"A Study of Procurement and Logistics with specific reference to power infrastructure project in Andaman & Nicobar "

Siemens ltd

PROJECT REPORT

Submitted in partial fulfilment of the requirements for the award of the degree

POST GRADUATE DIPLOMA IN SUPPLY CHAIN MANAGEMENT

By

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"053/02/2005"

Under the guidance of

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Siemens ltd

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CONFEDERATION OF INDIAN INDUSTRY
CHENNAI – 600032

"March-2008"

BONAFIDE CERTIFICATE

This is to certify that the project report titled "A Study of Procurement and Logistics" is a bonafide record of work carried out by "Mr. Harpreet Singh" during the final semester from "July-2007" to "Dec-2007", under my guidance, in partial fulfilment of the requirements for the award of the Post Graduate Diploma in Supply Chain Management by CII INSTITUTE OF LOGISTICS.

Faculty Name:

(Project Guide)
Anil Kumar Talwar
(GM-Projects)
Siemens Ltd. (Signature)

DECLARATION

I, _Harpreet Singh hereby declared that this project report titled "A Study of Procurement and Logistics" submitted in partial fulfilment of the requirement for the "Post Graduate Diploma in Supply Chain Management" is my original work and it has not formed the basis for the award of any other degree.

(Signature of the Student)

Student Name

Place:

Date:

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Acknowledgements

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List of Tables & illustrations

Abstract/summary

Siemens is in the business of executing the medium to large power infrastructure projects. Mainly these type of Projects are of similar nature, so already defined procedures are followed for these projects.

In the month of Jan-07, a project of power distribution for Reconstruction of Power Infrastructure affected by Tsunami in UT of A & N Islands, was allocated to M/s Siemens Ltd. by M/s Power Grid Corporation of India. Total cost of the project in Rs. was 133 crore, our of which 100 crore was for material supply and seven crore for material transportation and balance for erection work

As this was a typical project and very much different from the other executed projects, in terms of procurement and logistics activities. as the no of items, their weight and volume, was too much and the site was totally different as compared to the regular sites. There was no previous experience to handle such type of projects

So, this project was taken to study the existing procedures related to procurement and logistics and to explore, suggest and implement various new ideas so as to complete this power infrastructure project of Andaman-Nicobar profitably.

The main emphasis was to study the existing systems and to find out their relevance with the new project. As the new project was totally different, so new ideas, and some better ways, were suggested related to procurement, especially logistics part, enabling the company to complete the project in the most efficient way.

Introduction-Objectives and Limitations

PTD-M3, Power transmission & Distribution Division of Siemens Ltd, in India acquired in January'07, an order, value INR 133'0 from Power grid Corporation of India Ltd., (Largest transmission utility in India) for reconstruction of Power Infrastructure in Andaman and Nicobar Islands (700 nautical miles from main land in India). The Power Infrastructure was destroyed due to Tsunami in 2004. Siemens will be building Power Infrastructure with underground cables, over head lines and over head Aerial Bunched Cables to prevent reoccurrence of damage in future due to calamities like Tsunami.

The new Infrastructure will benefit Tribal population of 400,000 people in general in these Islands.
The work is to be completed in next 30 Months.

Main objective of the project:

1. To study the existing Procurement procedures and to suggest some changes, considering such type of long duration projects at such a remote sites..
2. To suggest the most feasible and optimized Logistics arrangement.

So, main points to consider during this project, were to procure such a huge qty. (no. and vol) of material and more than that to reach that material in such a remote working sites of Andaman –Nicobar islands, in the most cost effective method. Since the weight and the volume of material involved in this project was too large, and there was no such previous expertise with the team to handle such projects, getting that material at the islands was really a big challenge.

Major limitations

Major limitations in this project are given below

1. No previous experience to handle such type of project
2. Limited no of options available.
3. Only two main service providers available.
4. Multiple mode of transport (land as well as sea) involved.
5. More no of supply points across all over the India.
6. large time horizon for delivery of materials, spread over 1-2 years.

Company Introduction

The Siemens group is a unique player in the field of electrical and electronics engineering, operating in segments of energy, industry, communication, information technology, transportation, healthcare, and lighting, the group has the competence and capability to integrate all products, systems, solutions, and services. It caters to industry needs, across market segments, by undertaking complete projects such as hospitals, airports, and industrial units. The Siemens group in India comprises 18 companies, 18 manufacturing plants, and 3 under construction, a wide network of sales, and service offices across the country as well as over 500 channel partners. Siemens, with its world-class solutions plays a key role in India's quest for developing a modern infrastructure.

Power Transmission & Distribution Systems

Siemens offers products & systems, equipment & services for efficient power transmission & distribution, broadly classified as :

- turnkey switchyards up to 800 kv
- high voltage switchgear for all ranges
- HVDC & HVAC transmission projects
- Air/gas insulated substations,
- Medium voltage indoor, outdoor switchgear and switch boards,
- Power transformers
- Isolators
- Turnkey electrical distribution projects,
- Power control, energy management systems,
- Protection systems and substation automation
- Services for full range of transmission & distribution equipment.

