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Report on Time & Motion study for calculating actual earnings as well as production output of artisans working in khadi sector in Bihar

Bihar State Khadi & Village Industries Board (KVIB)
2018



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Time & Motion Study – KVIB

1.1. Background

Bihar State Khadi & Village Industries Board (KVIB) has been working diligently to improve the condition of spinners/weavers and transform the Khadi sector in Bihar. Government of Bihar has also been proactive in formulating a khadi policy for the welfare of artisans as well as to bring transformation in the khadi sector. KVIB have also appointed Grant Thornton India LLP as a Program Management Agency (PMA) for 3 years in promoting and revamping khadi sector in Bihar.

Our father of Nation “Mahatma Gandhi” stressed that to help the poor one must think like poor. Generally, intellectuals in this country tend to be drawn from the upper and middle strata living in urban areas, and are usually ignorant of rural India and the culture of the people inhabiting it. They are unaware of the need to study it with respect and humility, and merely mouth the rhetoric of concern for the welfare of the weaker sections of the society. So, unless a person is interested in turning his eyes downward and is determined to do so, he will never in his whole life really understand the ground realities. It is in this context, while conducting a baseline survey, PMA was advised to conduct **Time and motion study** to understand and assess the challenges of spinners/weavers in terms of their earnings, production output so that the new khadi policy would have a reflection of real ground realities.

As part of the study, PMA team have conducted “Time & Motion Study” of artisans working on 3 products viz. Cotton, Silk and Wool at 6 Institutions located at Gaya, Patna, Bhagalpur, Madhubani, Muzaffarpur and Rohtas. The name of the institutions is:

- I. Gram Nirman Mandal, Gaya
- II. Resham Khadi Bunkar Gramodyog Sangh, Bhagalpur
- III. Habibullah Gramodyog Vikas Khadi Awam Gramodyog Sangh, Madhubani
- IV. Swadeshi Kambal Ashram, Patna
- V. Muzaffarpur Zila Khadi Gramodyog Sangh, Muzaffarpur
- VI. Akhorhi Gramodyog Sahyog Samiti, Rohtas

The detailed time & Motion study conducted by PMA are enclosed in Annexure 1.

This study helped the PMA to calculate the real time wages earned by spinners and weavers per day/month, working hours per day, production output per day/month apart from understanding the ground realities in terms of current usage of technical infrastructure, availability of working capital with khadi institutions, market linkages, accounting system etc. which was done in baseline survey. The note details the step wise Time & Motion study conducted at above mentioned institutions with team observations and calculation of wages and production output of individual spinners/weavers.

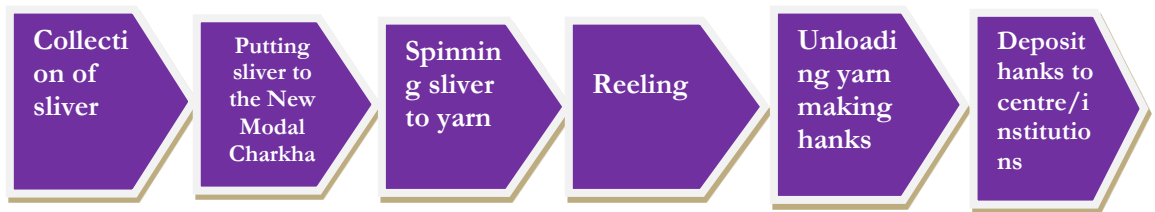
1.2. The Objective

The main objective of the study was to determine the real wages earned presently by spinners/weavers and also to assess the current wage/rate chart fixed by Khadi Village Industries Commission (KVIC) whether it complies to the prescribed minimum wage rate of the state of Bihar.

