

1. Introduction

The SAFE (skilled attendance for everyone) study is conducted in five different developing countries including Bangladesh with an aim to develop strategies to improve the proportion of deliveries with skilled attendance. It intends to generate useful information to maternal and perinatal outcomes of childbirth, especially for the poorest women. The Dugald Baird Centre for Research on Women's Health, University of Aberdeen is coordinating the study and it has different independent but related activities (Dugald Baird Centre 1999). In the study for collecting primary and secondary data on skilled attendance different instruments are being developed, which together will form a "composite Strategy Development Tool". The Strategy Development Tool (SDT) has six different components including costing. The other components are: problem identification (PI), situation analysis (SA), needs assessment (NA), monitoring system (MS) and synthesis (SYN). However, the aim of the costing component is to establish the research costs of generating evidence based strategies to increase skilled attendance at delivery. The costing exercise is done with the following objectives.

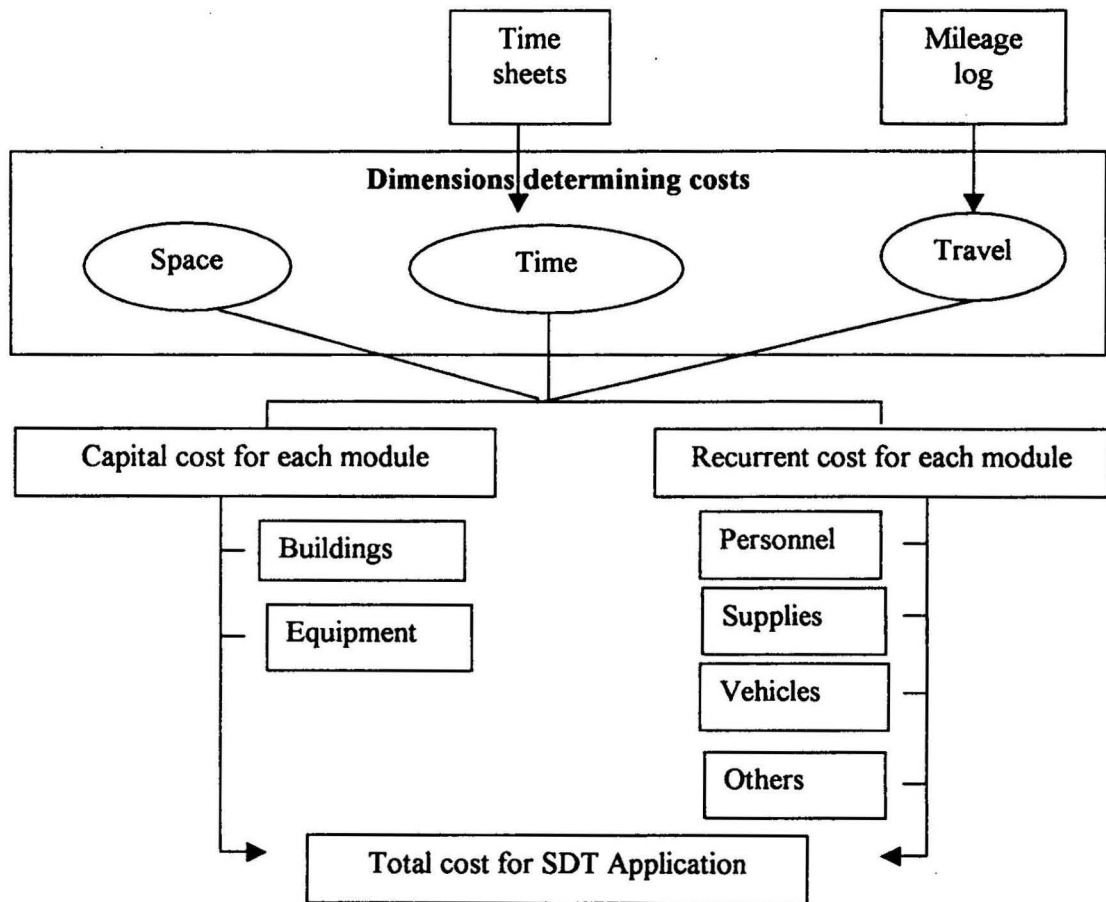
- To identify and record all the resources used in applying each individual component of the SDT. This will enable other organisations to identify the resources required for applying the tool in their local situation in Bangladesh.
- To collect cost data on all the resources used in applying each individual component of the SDT in Bangladesh.
- To record the process of collecting data on resource use and costs.

