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## Socio-economic impact of mat-stick cultivation and mat weaving industry in Sabang block of West Bengal

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### Abstract

Mat stick cultivation and mat industry is one of the most important labor surplus economies. It is a small scale cottage industry which plays a vital role to the rural economy. The mat weaving industry is generally found in some blocks of Paschim and Purba Medinipur of West Bengal. This is a labor intensive handicraft cottage industry prevailing in this area traditionally and in recent times rhizome / root of mat sticks also become an important source of income to the farmers.

Our study area is Sabang Community development block in the district of Paschim Medinipur of West Bengal in India. Our principal objective is to find out the economical impact of mat stick cultivation and mat weaving industry to the rural life. We have selected ten (10) villages (Adasimla, Sabang, Harnan, Kundra, Bural, Gundut, Sitalda, Bishnupur, Mohar, Kantakhali) for this household survey, where we surveyed around 400 families, randomly. We have investigated total economics basis on 20 decimal lands for one year. In this Paper we are trying to unfold the total expenditure in a 20 decimal land and the yield of mat sedge and its market price as well as net profit. And then after weaving three types (ek-rokha, do-rokha, masland) of mat and their cost, market price and net profit etc. And finally total economics on mat stick rhizome/root. Now-a-days these mats rhizome/root plays major role to the employment and income of the rural family of this area.

**Keywords:** Mat-stick, cottage-industry, mat-weaving, handicraft, rhizome, rural life, expenditure, mat-sedge

### Introduction

Mat sedge cultivation and mat weaving industry plays a prominent role in rural employment and income. Sabang community development block is dominant in mat cultivation and mat weaving, other blocks which are also important for mat cultivation and weaving are Pingla, Bhagwanpur, Moyna, Narayangarh, Patashpur etc. In Sabang block there are mainly female (around 70% of females) and children are involved to this industry. They produce three types of mat, i.e. Ek-rokha or Single mat, which is thinner than Do-rokha, but Do-rokha or Double Mat is more suitable and comfortable than Ek-rokha, & Masland or Matranjee is very fine textured and to using the sticks is very selective, with various beautiful geometric designs.

Mat-sedge (Madur - Kathi) can thrive in a wide range of agro-climatic condition. It can sustain within a long term drought condition and also can tolerate prolonged submergence in water. Sometimes swampy and marshy lands are used to cultivate non-food crops like mat-sedge. Mat-sedge crop is cultivated two times in a year, viz - kharif season (July to November) and Zaid season (February to May). The structure in which mat-sedge weaving occurs is locally known as "ARA".

With the growing economic condition of the people and globalization demand of every types of mat is growing day by day. Depending on the demand mat industry is making revive on its foot. And there is huge demand of mat sticks rhizome, which is preferably used as tonic and stimulating medicine also used for making perfumes and fragrances in hair lotions and a type of oil which uses as a perfume to clothes.

### Objective of the study

The specific objectives of the study are:

1. To find out the expenditure and income of mat sedge cultivation.
2. To unfold the expenditure and income of mat industry.

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- An economical estimation of mat stick root or rhizome cultivation.

**Geographical outlook of the study area**

Paschim Medinipur district is one of the important rice producing districts of West Bengal and famous for mat stick cultivation and mat industry.

Sabang is a community development block that forms an administrative division in the Kharagpur Sub Division of Paschim Medinipur district in the Indian State of West Bengal. Sabang is located at 22°10'34"N latitude and 87°36'04"E longitude. Its total area 305.00 sq. kms.. The average altitude of Sabang community development block is 17 meters from the mean sea level. According to Census-2011 total population of Sabang was 2,70,492 and its density was 890/ sq kms.. Literacy rate of this block was 86.84%. Contd.3.

**Date Base and Research Methodology**

The study is focused on the socio-economic impact analysis of mat sedge cultivation and mat weaving industry to the life of rural people of Sabang Community Development Block in the district of Paschim Medinipur of West Bengal. The survey was done by both primary and secondary sources of data. The primary data have been collected through intensive field survey based on well-structured questionnaire with regard to objectives in mind. The total sample constitutes 400 respondents of 10 villages. The collected data were tabulated and statistically analyzed to interpret the result.