1.3. The Process adopted in Time & Motion study

The process adopted for spinners are shown below:

Flowchart for production of cotton yarn (spinning) in New Model Charkha (NMC)



Activity wise distribution of time for spinning cotton

Activity	Collection of sliver	Putting sliver on the NMC	Spinning	Making Hanks	Unloading hanks from New Model Charkha (NMC)
Time					

Flow chart for production of silk yarn (spinning) in Katiya Charkha



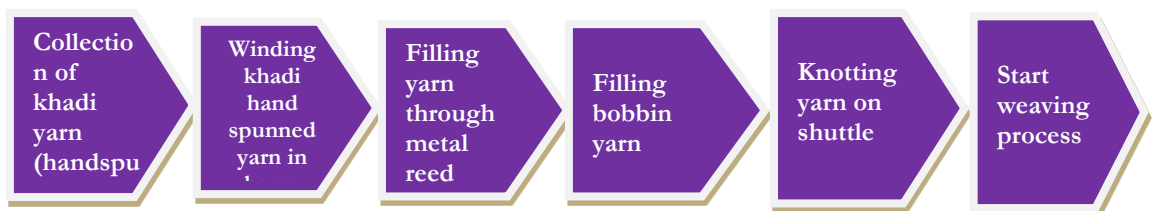
Activity wise distribution of time for spinning silk (katiya)

Activity	Collection Of Cocoons in pieces	Putting for Boiling	Spinning through katiya charkha
Time			

Note: We also calculated wastage of time during 8 hrs. of working of spinners i.e. time spent in splitting and joining yarn, leisure time spent during this hour and time spent in other minor activities which was unproductive.

The process adopted for weavers are shown below:

Flow chart for weaving of cotton yarn into khadi fabric (grey)



Flow chart for weaving of silk yarn into silk fabric (grey)



Note: We also calculated wastage of time during 8 hrs. of working of spinners i.e. time spent in wear and tear in the process of weaving, leisure time spent during this hour which was unproductive.

1.4. Summary tabulation on present circumstances vis-à-vis in 3 years based on Time and Motion study conducted by PMA

#	Particulars	Present scenario	Target	Gap	Remarks
1	Charkhas & Spinners				
	Charkha (new model + Tripurari)	2854	10000 new model charkhas	7146	To be distributed by KVIB on PPP mode
	Manpower – Spinner	8011	10,000 spinners	1989	-
2	Looms & Weavers				
	Looms (Pit + modern weaving looms)	921	2000	1079	To be distributed largely as CFC to Sansthas
	Manpower – Weaver	1030	2000	970	To be trained through special training programme
3	Production turnover				
	Turnover – Cotton (Time –motion study based)	Rs. 10.88 crore (89 per cent of present production or Rs. 12.22 core)	Rs. 24.03 crore (Assuming 1780 cotton weavers working for 150 days per annum and weaving 6 mtrs/day @ sale rate of Rs. 150/metre)	Rs. 13.15 crore	
	Turnover – Silk (Time – motion study based)	Rs. 1.22 crore (10 per cent of present production or Rs. 12.22 core)	Rs. 9.00 crore (Assuming 200 silk weavers working for 150 days per annum and weaving 5	Rs. 7.78 crore	

#	Particulars	Present scenario	Target	Gap	Remarks
			mtrs/day @ sale rate of Rs. 700/metre)		
	Turnover – Wool (Time – motion study based)	Rs. 0.12 crore (1 per cent of present production or Rs. 12.22 core)	Rs. 0.14 crore (Assuming 20 wool weavers working for 150 days per annum and weaving 18.25 mtrs/day @ sale rate of Rs. 83/metre)	Rs. 0.33 crore	
4	Earnings – Wages				
	Spinner – Cotton	Rs. 117 (A typical spinner spins 540 gms per day i.e. 18 hanks of cotton yarn @ Rs. 6.5/hanks)	Rs. 265	Rs. 148	Value-addition and direct market linkages is required
	Spinner – Wool	Rs. 59 (A typical spinner spins 2 kg wool per day @ Rs. 28.5/kg)	Rs. 265	Rs. 206	Value-addition and direct market linkages is required
	Spinner – Silk	Rs. 80 (A typical spinner spins 5 hanks of silk yarn of 1000 m each per day @ Rs. 16/hanks)	Rs. 265	Rs. 185	Value-addition and direct market linkages is required
	Weaver – Cotton	Rs. 134 (A typical weaver weaves 5.5 m/day @ Rs. 134/day)	Rs. 265	Rs. 131	Value-addition and direct market linkages is required
	Weaver – Silk	Rs. 200 (A typical weaver weaves 4 m/day @ Rs. 50/m)	Rs. 265	Rs. 65	Value-addition and direct market linkages is required
	Weaver – Wool	Rs. 110 (A typical weaver weaves 18.25	Rs. 110	Rs. 155	Value-addition and direct