2. Methodology

In Bangladesh Research and Evaluation Division of BRAC the largest national NGO was involved for applying the SDT. Data on different resources measures including capital and recurrent inputs required for applying the SDT was collected through several spreadsheets provided by the DBC, University of Aberdeen in Microsoft Excel format. The relationship between the spreadsheets with the costing tool is given in

figure 1. In the report it should be noted that cost to the needs assessment component was not included in the main costing exercise. Because in Bangladesh needs assessment was done during the pilot phase and understandably took some extra time than the estimated period of the SDT. Besides it was suggested that retrospective estimates of the cost of the components carries out in the pilot phase needed not to be included. Still as some extra work i.e. printing and circulation report, etc. was done during the application of the SDT the cost to only that part was considered. Similar point is applicable for the situation analysis (a) component as some literature review was done during the needs assessment.

Figure 1. Relationship between spreadsheets and costing tools



3. Results

In Bangladesh the required resources (inputs) in applying the SDT were given in Figure 1. These are personnel, building, equipment, vehicles, supplies and others i.e. postage, Internet. In order to allocate costs to different components of the SDT some dimensions were considered as a basis. For example in allocating the cost of personnel, time worked was considered as a factor. The allocated cost of different inputs to the components of the SDT is given in the following.

3.1 Personnel

In applying the SDT in Bangladesh five persons were involved. Among them the senior medical officer worked on honorary basis. Table 1 shows time spent for each person in different components of the SDT. According to the spreadsheet the research fellow was involved almost five months (4.81 months) in the project where as the research assistant was involved about four months (4.17 months). The involvement of the senior medical officer, the coder and the data entry clerk in the project was 1.11, 0.69, 0.83 months respectively. In terms of proportion of time spent in different components of the SDT, the table shows that the research fellow spent more time for problem identification module (0.26) and the research assistant was mainly involved in monitoring system (0.55). The research fellow was also involved in other activities like administrative work for which 0.02 proportion of her time was spent. The senior medical officer spent all of his time for interpretive guideline and the coder and the data entry clerk was involved for monitoring system. Table 2 in the following gives an idea of total estimated staff time allocation to each SDT components including costing.

Table 3 in the following shows the actual and equivalent costs of each person involved in the project. According to the table total cost to SDT for monthly salary was 234531.83 TK. Table 4 gives a scenario of allocation of personnel cost to several components of the SDT.

Table 1: shows time spent for each person in different components of the SDT

SDT component	Total hours worked on SDT					Hours as a proportion of SDT total				
	RF	RA	SMO	CO	DEC	RF	RA	SMO	CO	DEC
Problem Identification	213	129	0	0	0	0.26	0.18	0.00	0.00	0.00
SA- (a)	199	169	0	0	0	0.24	0.23	0.00	0.00	0.00
SA- (b)	54	0	192	0	0	0.06	0.00	1.00	0.00	0.00
Needs assessment	18	0	0	0	0	0.02	0.00	0.00	0.00	0.00
Monitoring System	151	394	0	120	144	0.18	0.55	0.00	1.00	1.00
Synthesis	179	30	0	0	0	0.21	0.04	0.00	0.00	0.00
Other	19	0	0	0	0	0.02	0.00	0.00	0.00	0.00
SDT Costing component	51	0	0	0	0	-	-	-	-	-
SDT Total (excluding costing)	833	722	192	120	144	-	-	-	-	-
Time worked on SDT in months	4.81	4.17	1.11	0.69	0.83	-	-	-	-	-

RF: Research Fellow; RA: Research Assistant; SMO: Senior Medical Officer; CO: Coder; DEC: Data Entry Clerk.

Table 2. Time allocation to each SDT components

SDT component	Time worked in hours
Problem Identification	342
SA- (a) Review	368
SA- (b) Interpretive Guidelines	246
Needs assessment	18
Monitoring System	809
Synthesis	209
Other	19
SDT Costing component	51
SDT Total (excluding costing)	2011

Table 3. The actual and equivalent costs of each person involved in the project

Skill level or (salary grade)	Paid by	Gross monthly salary	Monthly allowance	Total monthly cost	Time worked on SDT (months)	Cost to SDT
Research fellow	Organisation	21150	2350	23500	4.81	112944.26
Research assistant	Organisation	17100	1900	19000	4.17	79148.40
Senior medical officer	Organisation	27000	3000	30000	1.11	33300.00
Coder	Organisation	6000		6000	0.69	4154.17
Data entry clerk	Organisation	6000		6000	0.83	4958.00
Total						234531.83

