		<b>Madurai (N=31)</b>	<b>Coimbatore (N=20)</b>	<b>Chennai (N=25)</b>	<b>(N=76)</b>	
1	<b>Sex</b>					
	Male	07	0	0	07	9.2
	Female	24	20	25	69	90.8
	<b>Total</b>	<b>31 (40.8)</b>	<b>20 (26.3)</b>	<b>25 (32.9)</b>	<b>76</b>	<b>100.0</b>
2	<b>Age (in years)</b>					
	20-40	01	01	00	02	2.63
	40-60	21	19	25	65	85.23
	60-80	09	00	00	09	11.84
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.0</b>
3	<b>Religion</b>					
	Hindu	31	20	25	76	100.0
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.0</b>
4	<b>Community</b>					
	SC	03	08	09	20	26.32
	BC	19	08	16	43	56.58
	MBC	09	04	00	13	17.10
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.0</b>
5	<b>Education</b>					
	Illiterate	25	18	22	55	85.52
	Primary	05	02	01	08	10.53
	Middle	01	00	02	03	3.95
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.00</b>
6	<b>Marital Status</b>					
	Married	02	05	02	09	11.8
	Widow	18	10	17	45	59.3
	Widower	11	05	06	22	28.9
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.0</b>

7	<b>Type of Family</b>					
	Nuclear Family	13	11	18	42	55.3
	Joint Family	18	09	07	34	44.7
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.0</b>
8	<b>Size of Family</b>					
	< 2 Members	03	05	04	12	15.8
	2-4 Members	24	13	17	54	71.1
	>4 Members	04	02	04	10	13.1
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.0</b>
9	<b>Type of the House</b>					
	Hut	09	03	08	20	26.3
	Tile	22	17	17	56	73.7
	<b>Total</b>	<b>31</b>	<b>20</b>	<b>25</b>	<b>76</b>	<b>100.0</b>

**Source:** Computed from the primary data.

**Note:** Figures in the parenthesis represent percentage.

Since the business of dung cake production doesn't need any hi-fi skills and knowledge, but simple processing, majorly the business has been undertaken by illiterates (85.52 per cent), followed by primary educated (10.53 per cent) and middle school educated (3.95 per cent). Further, the majority of the respondents are widow (59.3 per cent) or widower (28.9 per cent) and others are married (11.8 per cent). This shows that the business of dung cake production can be the sanctuary of widow or widower, those being an illiterate and poor. Majority of the respondents belong to nuclear families (55.3 per cent) and others are attached to joint families (44.7 per cent). Regarding the size of the family, majority of the respondents' family is middle (2-4 members) in size (71.1 per cent), followed by small (less than 2 members) (15.8 per cent) and large (more than 4 members) sized (13.1 per cent). Most of the respondents' houses are tiles (73.7 per cent) and hut (26.3 per cent). To conclude, the critical discussion on the social characteristics of dung cake producers illuminated that the nature and size of family may not be the significant influencing factors for choosing the business of dung cake production, but the gender, age, community, education and marital status.

## **Methodology**

Primary data have been gathered and collated with the help of well-structured and pre-tested interview schedule administrated with the dung cake producers in the cities Madurai, Coimbatore and Chennai in Tamil Nadu. The researcher has purposively adopted snow ball methods to indentify the cow dung producers. Accordingly, the researcher has found out 31, 20 and 25 dung cake producers in Madurai, Coimbatore and Chennai respectively. The collected data and information have been analyzed, discussed and interpreted for fulfilling the objectives of the present study.