And the secondary data were collected from governmental records and documents, journals magazines etc.

**Table 1:** Shows mat stick production cost per 20 decimal land per year

Sl. No	Types of Cost	Rs	Percentage
01	Total Labor Cost	9000/-	43.40
02	Hired Machine Cost	2000/-	9.65
03	Organic Manure Cost	4000/-	19.30
04	Chemical Fertilizer Cost	2000/-	9.65
05	Pesticide, Insecticide, Herbicide Cost	500/-	2.41
06	Irrigation Cost	1000/-	4.82
07	Interest on Invested Capital	2235/-	10.78
	Total Expenditure	20735/-	100

Source: Field Survey, March, 2016.

Table No. 1 shows that total expenditure of mat sedge or madur kathi cultivation is Rs. 20,735/-. Total invested cost has been calculated on the basis of price of local market. Total labor cost of mat stick cultivation is highest (Rs. 9000/-) followed by organic manure cost (Rs. 4000/-) and then interest on invested capital (Rs. 2235/-) hired machine cost (Rs. 2000/-), chemical fertilizer cost (Rs. 2000/-), irrigation cost (Rs. 1000/-), pesticide, insecticide, herbicide costs are lowest (Rs. 500/-). We have not calculated the rental value of owned land because there is maximum cultivator who has their own land. If we consider the rental value of owned land then additional Rs. 10,000/- will be spent. And we also did not included the price of mat stick root or rhizome because it's like plantation crop in which once the cultivator seedling the plants, it will produce crops for several years. So, in this case there is no need to buy saplings.

**Table 2:** Yield, Value of Output and Net Profit of mat stick cultivaton

Yield, value of output and net profit	Rupees (Rs.)
Yield	Nov. - 20 bundle + May - 10 bundle= 30 Bundle
price per bundle	1800/-
Total Value Of Output	30 bundle X 1800/- = 54,000/-
Rhizome Output Value	25000/-
Total Output Value	54,000/- + 25,000/- = 79,000/-
Total Expenditure	20735/-
Net Profit	79000/- - 20735/- = 58265/-

Source: Field Survey, March, 2016.

Table No.2 shows average output or average yield of mat stick is 30 bundle per 20 decimal of land. The market dry mat stick is Rs. and total value of yield per 20 decimal is Rs. 54000/-. In Sabang block the market price of dry mat stick is more or less same.

Mat Sedge root or rhizome is most important source of income till date. In recent times the cultivators of Sabang

block trace more importance to the production of rhizome because it is much profitable that mat stick cultivation. After every two years the mat stick root or rhizome is ready to sell. Now its market value is around Rs. 50,000/-. And the net profit is Rs. 58,265/-.

**Table 3:** Shows single mat production cost with different size

Size (In inch) Criteria	60"	54"	51"	45"	40"	36"
Dry mat sticks	200	175	150	125	100	50
Labor	300	275	250	225	200	125
Rope	15	15	10	10	07	07
Jute	05	05	05	04	04	04
Others	02	02	02	02	02	02
Total	522	472	417	366	313	188

Source: Field Survey, March, 2016.

In mat stick industry the working activity starts with the preparation of raw material, i.e. pre-loom weaving. The

painstaking works begin from the steps when the soft reeds and jute are arranged on a bamboo frame call "ARA".