Synopsis of Andaman-Nicobar Power infrastructure project

Customer: Power Grid Corporation of India/Electricity Department, Andaman & Nicobar

Project : Reconstruction of Power Infrastructure affected by Tsunami in UT of A & N Islands

Qualification Criteria : As per Qualification Requirement, MOU has to be signed with Line Contractor having experience of 100km of line in last 7 Years & which must be in satisfactory operation for atleast 2years

Funding : Funds will be made available from Ministry of Power, Govt. of India

Tender Estimate – INR 1350'0 [22'5 Euro]

Tender Due Date: 02-08-2006

Tendering process: Single Part Bid

Bid Validity: 180 days

Bid bond: INR16'1 valid for 180 Days

Estimated date of award: 30-01-2007

Completion schedule: 30 months from date of receipt of LOI

Warranty period: 12 months from Taking over

Scope :

A) Augmentation of 33/11KV S/S

- *4X33KV Indoor VCB panel + CRP*
- *8X 36KV Isolators (DBCR)*
- *12X 36kV Surge Arrestor*
- *12X 36kV Outdoor CT*
- *12x36kV Outdoor PT*

- *Associated LV power & control cabling*
- *Insulators, Clamps & Connectors*

B) 33KV/11kV & LT Distribution Network

- *195kmX Racoon Conductor*
- *277km x Rabbit Conductor*
- *19000X GI Poles*
- *60kmX33KV U/G Cabling*
- *60kmX33KV AB Cabling*
- *72km x11KV U/G Cabling*
- *275 Km of 11KV AB Cable*
- *390 Km of LT AB Cable*
- *153x Distribution Transformers*
- *138X LV distribution Feeder pillars*
- *25x Ring Main Units*
- *Cable jointing kits*
- *Cable Testing equipments*
- *Steel Structure*
- *Towers*
- *Hardware, Clamps & Connectors*
- *Insulators*

C) Services

Erection, Testing & Commissioning

Tender was submitted by SL/PTD-M3 on 02.08.06.

Only 4 bidders (National Steel, IVRCL, Techno Electric & Siemens) participated.

All the other 3 Bidders did not meet the qualification criteria and their bids were rejected.

Siemens was awarded the contract in Jan'07

Location of Andaman-Nicobar islands

The Andaman & Nicobar Islands is a union territory of India. Informally, the territory's name is often abbreviated to A & N Islands, or ANI. It is located in the Indian Ocean, in the southern reaches of the Bay of Bengal. It comprises two island groups - the Andaman Islands and the Nicobar Islands - which separate the Andaman Sea to the east from the Indian Ocean. These two groups are separated by the 10° N parallel, the Andamans lying to the north of this latitude, and the Nicobars to the south. The capital of this territory is the Andamanese town of Port Blair.

The territory's population as per the most recent (2001) Census of India was 356,152. Added together, the total land area of the territory is approximately 8,249 km²

There are over 570 islands in the territory, of which only some 38 are permanently inhabited. Most of the islands (about 550) are in the Andamans group, 26 of which are inhabited. The smaller Nicobars comprise some 22 main islands (10 inhabited). The Andamans and Nicobars are separated by a channel (the Ten Degree Channel) some 150 km wide.

The total area of the Andaman Islands is some 6,408 km²; that of the Nicobar Islands approximately 1,841 km².

The total distance from Chennai to portblair is 1330 kms and from kolkata it is 1350 kms.

