A Study on “Financial Feasibility of a Laundry Department in Maharani Laxmi Bai Medical College, Jhansi” :

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Introduction:

- Clean linen supply and laundry services are some of the vital elements for hospitals in providing high quality medical care to patients.

- It plays a major role in reducing infection rate, increase patient satisfaction and reduce operation cost of hospitals.

- Despite of its importance in improving quality services, hospital linen and laundry services has not been given the priority it deserves.

Research Question :

What is the financial viability of a laundry department in Maharani Laxmi Bai Medical College, Jhansi?

Objectives:

- To determine the cost incurred in setting up the laundry unit in Maharani Laxmi Bai Medical College, Jhansi
- To determine expenditure incurred in washing per kg of linen to understand the financial viability of a laundry department in Maharani Laxmi Bai Medical College, Jhansi

Research Methodology:

- 1st set of data would be based on review of hospital documents and personal discussion with concerned officers of laundry department.
- 2nd set of data will be based on collection of all the linens received by the laundry department from 15 wards of the hospital every day from Monday to Friday (to account for daily variation) for a period of 2weeks (from 1st march to 14th march) during the working hours of laundry department.
- On discussion with Laundry managers of various Hospital Laundries in Jaipur, estimation on average cost incurred in washing one kg of linen was obtained along with other suggestions and recommendations.

About the Laundry

Installed and Operational Capacity:

Installed and operational capacities:	
Description	**Details**
Working hours per day	7
Operating shift per day	1
Working days per month	24-26 days (6days in a week)
Maxinmum weight of Linen washed washed per day	600
Maximum weight of Linen per Batch per washing machine	60-70
Hours utilised per batch (Laundry and drying)	3

Project Cost Summary:

1. Project Cost:		2. Variable Cost:	
1.1	Construction cost	2.1.	Human resource
1.2	Machinery and equipment	2.2	Machinery maintenance
1.3	Furniture and fixture	2.3	Direct electricity
		2.4	Direct water
		2.5	Direct gas
		2.6	Chemicals used
		2.7	Transportation cost (driver + fuel + vehicle maintenance)
		2.8	Communication expense (telephone + internet)
		2.9	Stationary

•Please note that land cost is not included in fixed cost/ Project cost as it is a government setup and laundry department is within the Hospital building.

1.1 Construction Cost

- Plot Size=10,000sq.ft
- Built up area =2000 sq ft. (Only ground floor)
- Cost of construction: it is taken as 400 Rs. Per sq.ft
- Cost of construction = 800,000/-

1.2 Machinery and Equipment :

Machinery and equipment:						
Description	**Model. No.**	**Capacity**	**No.**	**Cost per unit:**	**Total cost:**	**Status:**
XCEL industrial washing machine	**WS-140**	**100Kgs**	**2**	3,42,000	6,84,000	**In use**
XCEL Hydro Extractor	**H2 50**	**50Kgs**	**2**	1,72,000	3,44,000	**In Use**
XCEL Drying Tumbler	**BT-100**	**100Kgs**	**2**	3,40,000	6,80,000	**Not in Use**
XCEL Fibramatic dry cleaning machine	**DC-508**	**25Kgs**	**2**	13,25,000	26,50,000	**Not in Use**
TOTAL COST					**4,358,000/-**	

Above rates are in according to the catalogue and quotation that was sent by the company(8)

1.3 Furniture and fixtures :

Details of the furniture and fixtures used in Laundry are given below [(7)]:

Furniture's and fixtures:			
Description	**Quantity**	**Unit Cost (Rs.)**	**Total Cost (Rs.)**
Iron racks (10/15ft)	10	5,000	50,000
Counter table	1	8,000	8,000
Chairs	4	2,000	8,000
Stool	4	1,000	4,000
Exhaust Fan	2	2,000	4,000
Fan	10	1,500	15,000
Water dispenser	1	3,000	3,000
Electric wiring and lighting	2	15,000	30,000
Air cooler	1	5,000	5,000
TOTAL COST			127,000.00

Project Cost:		Depreciation:
Construction cost	8,00,000.00	2.3%
Machinery and equipment	43,58,000.00	5%
Furniture and fixture	1,27,000.00	8%
Pre-operating cost	-	
TOTAL PROJECT COST:	**52,85,000.00**	

2.1 Human Resource:

Human Resource :				
S.No.	**Designation**	**No. Of unit:**	**Salary per unit**	**Salary per month**
1	Supervisor	1	7500	7500
2	Worker	4	6000	24000
3	Tailor	1	7000	7000
	TOTAL			**38,500**

2.2. Machinery Maintenance:

- Information regarding machine maintenance is taken from supervisor. As such, there is no regular maintenance but service is done once in every three months, that cost around 2,500 -3,000/-

2.3. Raw Materials/ Chemicals Used :

Information regarding different chemicals used for washing clothes and its cost, was taken from supervisor of Laundry department

Raw material/ Chemicals used					
Description	**Quantity used per 50 kgs/one washing cycle**	**Rate per unit (kg)**	**Total Cost per 50kgs**	**Total cost per 200Kgs/day**	**Total cost per Month(25 working days)**
Soda	750gms	50/-	37.5	150	
Caustic	100gms	100/-	10	40	
Nirma washing powder	500gms	150/-	75	300	
Bleach	750ml	100/-	75	300	
TOTAL COST			**197.5**	**790/-**	**19,750/-**

Approx. 220Kgs of Linen is washed per day in the laundry department

2.4. Electricity Cost :

There is no separate metre in the Laundry department. So, electricity expenditure is calculated on the basis of daily usage of each machine and corresponding load of each machine.