Table No.3 presented single mat production cost of different size. Dry mat stick cost is highest (Rs. 200/-) in 60” wide mat, followed by 54” wide mat (Rs. 175/-), 51” wide mat (Rs. 150/-), 45” wide mat (Rs, 125/-), 40” wide mat (Rs. 100/-) 36” wide mat (Rs. 50/-). The labor cost is highest (Rs. 300/-) in 60” wide mat, followed by 54” wide mat (Rs. 275/-), 51” wide mat (Rs. 250/-), 45” wide mat (Rs, 225/-), 40” wide mat (Rs. 200/-) 36” wide mat (Rs. 125/-). Rope cost is highest (Rs. 15/-) in both 60” & 54” wide mat, followed by 51” & 45” wide mat (Rs. 10/-), 40” & 36” wide mat (Rs. 7/-). Rope cost is highest (Rs. 15/-) in both 60” & 54” wide mat, followed by 51” & 45” wide mat (Rs. 10/-), 40” & 36” wide mat (Rs. 7/-). Jute cost is highest in 60”, 54” & 51” wide mat, (Rs. 5/-), followed by 45”, 40” & 36” wide mat (Rs. 4/-). And the other cost is almost equal to every wide mat. And the total cost is highest (Rs. 522/-) in 60” wide mat, followed by 54” wide mat (Rs. 472/-), 51” wide mat (Rs. 417/-), 45” wide mat (Rs, 336/-), 40” wide mat (Rs. 313/-) and the lowest total cost is 36” wide mat (Rs. 188/-).

**Table 4:** Value of single mat and net profit.

Size(in inch)	Market Price	Cost	Net Profit
60	750	522	228
54	600	472	128
51	525	417	108
45	450	366	84
40	370	313	57
36	225	188	37

Source: Field survey, March, 2016.

Table No. 4. Shows the market value of single mat and its net profit. Market price per single mat is highest (Rs. 750/-) in 60” wide mat, followed by 54” wide mat (Rs. 600/-), 51” wide mat (Rs. 525/-), 45” wide mat (Rs, 450/-), 40” wide mat (Rs. 370/-) 36” wide mat (Rs. 225/-). Net profit per single mat is highest (Rs. 228/-) in 60” wide mat, followed by 54” wide mat (Rs. 128/-), 51” wide mat (Rs. 108/-), 45” wide mat (Rs, 84/-), 40” wide mat (Rs. 57/-) 36” wide mat (Rs. 37/-). Contd..6.

**Table 5:** Shows double mat production cost with different size

Size (In inch) Criteria	60"	54"	51"	45"	40"	36"
Dry mat sticks	250	220	180	155	122	62
Labor	360	310	290	265	210	140
Rope	22	22	16	16	12	12
Jute	06	06	06	05	04	04
Others	02	02	02	02	02	02
Total	640	560	494	443	313	188

Source: Field Survey, March, 2016.

Double Mat production cost with different size in weaving stage has been presented in the Table No. 5. Dry mat sticks cost is highest (Rs. 250/-) in 60” wide mat weaving followed by 54” wide mat (Rs. 220/-), 51” wide mat (Rs. 180), 45” wide mat (Rs. 155/-), 40” wide mat (Rs. 122/-), 36” wide mat (Rs. 62/-). Labor cost is highest (Rs. 360/-) in 60” wide mat weaving followed by 54” wide mat (Rs. 310/-), 51” wide mat (Rs. 290), 45” wide mat (Rs. 265/-), 40” wide mat (Rs. 210/-), 36” wide mat (Rs. 140/-). Rope cost is highest in 60” and 54” wide mat (Rs. 22/-) followed by 51” and 45” wide mat (Rs. 16/-), 40” & 36” wide mat (Rs. 12/-). Jute cost is highest in 60”, 54” & 51” wide mat (Rs. 6/-), followed by 45” wide mat (Rs. 5/-), and remaining 40” & 36” wide mat (Rs. 4/-). And the other cost is almost equal to

every size of mat. And the total cost of double mat production is highest (Rs. 640/-) in 60” wide mat, followed by 54” wide mat (Rs. 560/-), 51” wide mat consume (Rs. 494/-), 45” wide mat (Rs, 443/-), 40” wide mat (Rs. 350/-) and the lowest total cost is 36” wide mat (Rs. 220/-).

**Table 6:** Shows value of double mat and net profit

Size (in inch)	Market Price	Cost	Net Profit
60	1225	640	585
54	1075	560	515
51	910	494	416
45	730	443	287
40	445	350	95
36	280	220	60

Source: Field survey, March, 2016.