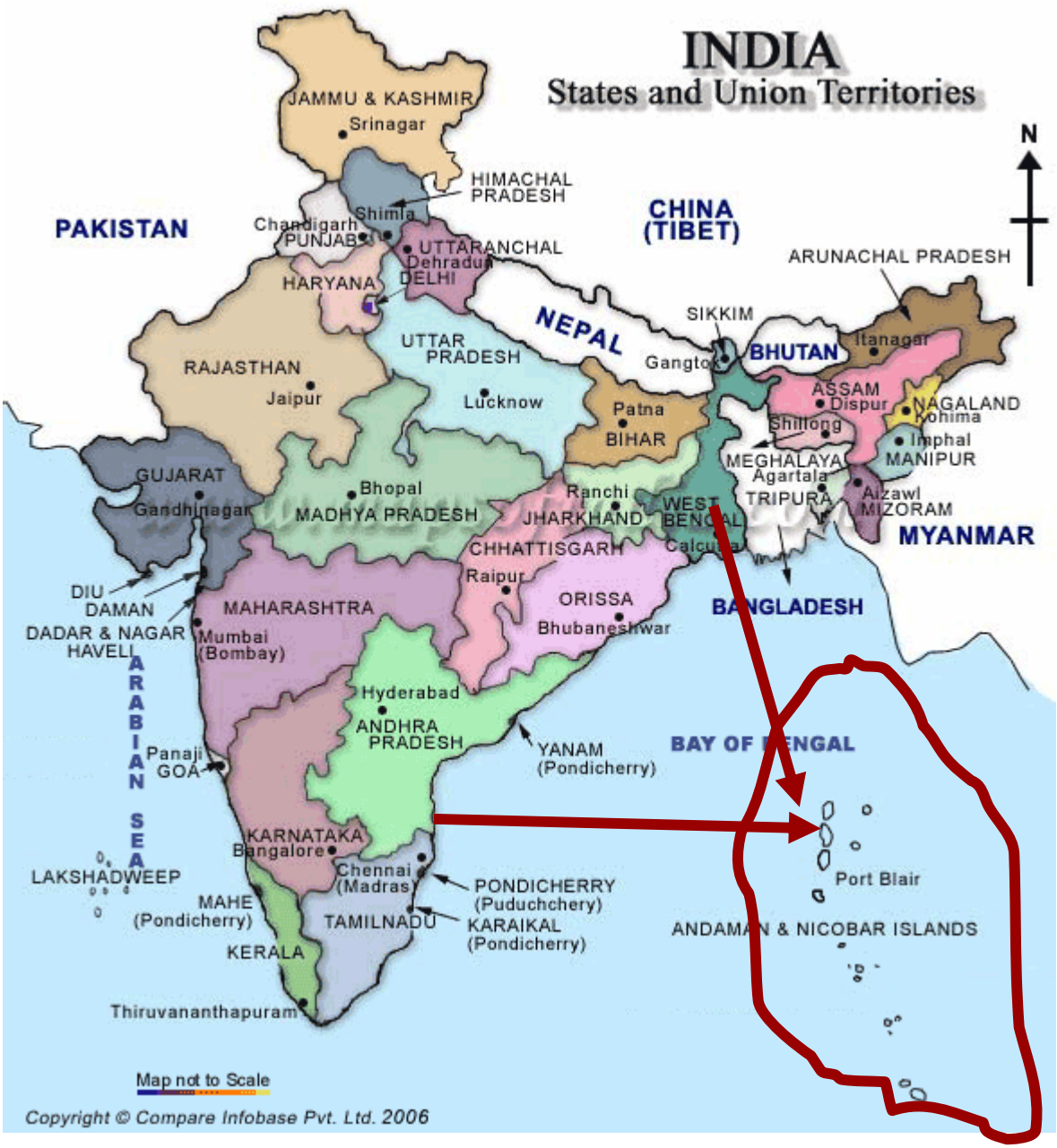
Major islands, or sites

The job is to carried out at 10 major islands, the total distances across these islands is more than 1000 km. The only way for going from one island to other island is through small ships only. On some of the islands, there are only small jetties, which are unable to handle large vol of materials. For going to some of the islands, such as Great Nicobar, special permits have to be obtained from the govt office in port Blair.

The main islands where material will be required and erection activities will take place are

1. North Andaman
2. Middle Andaman
3. South Andaman
4. Little Andaman
5. Car Nicobar
6. Teressa
7. Chowra
8. Noncouary
9. Katchal
10. Great Nicobar.

The location of the Andaman –Nicobar islands w.r.t to main land India and the location of various islands is given in the following maps.


INDIA
States and Union Territories
N
JAMMU & KASHMIR
Srinagar
HIMACHAL PRADESH
Shimla
Chandigarh
PUNJAB
UTTARANCHAL
Dehradun
DELHI
HARYANA
PAKISTAN
CHINA (TIBET)
ARUNACHAL PRADESH
NEPAL
SIKKIM
Gangtok
BHUTAN
Itanagar
UTTAR PRADESH
RAJASTHAN
Jaipur
Lucknow
Patna
BIHAR
ASSAM
Dispur
NAGALAND
Kohima
Shillong
Imphal
MANIPUR
MEGHALAYA
Agartala
TRIPURA
Aizawl
MIZORAM
GUJARAT
Gandhinagar
Bhopal
MADHYA PRADESH
Ranchi
JHARKHAND
WEST BENGAL
Calcutta
MYANMAR
CHHATTISGARH
Raipur
ORISSA
Bhubaneshwar
BANGLADESH
DIU
DAMAN
DADAR & NAGAR HAVELI
MAHARASHTRA
Mumbai (Bombay)
Hyderabad
ANDHRA PRADESH
YANAM (Pondicherry)
BAY OF BENGAL
ARABIAN SEA
Panaji
GOA
KARNATAKA
Bangalore
Chennai (Madras)
PONDICHERRY (Puduchchery)
KARAIKAL (Pondicherry)
LAKSHADWEEP
MAHE (Pondicherry)
TAMILNADU
KERALA
Port Blair
ANDAMAN & NICOBAR ISLANDS
Thiruvananthapuram
Map not to Scale
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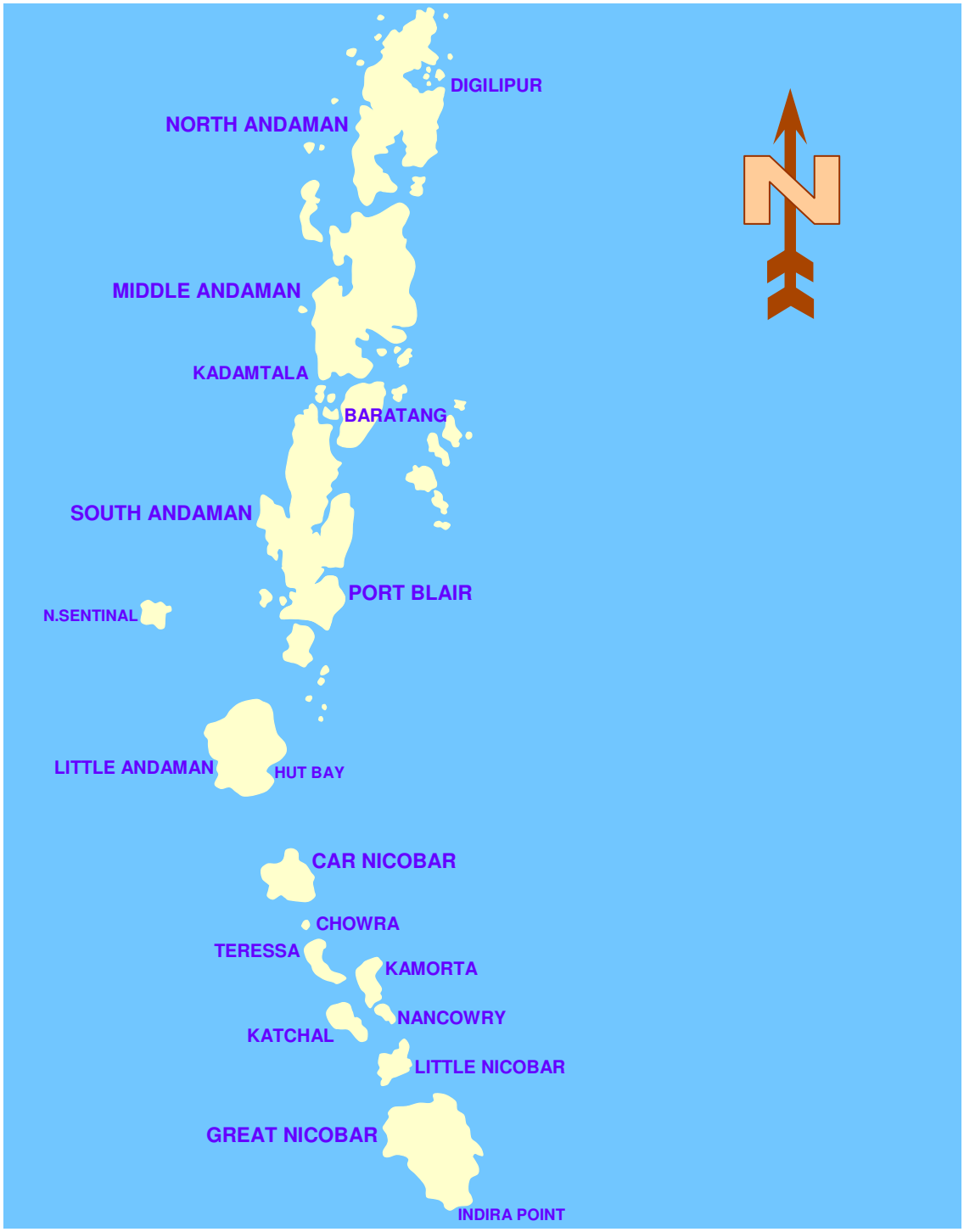
Various Sites (islands) in Andaman-Nicobar