## **Analyses and discussion**

The observations earned from the short and snappy critical review of literatures on energy sources in general and dung cake in particular cleared that the studies on dung cake from the social scientists' particularly economists' perspectives is very meager, whereas, it has been continuously given significant space in the science based research studies. In the recent times, the studies on energy sources and its related matters are bring crucial by which the world is looking for solutions to the world energy crises. Many of these kinds of studies have mostly anxious about the commercial energy sources and not the non-commercial energy sources. Particularly, the dung cake is found as the negligible subject matter in the energy literature and energy research. In the developing countries like India, dung cake is one of the free or low cost energy commodities, which is mostly used not only by the rural poor but also by the poor households of semi-urban and urban centers. Since, all the dung cake producers seem to be poor, majority of them (67.1 per cent) stored the dried dung cake within their households and remaining (32.9 per cent) stored it in the storage box. Of the total respondents of the study, majority of them (90.8 per cent) are pure entrepreneurs whose purpose is to produce the dung cake for sale and remaining use the dung cake for their own household use such as heating the water (6.6 per cent) and cooking the food (2.6 per cent). Majority of the respondents (73.7 per cent) recorded that there is a scope for breakage of dung cake and others felt it is negligent.



Further, as per the statement of the majority of the respondents (90.8 per cent) many of the broken dung cake can be reused.

## Major findings

The major findings of the present study are:

- Business of dung cake production can be the sanctuary of widow or widower, those being an illiterate and poor.
- Out of the aggregate monthly income of all the respondents of the study, 43.5 per cent earned from the business of dung cake production and remaining 56.5 per cent of income earned from other sources.
- The per capita monthly income found among the population of the respondents' households is Rs.4, 148/- and on an average, an entrepreneur involved in the business of dung cake production earn Rs.8, 515/- per month.
- The expenditure pattern of the respondents shows that majority of them (59.20 per cent) spent less than Rs.6, 000/- per month and almost one-third (32.90 per cent) of the respondents spent more than Rs.9, 000/-, and remaining (7.9 per cent) spent Rs.6, 000/- - Rs.9, 000/- per month.
- The per capita monthly expenditure found among the population of the respondents' households is Rs.3, 763/- and on an average, an entrepreneur involved in the business of dung cake production spend Rs.7, 724/- per month.
- The per capita monthly savings of the population of the respondents' households is Rs.386/- and on an average, an entrepreneur involved in the business of dung cake production save Rs.791/- per month.
- More than one-third (34.2 per cent) who reported the household works as their secondary occupation and other occupations they involved are: flowers vending (26.3 per cent), vegetables vending (18.4 per cent), construction works (9.2 per cent), fruits vending (6.6 per cent) and idly shop (5.3 per cent).
- The reasons for involving in the dung cake production as reported by the respondents are following in its order: ageing (27.6 per cent), spot income (22.4 per cent), need of

minimum investment (18.4 per cent), parents' motivation / demand (14.5 per cent), easy availability of dung (13.2 per cent) and chance of quick profit (3.9 per cent).

## **Recommendations**

- Self Help Groups among dung cake producers can be formed in order to strengthen the bargaining capacity.
- Awareness creation programme may be given to dung cake producers in the areas of cleanliness and production of qualitative dung cake.
- Necessary storage capacity can be created both for keeping the raw dung and dung cakes during rainy season.
- NGOs and GOs like Tamil Nadu energy development agency may provide training to the dung cake producers not only to produce quality dung but, also to produce briquetting.

## **Conclusion**

Dung cake – in theory – is a non-commercial energy source, but, in practice it is a commercial source of energy. By observation from the field, women particularly widow are engaged in production of dung cakes which are sold directly to the whole sale traders or the households. The price of dung cake seems to be quite low caused by lower production cost. This is mainly due to un-accounting of labour cost and raw dung cost in some cases. Moreover, dung cake production is more or less seasonal in character because, during the rainy season, it is very difficult to produce dung cakes and price of dung cakes during this season seems to very high. Women are unaware about the scientific value of dung cake particularly dung cake produced out of cow dung. Cow dung is used as medicine in Ayurvedic science and it cures many diseases. This kind of scientific knowledge can be imparted to women to make camphor which has a great demand both in national and international markets.

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