Table No. 6 unfolds the market price and net profit of double mat. 60” wide double mat enjoys market price and net profit at its highest level, i.e. Rs. 1225 and Rs. 585/- respectively, followed by 54” wide mat (Rs. 1075/- & Rs. 515/-), 51” wide mat (Rs. 910/- & Rs. 416/-), 45” wide mat (Rs. 730/- & Rs. 287/-), 40” wide mat (Rs. 445/- & Rs. 95/-) and finally 36” wide mat (Rs. 280/- & Rs. 60/-).

**Table 7:** Masland / Matranjee mat production cost with different size

Size (in inch) Criteria	54	51	35
Dry mat sticks	460	390	310
Labor	1280	1210	930
Cotton	160	155	110
Others	110	100	80
Total	2010	1855	1430

Source: Field Survey, March, 2016.

Masland or Matranjee is an exclusive and expensive high ranged handmade variety of madur made with intricate artistic skills. The popular design of masland mat is of flowers, natural scenario, animals etc. The process of weaving of masland mat is very much similar to the weaving of sari.

Table No. 7 shows the production cost of masland mat with different size in weaving stage. Dry mat sticks production cost is highest (Rs. 460/-) in 54” wide mat followed by 51” wide mat (Rs. 390/-), 45” wide mat (Rs. 310/-). Labor cost is highest (Rs. 1280/-) in 54” wide mat weaving followed by 51” wide mat (Rs. 1210), 45” wide mat (Rs. 930/-). The Cotton cost is highest in 54” wide mat (Rs. 160/-) followed by 51” wide mat (Rs. 155/-), 45” wide mat (Rs. 110/-). And the other material cost is also follows the same sequence, 54” wide mat (Rs. 110/-) followed by 51” wide mat (Rs. 100/-), 45” wide mat (Rs. 80/-). The total cost of per masland / matranjee madur production is highest (Rs. 2010/-) in 54” wide mat, followed by 51” wide mat (Rs. 1855/-), and 45” wide mat consume (Rs. 1430/-). Contd.8.

**Table 8:** Shows value of masland / matranjee and net profit

Size (in inch)	Market Price	Cost	Net Profit
54	3050	2010	1040
51	2800	1855	945
45	2280	1430	850

Source: Field survey, March, 2016.

Table No. 8 shows the market price of masland mat by different size and net profit of masland mat with different

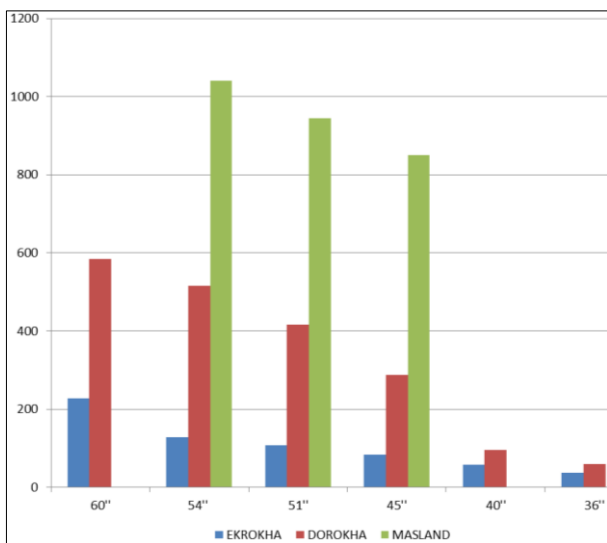
size. The market price of 54” wide masland mat is highest (Rs. 3050/-), followed by 51” wide masland mat (Rs. 2800/-), 45” wide masland mat (Rs 2280/-). Net profit per masland mat is highest (Rs. 1040/-) in 54” wide masland mat,

followed by 51” wide masland mat (Rs. 945/-), and finally 45” wide masland mat sell with lowest net profit i.e. Rs 850/-.