Project Methodology

Since the project was related to material procurement and subsequent getting that material at remote site, the project activities were divided into two phases,

1. procurement related activities, such as procurement strategy, pricing strategy, etc.
2. logistics activities.

All the procurement activities such as given below, are routine activities of any procurement procedure, but main point which was suggested to have a more emphasis on back to back arrangement on delivery front so as to optimize the material flow, looking at the long duration of the project, because generally in siemens, considering the seller's market in power related equipments, PO 's are placed for total qty and material is lifted in one lot.

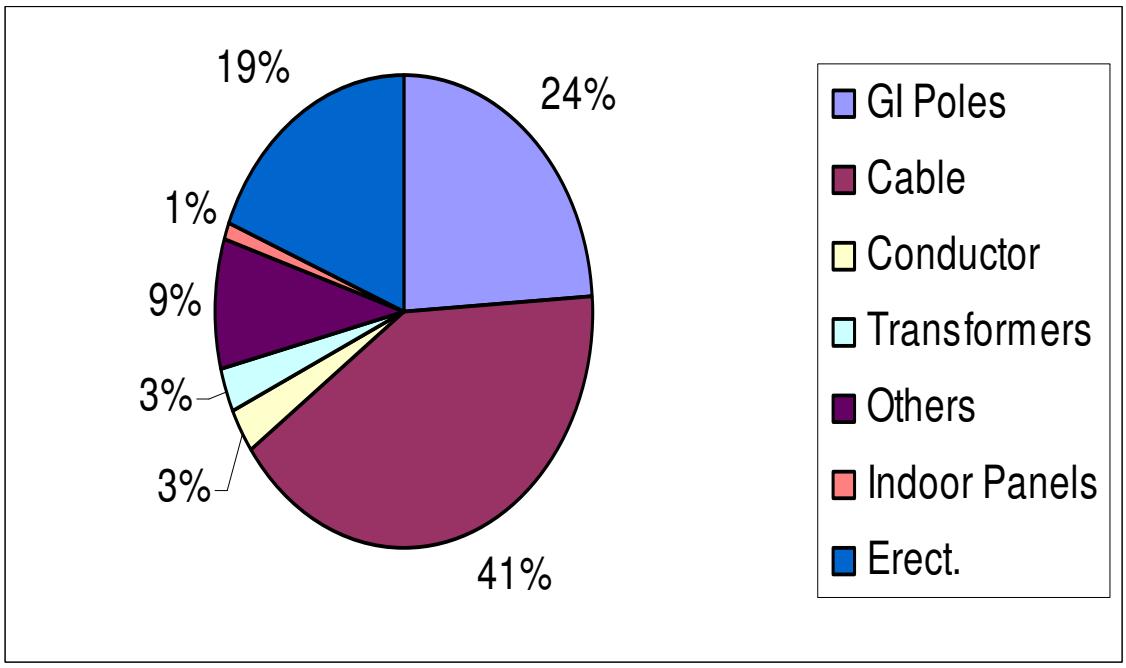
a. Vendor selection,
b. Vendor approval
c. RFQ formats,
d. Quotation approvals
e. Approval for technical parameters,
f. Back-to-back arrangement with vendors.
g. Signing of MOU based on tender document
h. final negotiations and order placement

All the logistics related activities are to be divided into following parts, such as

a. Logistics strategy formulation,
b. Short listing and selection of channel partners,
c. Finalization of scope of activities
d. Finalization of monitoring mechanism, etc.
e. Implementation of logistic methodology.

MAJOR COST COMPONENTS

The various cost components of the project are given below.



Procurement activities

Procurement Strategy:

To achieve the desired results in any activity especially, the procurement, and that too, where huge qty of material is required, a specific strategy is very much required. which should reflect the organizational goal.

So, a Procurement strategy was formulated after discussion with the top management, so as to achieve the maximum sales margin from the project , as the value of material to be procured was very high. and to get max benefit it was suggested to go for individual procurement and pricing strategies for each type of equipment.

To make all the quotations from various supplier, on a single platform for all the parameters except price, questionnaires were suggested and same were prepared by the procurement team, for all the products, as given in the attached annexure.-14

The procurement strategy adopted for various type of equipments is given in the following page.

Procurement Schedule:

As the procurement activities are very time consuming, it is very much required to have a definite time schedule so as to plan and complete all these activities within that schedule only.