#	Particulars	Present scenario	Target	Gap	Remarks
		m/ day @ Rs. 110/day)			market linkages is required

1.5. Conclusion and way forward:

As per the present Minimum Wage Act of the state of Bihar, minimum wages for semi-skilled category is @ Rs 265 per day at current prices. During the Time and Motion Study conducted by PMA team, we found that,

- Presently, at the spinning stage in case of wool, the average earning per day by a weaver is Rs 110 using pit looms when weaving 18.25 meters per day of 8 hrs shift. In spinning wool, the average earning per day per spinner is Rs 59 for spinning about 2 Kg per day.
- Similarly, presently at the weaving stage in case of silk, the average earning per day by weaver is Rs 200 using handloom when weaving 4 meters a day. In the spinning silk, average per day per spinner is Rs 80 for making 5 hanks of silk yarn.
- Similarly, presently at the weaving stage in case of cotton, the average earning per day by a weaver is Rs 134 using pit looms when weaving 5.5 meters per day. In spinning cotton, the average earning per day by a spinner is Rs 117 for making 18 hanks of cotton yarn

We now find that many khadi workers are working at wages of barely Rs 150 per day or Rs 2500 per month which is far lower than even the prescribed minimum wage rate of the state of Bihar. The present situation is alarming and it needs proper attention in redefining the wages/rate chart prepared by KVIB and requires policy level intervention from the Central Ministry of MSME

1. Create direct employment opportunities for at least 12800 people across the khadi sector at the end of 3 years
2. Achieve growth in direct production turnover of Rs 33.48 crores over a period of 3 years i.e. 2021-2022

1.6. Summary sheet of Time & Motion study conducted at different Khadi Institutions**Time Motion study conducted for Spinners**

Time Motion study conducted for Spinners															
#	Khadi institution	Products	Team members	Activity	Name of Spinner	Start time	Finish time	Time Duration	No. of hanks Prepared	Weight per hanks	Total weight of yarn prepared	Unproductive time	Spend in domestic activities	Leisure time spent	
1	Swadeshi Kambal Ashram, Patna	Cotton - 40 Count	Mr. S P Verma	Spinning	Chanda khatun	12:20 PM	4:20 PM	4:00 Hrs	8	30 gram	240 gram	:45	:45	1:00	
					Soni Begum				9	30 gram	270 gram	:45	:45	1:00	
					Ruhi Khatun				10	30 gram	300 gram	:45	:45	1:00	
					Reshma				10	30 gram	300 gram	:45	:45	1:00	
					Mushraff parveen				11	27 gram	300 gram	:45	:45	1:00	
					R.C Praveen				8	30 gram	240 gram	:45	:45	1:00	
		Wool-8 count	Mr. S P Verma	Spinning	Rajkumari	11:30 AM	3:30 PM	4:00 Hrs	16	125 gram	2Kg	:30	:30	1:00	
2	Gram Nirman		Mr. Rishu Ravi	Spinning	Gayatri Devi		3:00 PM	4:00 Hrs	18	18 gram	330 gram	:40	:20	1:00	