Description	Load	Machine usage in a day:	kWh per day	No. Of Units/machines:	Total kWh per day	Total unit per day: (1kWh=1unit)	Total unit per month: (25 working days)	Total electricity expenditure per month: (1 Unit=8rs.)
XCEL industrial washing machine	5HP,6.5KW	5 hrs	32.5	2	65	65	1625	13,000
XCEL Hydro Extractor	3HP, 4KW	2	8	2	16	16	400	3,200
Miscellaneous (Lights, fans, exhaust)								750
Total electricity expenditure								16,950/-

2.5. Direct Water:

The water comes from boring so there is no water bill but a motor runs for 5 hours, so, it is included in the electricity head.

2.6. Transportation Cost:

There is no transportation cost as no vehicle is used to transport linen. A hand cart is used that has negligible maintenance

	Monthly Operational cost/Variable Cost:	
1.	Human resource	38,500
2.	Machinery maintenance	1,000
3.	Direct electricity	16,750
4.	Direct water	-
5.	Direct gas	-
6.	Chemicals used	19,750
7.	Transportation cost (driver + fuel + vehicle maintenance)	-
8.	Communication expense (telephone + internet)	-
9.	Stationary	-
	TOTAL COST	76,000/-

Statement of Cash Flow

	Mar-16	
Expenses:		
Human Resource	38500.00	
Chemicals Used	19750.00	
Direct electricity	16750.00	
Machinery maintenance	1000.00	
Direct Gas	-	
Water Used	-	
Transportation cost	-	
Communication expense	-	
Depreciation:		
Construction Cost	1533.33	(2.3% depreciation)
Machinery & equipment	18158.00	(5% depreciation)
Furniture and fixtures	847.00	(8% depreciation)
-		
Total Expenditure	**96,538.33**	**For the month of March’16**

Standardised weight of Linen :

Table. 1: Types of Linen and their weight						
Type of Linen:	**1st piece**	**2nd piece**	**3rd piece**	**4th piece**	**5th piece**	**Median (grams)**
Apron.						
Pt. Drape plane	100	155	160	165	210	160
Pt. Drape cutting	215	225	235	245	255	235
Apron.	360	370	400	430	440	400
Sponge	36	38	39	42	45	39
Bedsheet	620	620	628	655	683	628
Blanket	1425	1445	1450	1500	1565	1450
Kurta	80	110	125	140	160	125
pajama	114	177	183	236	245	183
curtain	333	432	456	505	520	456
Towel	530	580	631	660	760	631
red sheet	580	610	632	680	700	632
general sheet	590	593	610	665	683	610

Total Linen washed in the Laundry in the month of March 2016:

Table 2			
Weight / Unit Wise Distribution of Product Mix per Day :			
Type of Linen :	**Avg. Weight per type of linen (kg) :**	**Number of type of linen in March :**	**Weight of type of linen per Month day(kg):**
Khol	0.8	164	131.2
Curtain	0.52	106	55.12
Apron	0.44	1998	879.12
Red sheet	0.7	230	161
General sheet	0.683	260	177.58
Plain sheet	0.21	1098	230.58
Cut Sheet	0.255	1354	345.27
Towel	0.76	1418	1077.68
Sponge	0.045	422	18.99
Kurta	0.16	150	24
Bedsheet	0.683	4990	3408.17
Pajama	0.245	76	18.62
Total Weight	**6527.00**		

Cost of washing one kg of linen in Maharani Laxmi Bai Medical College, Jhansi = <u>Total Monthly Expenditure/Total weight of Linen generated in a Month</u>

- Total monthly expenditure incurred = 96538.33
- Total weight of Linen generated in a month = 6527 kgs

Cost of washing one kg of linen in Maharani Laxmi Bai Medical College, Jhansi =96538.33/6527 = 14.79/-

Findings:

- The cost incurred in setting the laundry unit in Maharani Laxmi Bai Medical College, Jhansi was Rs. 52,85,000.00

- **The cost of washing One kg of linen is four times higher (15 Rs/kg), in Maharani Laxmi Bai Medical College, Jhansi**

(Based on information obtained from unpublished data and discussion with different Laundry managers of various hospitals Laundry)

- Laundry is running at below 50% of its operational capacity.

Recommendations:

- Linen from all the wards should be washed in one facility, that will increase the operational capacity and reduce the cost of washing per kg of linen

- Machines in the laundry should be made operational

  (11) On discussion with different Laundry managers of various hospitals Laundry

- Every bed in the ward should have an extra set of linen

Conclusion:

- An inefficient and mismanaged laundry service in a hospital bears an additional cost, reduces quality of care and increases infection rate.
- Efficient supply of linen without any defect and delay in time becomes a good support towards delivering timely quality healthcare services to the patients.
- It should be given priority like any other clinical services.

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