So, a procurement schedule was prepared with the help of project team as given below:

Materials To be ordered	Likely date of ordering
1.Material Transportation – Contract	10.06.07
2.Hardware Fittings (Line Hardware, Piercng Connectors)	07.05.07
3.Steel Structure	12.05.07
4.Stay Sets	07.05.07
5.Earthing Material	07.05.07
6.Tower for 66kV	15.08.07
7.Termination Kits (for HT XLPE & ABC Cables)	07.05.07
8.Misc. Material	30.05.07
9.Lighting Fixtures	30.05.07
10.CT /PT & C&R Panel	30.05.07
11.Cable Fault Locators	12.05.07

Pricing strategy:

To get the best prices from the suppliers, so as to increase the sales margin, a pricing strategy is very much required at our end. Since the no of suppliers for the total required material was too much, it was suggested to go for a individual level pricing strategy, for each type of material, rather than going for a project specific pricing stretgy.

For pricing strategy for individual equipments, following factors were suggested to be considered

a. Long term partnership,
b. Back-to back arrangement,
c. Effective negotiation,
d. Benchmarking,
e. Market survey,

The cost considered at the time of tender was considered as the target cost and efforts were made to match the final price with that or even less than that based on above mentioned factors strategies

Procurement strategy for various equipments

Procurement strategy adopted for various type of equipments/materials is given below

Equipment	Pre-Qualification criteria for Vendor	Equipment Buying strategy by SL	Estimated Value-INR
TransformersQty –153Nos-	• Similar Eqpt of Same or Higher rating must be in operation for 2years • Valid Type Test Reports – within 5yrs from date of opening	• Short list the existing Indian vendors • Try to have back to back agreement with Marsons	**32'0**
Cables **Qty:** **HT -460Km** **LT -390Km**	• Supplied 100km of 33kV or above voltage grade XLPE armoured and/or AB Cable in the last 5yrs as on date of Bid Opening – For 33kV Cables • Supplied 100km of 11kV or above voltage grade XLPE armoured and/or AB Cable in the last 5yrs as on date of Bid Opening – For 11kV Cables • Supplied 100km of 1.1kV or above voltage grade AB Cable in the last 5yrs as on date of Bid Opening – For LT AB Cables	• Short list the existing Indian vendors • To have back to back agreement with Polycab	**380'0**
GI Poles **Qty :19000Nos**	• Should have a Galvanising Facility for 10mtr Pole in a Single Dip Process	• Short list the existing Indian vendors • To have back to back agreement with RIDDHI Poles	**220'0**
Erection & Commissioning (Hythro)	• Should have Installed, Tested and Commissioned 100km of 11kV or above voltage grade Transmission Line/Feeder in the last 5years as on the date of Bid Opening	• Identify the possible Erection Contractor • Sign MOU with the Agency (Hythro) • Freeze the price with the Erection and Limitation of Liability	**179'0**

Pricing Strategy

Similarly, pricing strategy was formulated for each type of main equipments based on the suggested factors, is given below:

Equipment	Approved Vendors of PGCIL	Offers Received from	Negotiation Done at Tender Stage	Remarks
DistributionTransformer	■ Marsons, Agra ■ Vijai Electricals ■ Kanohar ■ VoltAmp Transformers ■ Kirloskar Electric ■ Tesla Transformers ■ IndoTech Transformers	Offer received from only from Marsons. All other vendors have regretted	No Negotiation Done at Tender stage	**Prices given by Marsons considered during Bidding stage**
HT/LT Cables	■ Polycab ■ Universal ■ krishna Cables ■ Ravin Cables ■ RPG Cables	Offers received from these vendors. Best Offer by Polycab and also met the qualification criteria given by the customer	No Discount given by Polycab during Pre-tendering stage	**Prices given by Polycab considered during Bidding stage**
GI Poles	■ Riddhi Poles, Vadodara	Offer Received from Ridhhi Poles. No other vendor approved in PGCIL	No Discount given by Ridhhi Poles during Pre-tendering stage	**Prices given by Riddhi considered during Bidding stage**
Erec. & Comm.	■ No Approved Contractor, but the contractor should meet the PQR of completing 100km of 11kV or above lines in the last 5 years	Identified M/s Hythro Power Corporation as the Line Contractor and our partner	*Pre-tender stage MOU signed with M/s Hyhro for Installation, Commissioning and all site related activities*	**Prices given by M/s Hythro considered during Bidding stage**

The detailed QES and comparative statements were prepared as per existing procedures and as per enclosed annexure1 and 2.

The details of cost considered for individual items is given as below.

Procurement - Cost Considered

PROJECT: PGCIL Andman and Nicobar Project

S.N.	Description	Total EXW SP +ED+ST+ Levies (Rs.)	% Component
1	Erection & Commissioning Services	179,822,840	19.04%
2	Design & specification	10,090,729	1.07%
3	AAAC conductors	22,343,608	2.37%
3	GI Poles	193,130,263	20.45%
4	Surge arrestors	503,005	0.05%
5	RMU	3,770,000	0.40%
6	LV SWITCH BOARDS	16,616,582	1.76%
7	CABLES	349,150,850	36.97%
8	TRANSFORMERS	29,209,221	3.09%
9	INSULATORS	4,134,917	0.44%
10	AB SWITCHES	2,441,715	0.26%
11	Material Transportation Contract	70,600,000	7.48%
12	Earthing Materials, Stay Sets, Termination Kits, Tower Accessories, Piercing Connectors, Danger Plate, Anti Climbing Devices etc.	29,825,958	3.16%
13	Cable Fault Locator	6,746,440	0.71%
14	Hardware Fittings+Pin Insulators	4,553,428	0.48%
15	Steel Structures (Pole+Tower)	10,695,241	1.13%
16	Lighting Fixtures	1,140,000	0.12%
17	CT/PT, C & R Panels and VCB	4,638,000	0.49%
18	Insulator Binding Material	1,309,254	0.14%
19	Misc. Materials	3,700,000	0.39%
	Total	**944,422,051**	

Based on the procurement and pricing strategies suggested, QES and comparative statements were prepared as per the authority matrices of Siemens, procurement procedures, and PO's were released within the time schedule, already finalized.