Time Motion study conducted for Spinners														
#	Khadi institution	Products	Team members	Activity	Name of Spinner	Start time	Finish time	Time Duration	No. of hanks Prepared	Weight per hanks	Total weight of yarn prepared	Unproductive time	Spend in domestic activities	Leisure time spent
	Mandal, Gaya	Cotton - 50 Count			Mantosh Sinha	11:00 PM			20	20 gram	400 gram	:40	:20	1:00
3	Muzaffarpur Zila khadi Gramoyog Sangh, Muzaffarpur	Cotton - 50 Count	Mr. S P Verma	Spinning	Chandrakala devi	12:15 PM	4:15 AM	4: Hrs	17	20 gram	340 gram	:40	:20	1:00
					Ranju Devi	12:15 PM	4:15 AM	4: Hrs	18	20 gram	360 gram	:40	:20	1:00
4	Resham Bunkar Khadi Gramodhyog Sangh, Bhagalpur	Katiya , Ghicha Silk	Mr. Rahul Ashok	Spinning	Kavita devi	11:45 AM	4:45 PM	4 : Hrs	6	30 gram	180 gram	0.40	:20	1:00
					Sobha devi	11:00 AM	3:00 PM	4 : Hrs	5	30 gram	150 gram	0.30	:30	1:00
					Usha devi	11:30 AM	3:30 PM	4 : Hrs	4	30 gram	120 gram	0.40	:45	1:00
					Sangita kumara	12:00 PM	4:00 PM	4 : Hrs	3	30 gram	90 gram	0.55	:20	1:00

Time Motion study conducted for Weavers

Time & Motion study conducted for weavers												
#	Khadi institution	Products	Team members	Activity	Name of Weaver	Start time	Finish time	Time Duration	Production in mtr.	Unproductive time	Spend in domestic activities	Leisure time spent
1	Resham Bunkar Khadi Gramodyog Sangh ,Bhagalpur	Silk Fabric	Mr. Rahul Ashok	Weaving	Nasir ansari ,Bhagalpur (Supported by wife also)	8.10 Am	12.10 pm	4 Hrs	5 mtr	0.45	0.45	1:00
2	Gram Nirman Mandal, Gaya	Silk Fabric (Matka+katiya)	Mr. Rishu Ravi	Weaving	Md. Nisar Ansari (supported by wife also)	11:20 AM	3:20 PM	4 Hrs	5 mtr	:30	:30	1:00
3	Habibullah Gramodyog Vikas Khadi Awam	Cotton Khadi fabric	Mr. Tushar Sharma /Mr. Anurag Pratik	Weaving	Amir subhan	1.22 Pm	3.22 pm	2 Hrs	3 mtr	:45	:45	1:00

Time & Motion study conducted for weavers												
#	Khadi institution	Products	Team members	Activity	Name of Weaver	Start time	Finish time	Time Duration	Production in mtr.	Unproductive time	Spend in domestic activities	Leisure time spent
	Gramodyog Sangh, Madhubani		/Mr. Digvijay									
4	Akhorhi Gramodyog Sahyog Samiti, Rohtas	Woolen Kambal	Mr. S P Verma	Weaving	Santpal & awadhesh pal	11.30 am	3.30 hrs	4 hrs	18.25 mtr	:30	:30	1

Annexure 1 – Detail analysis of spinning process (activity wise) of Khadi Institutions through Time & Motion study

1) Gram Nirman Mandal:

Name of the Institution	Name of team members	Product
Gram Nirman Mandal	Mr. Rishu Ravi, Team leader	Cotton-50 Count
	Alok Kumar, Accounts Executive	
	Gaurav Bhusan Pandey, Accounts Executive	

Observation: Team conducted time & motion study on spinners and observed their activity wise distribution of time spent on each activity including their leisure time. The details are as follows:

Activity wise distribution of Time:

Activity	Collection of Sliver	Sliver putting on the New Model Charkha (NMC)	Spinning	Making hanks	Unloading hanks from NMC
Time	10 Minutes	20 Min.	4 Hrs.	5 Min.	5 Min.