Table 4. Allocation of personnel cost to SDT components

Position	Cost to SDT	Cost allocation						
		PI	SA (a)	SA (b)	NA	MS	SYN	Others
Research fellow	112944.26	28880.11	26981.88	7321.72	2440.57	20473.69	24270.14	2576.16
Research assistant	79148.40	14141.47	18526.43	0.00	0.00	43191.78	3288.71	0.00
Senior medical officer	33300.00	0.00	0.00	33300.00	0.00	0.00	0.00	0.00
Coder	4154.17	0.00	0.00	0.00	0.00	4154.17	0.00	0.00
Data entry clerk	4958.00	0.00	0.00	0.00	0.00	4958.00	0.00	0.00
Total	234531.83	43021.58	45508.31	40621.72	2440.57	72809.64	27558.85	2576.16

3.2 Buildings

In order to calculate the cost for building as capital cost usual market rent was considered. It was suggested that as the Research and Evaluation Division (RED) was located in the BRAC Centre, which was a very luxurious building the rent would be higher than the usual. Therefore to get a general view, here the source of cost estimate was the usual market rent. It was estimated that the monthly cost for a 1400 sq.ft office

for the project would be 50000 TK. including utilities, furniture and maintenance. Thus the total cost to the SDT was allocated among the components. In tabulating results time was considered. A month was converted in 720 hours and the total building cost was allocated to each component according to the hours used for that particular component. For example 342 hours were spent for the problem identification component therefore the building cost allocated to that component was 23750 TK. However, table 5 provides a view of the building cost and the allocation of cost to several components of the SDT. According to the estimate total building cost to the SDT (5 months) was 250000 TK.

Table 5. Building cost and the allocation of cost to several components of the SDT

Monthly cost estimate	Time used (months)	Total cost allocated to the SDT	Cost allocation						
			PI	SA (a)	SA (b)	NA	MS	SYN	Others
000	5	250000	23750	25555.55	17083.33	1250	56180.55	14513.88	1319.44
total	5	250000	23750	25555.55	17083.33	1250	56180.55	14513.88	1319.44

3.3 Equipment

Table 6 shows the cost of capital equipments those were used in application of the SDT. During the period of application of the SDT three computers, three printers were used exclusively for the project. These were owned by the organisation. In calculating the cost of the equipments dealer estimate was considered. The cost of each piece of equipment allocated to the SDT further divided proportionately to the individual components. The photocopy machine was also owned by the organisation and it was shared with the other projects of RED. In estimating the cost for photocopy the bill provided by the RED management to the project was taken into consideration. However the total annual cost of the equipments was 43560 TK. Thus cost to several equipments was: Computer (3): 11000 TK; Printer (3): 3566.65 TK; and Photocopy: 3583.35 TK. The total costs to the SDT in Bangladesh for equipment purpose was

18150 TK. Similar to building cost the total cost to the SDT (5 months) was proportionately allocated to the components.

Table 6. Equipment cost and the allocation of cost to several SDT components

Equipment	Cost to SDT	Allocation of costs						
		PI	SA (a)	SA (b)	NA	MS	SYN	Others
Computer	11000	1045	1124.44	751	55	2471.94	638.61	58.05
Printer	3566.65	338.83	364.59	243.72	17.83	801.50	207.06	18.82
Photocopier	3583.35	340.41	366.29	244.86	17.91	805.25	208.03	18.91
Total	18150	1724.24	1855.32	1240.24	90.74	4078.69	1053.70	95.78

3.4 Vehicles

During application of the SDT rented vehicles were used. According to the suggestion in the costing manual mileage log sheets were tried to be maintained while travelling for different components of the SDT. Mileage was recorded in kilometres. It should be noted that in applying the SDT mileage may vary in terms of selecting study area. During the application of the SDT data for monitoring system was collected from Kurigram district which is almost 400 km away from Dhaka and some data for problem identification component was also collected from places like extreme north of the country. Therefore the total mileage during the application of the SDT increased which eventually affected the vehicle cost. However the rent value of the vehicle for each trip comprised the cost for fuel, driver and depreciation of the vehicle. Table 7 in the following shows the mileage summary and vehicle cost to the SDT components. According to the table during the application of the SDT 3497 km was traveled in total and the amount of rent was 59493 TK.