The detail of major orders issued to the various suppliers is given below:

Details of major orders			
Sr. No.	**Item Description**	**Name of Supplier**	**Order finalised INR**
1	Erection & Commissioning Services	M/s Hythro Power Corporation	179,822,840
2	GI Poles (All veariations) Total Qty 8080x	M/s Bajaj	89,256,946
3	GI Poles (8mtrs) Qty 6500x	M/s Advance	393,036
4	GI Poles (8mtrs & 9mtrs 410_SP) Total Qty. 5291x	M/s Utkarsh	39,314,154
5	33kV, 11kV AB Cables,LT AB Cables and LT Power & Control Cables	M/s Universal	179,683,942
6	33kV and 11kV HT XLPE cables	M/s Polycab	151,911,433
7	AAAC Conductor - Racoon /Rabit & Panther	Sterlite	19,752,570
8	LV Switchboard & Street Light Service Pillars	M/s Avaid	11,553,550
9	Design & Engineering Consultant	M/s N Arc Consuting	4,455,928
10	Insulator	M/s Indian Potteries	4,440,025
11	RMU	M/s Crompton Greaves Ltd	3,301,150
12	LV Switch Board and Lighting Feeder	M/s Avaid technovators	11,553,550
13	AB Switch and HG Fuses	M/s Ultima Switchgear	2,499,993
14	Lightning Arrester	M/s LAMCO	267,891
15	Distribution Transformer	M/s ABB	14,071,046
16	Distribution Transformer	M/s Tesla	14,949,892

With the adoption of suggested ideas, best practices of procurement and proper co-ordination amongst all the parties, a saving of more than 6% was achieved as against the considered cost.

Study of Logistics arrangements

Logistics strategy

Since it was a big and unique infrastructure project, as
More than 100 no's of items were covered,
More than 50 suppliers were involved,
Total estimated weight was more than 10,000 mt.
And duration of this project was 2 years,
The formulation of logistic strategy was one of the most critical factor for success of this project.
In this project, first of all, the options available for the logistic issue were discussed with the project team, such as

1. To handle the transportation within the company's scope,
2. To give the transportation of material in the supplier's scope i.e to finalize the rates of various items inclusive of transportation , as this is the normal practice in siemens.

But as in this project, multiple mode of transportation are to be involved, such as from various suppliers to Chennai/ kolkatta by road, and then from Chennai /kolkatta to port Blair by sea. All the suppliers agreed to take responsibility for transportation of material through road only i.e only upto Chennai or kolkatta. And the next part of sea transportation has to be in Siemens's scope. Considering the problems in this multilevel responsibility, it was suggested to cover both type of transportation in Siemens' scope only.

There are some other problems, with transportation in supplier's cope, such as

1. Uneconomical transportation considering the weight and vol of the material.
2. Less control over the movement of material.
3. A warehouse to be maintained by Siemens at extra cost.
4. Extra manpower to be deployed by Siemens at warehouse.
5. Preference of supplier's interest than Siemens's interest

So, considering all these factors, it was suggested to cover the logistic part in Siemens scope, since the qty, volume and weight of various materials was very high,

there was no previous experience to handle such type of logistic arrangement, it was suggested to take the services of the third party service providers.

There are three options available with regard to application of the third party service provider in the logistics strategy, to make use of any one of the service levels

1. Basic contract logistic arrangement,

2. Physical contract logistic arrangement,

3. Management contract logistic arrangement,

Anticipating various issues and problems involved in the material movement and after discussion with Siemens's management, it was suggested to make use of a combination of both physical as well as management contract logistic arrangements with any capable 3PL service provide but with primary control of Siemens only.

Logistics Methodology

To have a cost effective and efficient logistics arrangement, the logistics methodology should be framed to cover all the areas, as in this case, main issue was to bring that material from various suppliers, spread all over India to Andaman Nicobar islands.

Following steps were suggested during this phase to frame the logistics methodology

1. **Estimation of vol and weight for all the materials.**
   To reach the material at site, main requirement is to know the volume and weight of each type of material and their packing procedures. So questionnaires were prepared for the relevant details about wt and vol, to be gathered from concerned suppliers (as per annexure -3) and the same information was complied as per annexure-4. After analysis of the total information, total wt of the material, which was to be shipped to various islands, was calculated as 10,000 MT appx. Cables were complied on the basis of vol. as volume was much more as compared to weight.

2. **Survey of various islands for looking after the various options available.**
   it was suggested to have a Complete survey of all the major islands to access the following
   a. various means of inland and water transportation,
   b. availability of the resources for transportation,
   c. Availability of material handling equipments.
   d. availability of labour

3. **Analysis of survey reports.**
   In this phase complete analysis of the survey reports was done based on the resources available and various limitations, so as to find out the best options available.

4. **Finalization of scope of work.**
   Based on the analysis and the other information available. The complete scope of work was finalized enabling the service provider to quote accordingly.

Analysis of initial survey :

Based on the initial survey, following points were highlighted to be considered for finalizing the scope of work

1. There are only two points (major ports) on mainland from where material can be sent through sea route. One is from Chennai and other is from kolkata.
2. From Chennai, there are only two shipping companies, who are owning their own ships, one is TCI seaways and second is GATI Coast to Coast.
3. From kolkata there are 3- small shipping companies but only one major shipping company i.e ITT shipping.
4. For moving material from various suppliers to kolkata or Chennai various Road transportation companies are available.
5. For moving material from port Blair to various other islands there are no. of small service providers having small ships and boats.