Waste of time during 8 Hrs. of Activity:

Time spend in other activity: 10min.+20 min. +5 min.+5 min.: **40 min.**

Time spend during Breaking and joining of yarn during spinning: **20 min.**

Leisure period in shift of 8 Hrs.: **1.00 Hrs.**

Total waste of Time during 8 Hrs. of shift: **40 Min.+ 20 Min.+1.00 Hrs.=2:00 Hrs.**

Total utilized time during 8 Hrs. of shift: **8:00 Hrs. - 2:00 Hrs. = 6:00 Hrs.**

Calculation of Time & Motion study:

S. No	Name of Spinner	Start time	Finish time	Time Duration	No. of hanks Prepared	Weight per hanks	Total weigh of yarn prepared
1.	Gayatri Devi	11:00 PM	3:00 PM	4:00 Hrs	18	18	330 gram
2.	Mantosh Sinha	11:00 PM	3:00 PM	4:00 Hrs	20	20	400 gram

Gaytri Devi	Mantosh Sinha
Each 5 rotations= 0.8 mtrs	Each 5 rotations= 0.9 mtrs
Yarn length per rotation= 0.8/5 mtrs	Yarn length per rotation= 0.9/5 mtrs
Rotation per min= 40	Rotation per min= 40
Rotation per hour= $40 \times 60 \times 0.8/5$ mtrs for 1 spindle	Rotation per hour= $40 \times 60 \times 0.9/5$ mtrs for 1 spindle
Yarn in 8 spindle= $40 \times 60 \times 0.8/5 \times 8 = 3072$ mtrs i.e. 3.07 hanks	Yarn in 8 spindle= $40 \times 60 \times 0.9/5 \times 8 = 3456$ mtrs i.e. 3.45 hanks
Yarn in 6.00 hrs production per spindle= 3.07×6.00 hrs= 18.4 hanks	Yarn in 6.00 hrs production per spindle= 3.45×6.00 hrs= 20.7 hanks

2) Muzaffarpur Zila Khadi Gramodoyog Sangh

Name of the Institution	Name of team members	Product
Muzaffarpur Zila Khadi Gramodoyog Sangh	Mr. S.P. Verma, Advisor	Cotton-50 Count
	Masrur Alam, Accounts Executive	
	Smita Sinha, Accounts Executive	

Observation: Team conducted time & motion study on spinners and observed their activity wise distribution of time spent on each activity including their leisure time. The details are as follows:

Activity wise distribution of Time:

Activity	Collection of Sliver	Putting sliver on the NMC	Spinning	Making hanks	Unloading hanks from New Model Charkha
Time	10 Minutes	10 Min.	3.15 Hrs.	10 Min.	10 Min.

Waste of time during 8 Hrs. of Activity

Time spend in other activity: 10min.+10 min. +10 min.+10 min.: **40 min.**

Time spend during Breaking and joining of yarn during spinning: **20 min.**

Leisure period in shift of 8 Hrs.: **1.00 Hrs.**

Total waste of Time during 8 Hrs. of shift: **40 Min.+ 20 Min.+1.00 Hrs.=2:00 Hrs.**

Total utilized time during 8 Hrs. of shift: **8:00 Hrs. - 2:00 Hrs. = 6:00 Hrs.**

Calculation of time Motion study:

SL. No.	Name of Spinner	Start time	Finish time	Time Duration	No. of hanks Prepared	Weight per hanks	Total weight of yarn prepared
1	Ranju Devi	12.15 pm	4.15 pm	4 Hrs.	17	20	340 gm
2	Chandra Kala Devi	12.15 pm	4.15 pm	4 Hrs.	18	20	360 gm

3) Swadeshi Kambal Ashram, Patna

Name of the Institution	Name of team members	Product
Swadeshi Kambal Ashram, patna	Mr. S.P. Verma, Advisor	Cotton-40 Count
	Alok Kumar, Accounts Executive	
	Kamesh Kumar, KVIB official	

Observation: Team conducted time & motion study on spinners and observed their activity wise distribution of time spent on each activity including their leisure time. The details are as follows:

Activity wise distribution of Time:

Activity	Collection of Sliver	Putting sliver on the NMC	Spinning	Making hanks	Unloading hanks from NMC
Time	10 Minutes	20 Min.	5:30 Hrs.	10 Min.	5 Min.