Table 7. Mileage summary and vehicle costs to several SDT components

SDT Component	Kilometres	Rent Cost	Total Cost
Problem Identification	1378	32860	32860
SA- (a) Review	87	319	319
Monitoring System	1932	25999	25999
Synthesis	100	315	315
SDT Total (excluding costing)	3497	59493	59493

3.5 Supplies and others

The cost of office supplies used during application of the SDT is given in table 8. The table shows that the total cost of office supplies to the SDT was 20310 TK. Allocation of costs of office supplies to several components of the SDT is given in table 9. According to the table the proportion for the monitoring system was the highest in this regard. The cost to monitoring system component for this purpose was 8176.46 TK.

Table 8. Cost of office supplies to the SDT

Supplies	Units consumed	Unit cost	Total cost to SDT
Pens	30	5	150
Pencils	15	12	180
Rulers	2	25	50
Markers	4	45	180
Note books	20	10	200
Clip boards	4	20	80
Diskettes	20	50	1000
File bags	4	20	80
Stapler	2	40	80
Paper	1000	0.05	500
Transparencies	30	2	60
Erasers	5	5	25
Printer cartridges	10	1100	11000
Photocopy toner	4	1100	4400
Tape recorder	1	1500	1500
Micro cassette	15	55	825
Total			20310

Table 9. Cost of office supplies to the SDT and the allocation of cost to SDT components

Cost to SDT	Allocation of costs						
	PI	SA (a)	SA (b)	NA	MS	SYN	Others
20310	3454.01	3716.60	2484.47	181.79	8170.46	2110.79	191.89

Other recurrent costs like Internet, communication, field per diem were also calculated during the application of the SDT. Table 10 provides a view of the total cost to the SDT in this regard and the allocation to the components. The total calculated cost in

this regard was 219920 TK. In allocating the cost to the components the actual cost for the particular component was considered.

Table 10. Communications and others cost and the allocation of cost to several SDT components

List	Cost to SDT	Allocation of costs						
		PI	SA (a)	SA (b)	NA	MS	SYN	Others
Meeting venue costs	40000	6000	6000	6000	6000		10000	6000
Refreshments for meetings	20000	-	-	-	-	-	18000	2000
Field visit Per diem	129920	40600	-	-	-	89320	-	-
Phone/fax bills	5000	2000	1000	-	-	500	1500	-
Internet costs	5000	1000	1500	1000	-	-	1000	-
Total	219920	53600	10500	7000	10000	94820	36000	8000

3.6 Summary of the project cost

Table 11 in the following shows the summary of the project cost. The final tabulation revealed that total capital cost of the application of the SDT was 268150 TK. and total recurrent cost was 534188.15 TK. Therefore the overall cost to the SDT was 802338.15 TK. (Approx. 13833 USD). In terms of allocating the total cost to each components, the results was as follows:

Problem identification:	158409.83 TK.
Situation Analysis (a):	87454.78 TK.
Situation Analysis (b):	68363.08 TK.
Needs assessment:	13963.10 TK.
Monitoring system:	262053.34 TK.
Synthesis:	81552.22 TK.
Others:	12183.27 TK.

Table 10. Summary of the project cost

Cost category	Overall cost to SDT	Problem Identification	Situation Analysis (a)	Situation Analysis (b)	Needs Assessment	Monitoring System	Synthesis	Others
Capital:								
Buildings	250000.00	23750.00	25555.55	17083.33	1250.00	56180.55	14513.88	1319.44
Equipment	18150.00	1724.24	1855.32	1240.24	90.74	4078.69	1053.70	95.78
Total	268150.00	25474.24	27410.87	18323.57	1340.74	60259.24	15567.58	1415.22
Recurrent:								
Supplies	20310.00	3454.01	3716.60	2484.47	181.79	8170.46	2110.79	191.89
Personnel	234465.15	43021.58	45508.31	40555.04	2440.57	72804.64	27558.85	2576.16
Vehicles	59493.00	32860.00	319.00	-	-	25999.00	315.00	-
Others	219920.00	53600.00	10500.00	7000.00	10000.00	94820.00	36000.00	8000.00
Total	534188.15	132935.59	60043.91	50039.51	12622.36	201794.10	65984.64	10768.05
Total cost	802338.15	158409.83	87454.78	68363.08	13963.10	262053.34	81552.22	12183.27

4. Reference

Dugald Baird Centre (1999), Strategies to improve the proportion of deliveries with skilled attendants in developing countries. Aberdeen: University of Aberdeen.

Dugald Baird Centre (2002), A manual to cost the application of the strategy development tool. Aberdeen: University of Aberdeen.