**Table 9:** Comparison of Net Profit among the three types of mat

Mat Types Size of Mat	Ekrokha/Single Mat (in Rs)	Dorokha/Double Mat (in Rs)	Matranjee/Masland(in Rs)
60	228	585	-
Scale (1cm:Rs-100)	2.28	5.85	-
54	128	515	1040
Scale (1 cm: Rs-100)	1.28	5.15	10.40
51	108	416	945
Scale (1 cm:Rs-100)	1.08	4.16	9.45
45	84	287	850
Scale( 1cm:Rs-100)	0.84	2.87	8.50
40	57	95	-
Scale (1 cm:Rs-100)	0.57	0.95	-
36	37	60	-
Scale (1 cm:Rs-100)	0.37	0.60	-

Source: Field survey, March, 2016.



**Fig 1:** Showing the Comparison of Net Profit among the three types of mat

Table No. 9 and shows an interesting fact about the economics of mat weaving industry of our study area. Basically we find out two major declining trends, these are:- (1) A declining trend of net profit with the decreasing mat size, i.e. where net profit of a 60” wide single mat is Rs. 228/- and followed by 54” wide mat (Rs. 128/-), 51” wide mat (Rs. 108/-), 45” wide mat (Rs. 84/-), 40” wide mat (Rs. 57/-) and 36” wide mat (Rs. 37/-). We find out same tendency to the double mat, where the maximum profit obtained by 60” wide mat (Rs. 585/-), and followed by 54” wide mat (Rs. 515/-), 51” wide mat (Rs. 416/-), 45” wide mat (Rs. 287/-) and 40” wide mat (Rs. 95/-), 36” wide mat (Rs. 60/-) and masland or matranjee also shows same trend, 54” wide masland show highest profit (Rs.1040/-) and followed by 51” wide masland (Rs. 945/-), and lowest profit found from 45” wide masland (Rs. 850/-). (2) We also find out a declining trend of profit from masland or matranjee to single mat through double mat. A 60” wide single mat shows profit of Rs. 228/-, where a double mat profit is Rs. 585/- and followed by 54” wide single mat Rs. 128, double mat Rs. 515/-, masland mat Rs. 1040/-, 51” wide single mat Rs. 108/-, double mat Rs. 416/- and masland shows a profit of Rs. 945/-, 45” wide single

mat Rs. 84/-, double mat Rs. 287/- and masland Rs. 850/-, 40” wide single mat shows a profit of Rs. 57/-, double mat Rs. 95/- and finally a 36” wide single mat shows a profit of Rs. 37/- and double mat Rs. 60/-.

**Major findings**

Throughout the household survey of Sabang Block of Paschim Medinipur about the mat Stick cultivation and mat weaving industries, we have find out the following facts:

1. With the increasing size of mat the expenditure also increased.
2. From the Single Mat to the Matranjee through Double Mat the expenditure also increased.
3. Size make differences to the market price of the mat, wider the mat higher the market price.
4. With the increasing size of mat the net profit is also increasing.
5. From Matranjee to Single Mat through Double Mat the net profit is also decreasing.
6. Now-a-days rhizome or root of the mat stick are the major source of income to the farmer of our
7. Study area.
8. Basically, it is an additional economic activity of this area.
9. This additional economic activities plays a dominant role to the socio-economic condition of the
10. Farmers.

**Conclusion**

Mat sedge (madur kathi) cultivation and mat weaving industry plays a dominant role to the employment and rural economy of the study area. One important thing that in recent times mat sedge root or rhizome plays pivotal role to the rural economy and that is why cultivator of this area converted their rice field into mat sedge field, some of them (cultivator) are basically interested to the production of mat sedge root or rhizome. Around 70% females and children of this area are involved in this industry. And male member of this area are involved to the cultivation and other economic activities. Cultivation of mat Sticks and its valuable product provide Opportunity to the poor people. Net profit by selling the masland or matranjee is highest, followed by double mat and single mat respectively.

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