Waste of time during 8 Hrs. of Activity

Time spend in other activity: 10min.+20 min. +10 min.+5 min.: **45 min.**

Time spend during Breaking and joining of yarn during spinning: **45 min.**

Leaser period in shift of 8 Hrs.: **1 Hrs.**

Total waste of Time during 8 Hrs. of shift: **45Min.+45Min.+1Hrs.=2:30 Hrs.**

Total utilized time during 8 Hrs. of shift: **8:00 Hrs. - 2:30 Hrs. = 5:30 Hrs.**

Calculation of time Motion study:

S. No	Name of Spinner	Start time	Finish time	Time Duration	No. of hanks Prepared	Weight per hanks	Total weigh of yarn prepared
1.	Chanda khatun	12:20 PM	4:20 PM	4:00 Hrs	8	30 gram	240 gram
2.	Soni Begum	12:20 PM	4:20 PM	4:00 Hrs	9	30 gram	270 gram
3.	Ruhi Khatun	12:20 PM	4:20 PM	4:00 Hrs	10	30 gram	300 gram
4.	Reshma	12:20 PM	4:20 PM	4:00 Hrs	10	30 gram	300 gram
5.	Mushraff parveen	12:20 PM	4:20 PM	4:00 Hrs	11	27.27 gram	300 gram
6.	R.C Praveen	12:20 PM	4:20 PM	4:00 Hrs	8	30 gram	240 gram
Total Production of Yarn by 6 Spinners: 1650 gram							

Average Production of yarn by 6 Spinners in 4 Hrs of duration: $1650/6 = 275$ gram

So, Production of yarn by 6 Spinners in 8Hrs of shift: $275 \text{ gm} \times 2 = 550$ gram.

4) Resham Bunkar Khadi Gramodyog Sangh, Bhagalpur

Name of the Institution	Name of team members	Product
Resham Bunkar Khadi Gramodyog Sangh, Bhagalpur	Mr. Rahul Ashok , Sr. Accountant	Katiya-Ghicha Silk
	Shams Ghazali, Accounts Executive	
	Anjum Zamil, Accounts Executive	

Observation: Team conducted time & motion study on spinners and observed their activity wise distribution of time spent on each activity including their leisure time. The details are as follows:

Activity wise distribution of Time:

Activity	Collection Of Cocoons	Putting for Boiling	Spinning
Time	15 minutes	40 hours	25 to 30 grams/hours

Waste of time during 8 Hrs. of Activity:

Time spend during Breaking and joining of silk yarn during spinning: 60 min.

Leisure period in shift of 8 Hrs.: **1.00 Hrs.**

Total waste of Time during 8 Hrs. of shift: **60 Min.+1.00 Hrs.=2:00 Hrs.**

Total utilized time during 8 Hrs. of shift: **8:00 Hrs. - 2:00 Hrs. = 6:00 Hrs.**

Calculation of time motion:

S. No	Name of spinner	Start time	Finished time	Time duration	No of hanks prepared	Weight per hanks (in gram)	Total weight of yarn prepared
1	Kavita devi	11.00	3.00	4	6	30	180
2	Sobha devi	11.00	3.00	4	5	30	150
3	Usha devi	11.00	3.00	4	4	30	120
4	Sangita kumara	11.00	3.00	4	3	30	90

Annexure 2 – Detail analysis of weaving process (activity wise) of Khadi Institutions through Time & Motion study

1) Gram Nirman Mandal

Name of the Institution	Name of team members	Raw material	Product
Gram Nirman Mandal	Mr. Rishu Ravi, Team leader	2.2. kg in the proportion of (Matka silk (800 gm)+ Katiya silk (1400 gm) required to prepare 1 Than	Grey cloth Manufactured from Matka and Katiya silk
	Alok Kumar, Accounts Executive		
	Gaurav Bhusan Pandey, Accounts Executive		