Major Options suggested:

Various options for this logistics task, were discussed with the management and the project team, and following options were suggested based on the analysis of the initial requirement and survey.

1. To call all the major parties who are having shipping facilities for Andaman-Nicobar islands from the mainland.
2. To find out whether they have any kind of road transportation arrangement also to take the material either to Chennai or kolkata.
3. To make Chennai or kolkata, as material storage hub.
4. To make a centralize store/godown in Port Blair for onward transportation to various islands.
5. To establish small stores on various islands.

Based on the options shot listed, it was decided by the management to give a chance to all the major parties to give their representations about their capabilities and strengths.

Only two companies came forward with their facts and figures, TCI seaways and Gati-Coast to Coast

Finalization of scope of work

Based on the survey done, options available and project requirements, a detailed scope of work was formalized after discussion with project team, and given to all potential service providers, as given below:

1. Material to be picked from our no of suppliers spread all over India. Around 90-95% items will be on full truck load. But there may be some part loads also.
2. All the material except material from kolkatta will move to Chennai. The material from kolkatta will be shipped directly to port Blair the service provider will make all type of arrangement at kolkatta also..
3. The material from Chennai/ kolkatta will be shipped to port Blair in containers. (20'-40').
4. All material will be unloaded at port Blair, will be stored in a centralized godown whether on port or outside port. Unloading/local transportation of material will be in transporter scope.
5. For taking material outside port, an octrai exemption certificate has to be arranged from electricity deptt after submitting bill of lading. This will be the responsibility of the service provider.
6. Material required for other islands will again be shipped to various islands as per our requirement. Loading of material, transportation to port, unloading at port will be in transporter scope. This weight can vary from 1mt/cubm to 250 mt/ cubm for onward transportation.
7. A site/store address on each island will be given and shipping company will deliver the material at that site/store only. All type of loading, unloading from ship and trucks will be in service provider's scope.
8. Service provider will give updated information about the movement of material on daily basis.
9. All type of port clearance, payment of port dues, etc will be in service provider's scope.

Based on this scope of work, it was suggested to ask the service providers to give their representation, stating their strength, resources, and commitment to meet this scope of work.

Representation of TCI Seaways

As given by TCI:

We want to introduce ourselves as TCI Seaways which is a division of Transport Corporation of India Ltd, which is one of the biggest transportation & logistics Company having more than 1000 booking locations in India. We have 5 ships, details is as under:

SHIP NAME	DWT	CRANE CAPACITY
TCI LAKSHMI	2298 MT	2 NOS OF 10 TONS EACH
TCI SHAKTI	2156 MT	2 NOS OF 10 TONS EACH
TCI XPS	4442 MT	2 NOS OF 40 TONS EACH
TCI ARJUN	3194 MT	2 NOS OF 50 TONS EACH
TCI SURYA	4507 MT	2 NOS OF 40 TONS EACH

We have our own office building at Portblair. We have open land in Portbalir, where we can store your cargo on cost. We have also godown at Chennai & Container storage facility at Chennai.

Corporate Office Address :

TCI House, 69, Institutional Area, Sector 32, Gurgaon – 122 001
Phone No. +91 – 124 – 2381603 to 07
Fax. +91-124-2381611
E-mail . corporate@tcil.com

Portblair Office Address :

TCI House, 199 M.G. Road, Junglighat, Portblair – 744 103
Phone No.03192 232704
Fax No.03192 230242
E-mail . seapblr@tcil.com
Contact Person : Mr.PK.Kaushik – 9332256791
Mr.Maduletti.P - 9332256792

Chennai Office Address :

TCI Seaways, A Division of Transport Corporation of India Ltd
Gee Gee Crystal, Fourth Floor, 92, Dr.Radhakrishnan Salai
Mylapore, Chennai – 600 004

Phone : 044 28117581/82/83
Fax : 044 28117573
E.mail . chennai@tciseaways.com
ru.singh@tciseaways.com
Contact Person : Mr.SK.Sharma – Cell No.9383540049
Mr.Ravikumar – Cell No.9383540048

Our suggestions regarding transportation of your Power Transmission Equipment from all over India to Andaman & Nicobar Islands is as under:

1. If the cargo is given to our transport agency, who can transport your cargo from booking point to delivery point, can move by ship via Chennai to A & N Islands. It will be better coordination to coordinate with transport agency to unload the cargo from the truck to the yard or heavy consignment to the port area. Small consignment can be loaded directly from the truck to the container and all the cargo can be unloaded at Portblair Port for onward dispatch to other islands.
2. From Portblair, cargo can move by ship to the islands and unload at Jetty and from Jetty to the site by truck, and cargo can be unloaded by small crane or by chain pulley manually operated.
3. There is a problem for four islands namely Teressa, Katchal, Chowra and Non Cori where ship cannot go directly to the Jetty. Cargo will be unloaded from the ship to the barge and the barge can be pulled by small boat to Jetty. From jetty it can be loaded by small crane or chain pulley manually operated. Other ports, ship can go directly to the port and can be unloaded by the ship crane to the Jetty and from Jetty to the truck by a mobile small crane.
4. If cargo belongs to proper Portblair, you have to pay the Octroi or you can obtain no objection certificate for not paying the Octroi from Electricity department, A & N Islands
5. Because your cargo is moving in a small quantity to the other islands, we need some other cargo for the same island. For your kind information, we have annual contract with Food Corporation of India to move their cargo from Vizag to Portblair and other islands. I can club your cargo with FCI Cargo for the timely delivery. If you want any other clarification, please do not hesitate to contact us.

Representation of Gati- Coast to Coast

As given by Gati:

- We are a shipping division of Gati Ltd, a leading Logistics Company having all India presence.