Observation: Team conducted time & motion study on spinners and observed their activity wise distribution of time spent on each activity including their leisure time. The details are as follows:

Activity wise distribution of Time:

Activity	Time Tested for making bobbin	Time tested for bobbin connection for Katiya	Time tested for weaving
Time	3 Nos of hanks Matka silk in 1 Hr	15 Nos. of hanks of Katiya in 1 Hr	2.5 meters in 2 Hours

Waste of time during 8 Hrs. of Activity

Time spend during wear and tear at in the process of weaving: **30 min.**

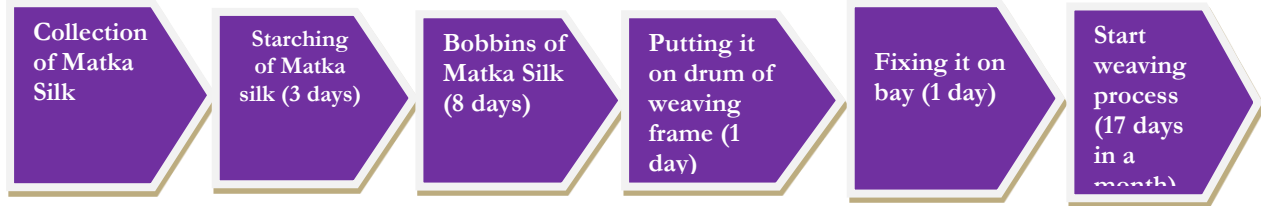
Leisure period in shift of 8 Hrs.: **1.30 Hrs.**

Total waste of Time during 8 Hrs. of shift: **30 Min.+ 1.30 Min.=2 Hrs.**

Total utilized time during 8 Hrs. of shift: **8:00 Hrs. - 2:00 Hrs. = 6:00 Hrs.**

Calculation of time Motion study:

S. No	Name of Weaver	Start time	Finish time	Time Duration	Length of Than prepared
1.	Md. Nisar Ansari (supported by wife "Akhtari Khatoon" also)	11:20 PM	3:20 PM	4:00 Hrs	5 mtr

Flow chart for production of Grey Cloth (Matka+Katia silk) in a Month

Total Raw material used in 1 Than= 2.2 Kg (800 gm matka + 1400 gm katiya)

Total Raw material used in a month=15 Than* 2.2= 33 Kg which implies Tarni (matka)=15*0.8 kg= 12 Kgs and Bharni (katia)= 15 Than*1.4 = 21 kgs

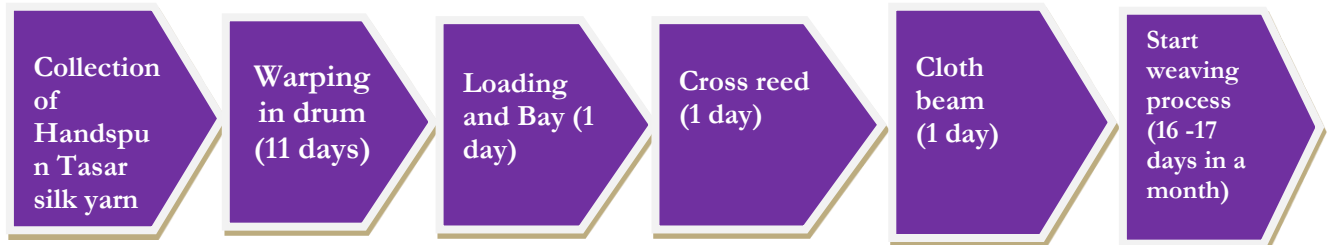
Total Production in 1 month= 15 Than i.e. (15 *11.50 mtrs=172.50 mtrs)

Note: This includes the work of wife. If wife doesn't work, then on an average 33% production would be less as only 10 Than could be prepared by him. The weavers get Rs 50 per meter for weaving silk cloth. The weaver weaves 1 than i.e. 11.5 meters in 2 days with support of his wife.

2) Resham Bunkar Gramodyog Sangh, Bhagalpur

Name of the Institution	Name of team members	Product
Resham Bunkar Khadi Gramodyog Sangh, Bhagalpur	Mr. Rahul Ashok , Sr. Accountant	Silk Cloth
	Shams Ghazali, Accounts Executive	
	Anjum Zamil, Accounts Executive	

Observation: Team conducted time & motion study on spinners and observed their activity wise distribution of time spent on each activity including their leisure time. The details are as follows:

Flow chart for production of Silk Cloth (handspun tasar silk) in a Month**Activity wise distribution of Time:**

Waste of time during 8 Hours of activity --

Time spend during wear and tear in the process of weaving-60 minutes

Leisure period in shift of 8 hours -60 minute

Total waste of time during 8 hours of shift- $60+60=120$ minute

Total utilize time during 8 hours of shift 8.00 hrs-2:00 hrs=6 hours

Calculation of time motion -

S. No	Name of weaver	Start time	Finish time	Time duration	Production in meter	Threads used
1.	Nasir ansari ,Bhagalpur supported by his wife (ijhar Ansari)	8.10 Am	12.10 pm	4	5	Bhagalpuri Tasar

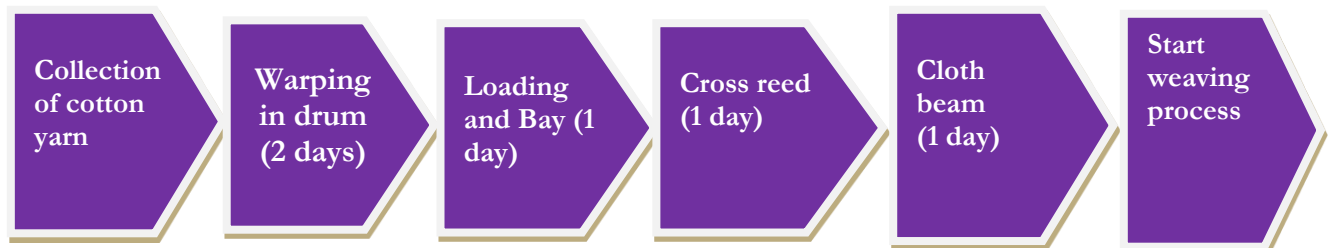
Note: This includes the work of wife. If wife doesn't work, then on an average 33% production would be less. The weavers get Rs 50 per meter for weaving silk cloth. The weaver weaves 1 than i.e. 11.5 meters in 2 days with support of his wife.

3) Habibullah Gramodyog Vikas Khadi Awam Gramodyog Sangh, Madhubani

Name of the Institution	Name of team members	Product
Habibullah Gramodyog Vikas Khadi Awam Gramodyog Sangh, Madhubani	Mr. Tushar Sharma , Manager	Khadi Fabric (Cotton-50 count)
	Mr. Anurag Pratik, Marketing Executive	
	Mr. Digvijay Kumar, Designer	

Observation: Team conducted time & motion study on spinners and observed their activity wise distribution of time spent on each activity including their leisure time. The details are as follows:

Flow chart for production of Khadi Fabric (cotton) in a Month



Activity wise distribution of Time:

Waste of time during 8 Hours of activity

Time spend during wear and tear in the process of weaving-60 minutes

Leisure period in shift of 8 hours -60 minute

Total waste of time during 8 hours of shift- $60+60=120$ minute

Total utilize time during 8 hours of shift 8.00 hrs-2:00 hrs=6 hours

Calculation of time motion -

S. No	Name of weaver	Start time	Finish time	Time duration	Production in meter	Threads used
1.	Amir Subhan supported by his wife	1.22 pm	3.22 pm	2	3	Cotton- count 50

Note: This includes the work of wife. If wife doesn't work, then on an average 33% production would be less. Weavers get Rs 200 per Than which is equivalent to 12 meters. Normally, one weaver with the support of his wife weaves 1 than in 2 days.



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