- Mesers Gati Coast to Coast is a leading shipping company who has been serving A&N Islands for the last Two Decades

- We have our own fleet of Company owned Three (3) vessels plying between Chennai/Mainland to PortBlair/A&N Islands. We have the largest container carrying capacity in this sector and our Ship Cranes/Derricks can handle any weight/dimension cargo and are self sustaining.

- We have minimum three sailings in a month Ex-Chennai to Port Blair tentatively on 5th, 15th and 25th of every month

- We have got our own round the clock 365 days operational container yard at Chennai with all the required handling equipments and well trained Manpower

- We have got Inventory of around 2000 units ISO certified Own/Lease containers of various Sizes & Types like 20 feet GP, 20 feet Flat rack, 20 feet OpenTop and 40 feet GP, 40 feet High cube, 40 feet Flat Rack & 40 feet Open Top which can handle any type of cargo and all these containers keep moving between our shipping network and at any given point of time around 500 containers will be at our Chennai container yard.

- We have got our own full fledged office at Port Blair, which is nodal point, for any logistics requirement for A&N Islands and is manned by trained & experienced manpower. Our PortBlair office is having dedicated leased line through which they are on line with entire Gati.

- We can offer end to end solution through multimodal connectivity to Andamans

- We have strategic tie up with Indian Airlines for urgent Air shipments and our & their network together gives a wider reach & choice to our customers.

- We can take care of your conventional trucking needs through our Group company which has all India presence and express cargo needs can be taken care through our cargo division which has presence in 590 Districts out of total 602 districts in India.

- We also have tie up with Indian railways and have dedicated rail wagons for our cargo on specific sector

- We have on line Track and trace to have realistic information about the cargo movement.

GATI – OFFERINGS FOR ANDAMAN PROJECT :

- We can offer you Tailor-made Logistics solutions for your projects in Andaman

- We can provide you warehousing facilities at our container yard in Chennai on very competitive terms.

- We can pick up your material from your vendors from various locations through our Group companies and same can be consolidated at Chennai for onward movement to Andaman.

- We can do C&F for your shipments in Chennai

- We can prepare destination wise B/L which can give you Octroi benefit and other documentation requirements can be met

- Regular & scheduled sailings from Chennai for better inventory planning and for onward movement of shipments with minimum cooling period.

- We can nominate dedicated team at Chennai and PortBlair for handling your shipments and can provide you timely information

- We can arrange warehousing within/outside the port at PortBlair and other Islands on very competitive terms

- We can do Octroi & C&F formalities at Port Blair

- We can arrange Door Delivery of shipments in PortBalir and other Islands

- We have strategic tie up with Inter-Island vessel operators in Andamans thus we can move shipments from Port Balir to remotest Island in shortest possible time.

- We have very good rapport with Port and Government officials and same can be utilized for mutual benefit

- We have successfully executed similar projects for the following customers
  M/s. AIRTEL
  M/s. BSNL
  M/s. Andaman Police
  M/s. Andaman Electiricty Board
  M/s. NGO's , Tsunami Relief & Re-habilitation Materials
  Big contractors and Private customers
  So we know the bottlenecks and solutions for the same.

- We have been operating in these Islands from last 20 years so we know the various procedures and formalities to be performed for various operation.
- Our commercial terms are simple and very competitive so it can be win win situation for both.

Analysis and Evaluation of Service Providers

Based on representations of both the parties, it was suggested to visit the facilities of these parties in Chennai as well as in port Blair and to evaluate them on the basis of following factors

1. Reliability
2. Responsiveness
3. Credibility
4. Infrastructure Available For Sea Transportation
5. Infrastructure Available For Land Transportation
6. Previous Experience Or Transportation Of Such Type Of Material
7. Reputation In The Remote Islands

Upon analysis of various surveys and no of rounds of discussions, it was found that in all the parameters except infrastructure for land transportation, both the parties were equivalent.

so, it was suggested to have a service provider, who is having a better infrastructure for land transport.

M/s TCI seaways is having a tie up with the TCI Corporation of India, whereas, the Gati Coast to Coast is having tie up with TCI highways.

Award of contract

Upon comparing the facilities of both TCI ltd and TCI highways, it was found that TCI ltd has more effective network of road transportation across all over India as compared to TCI highways.

So the TCI ltd and TCI seaways were short listed for land (from various locations in India to Chennai) as well sea (from Chennai to port Blair and various islands).

After short listing, of TCI, a complete scope of work was discussed and explained to the concerned parties. and for ease of understanding a flow chart was made.

Final negotiation was done with representatives of TCI seaway and TCI ltd. After finalizing the rates, the final contract was issued in the name of TCI ltd with all the reasonability of sea transportation also.

Rates finalization

Although the contract is to be issued in favour of single entity i.e TCI ltd, since two different modes of transportation were involved, it was decided to have two different types of rate schedules, one for road, and one for sea transportation.
The main criteria for rate finalization

1. **Road transportation**

   Since the material was to be moved from various suppliers to Chennai by road, through TCI ltd, and most of the material (around 95%) was on bulk basis, it was suggested to finalize the rates on per km basis depending upon the type of vehicle. Based on the probability of max-min size of load, rates for following type of vehicles were decided

   a. DCM --Max. Load-2.5 MT size-10'x5'x5'
   b. LPT --Max Load-5 MT, size-12'x5'x5'
   c. FLT--Max Load-9 MT, size-17'X6.8'X6.8'
   d. TARUS--Max Load-15 MT, size-20'X7'X7'

e. TRAILER--Max Load-22 MT, size-40'x8'x8'

Since supply of material was from no of points, rate was finalized on per km basis. And the distances given in the TTK guide were considered to be final irrespective of the route taken by the vehicles to reach Chennai.

Main supply points are

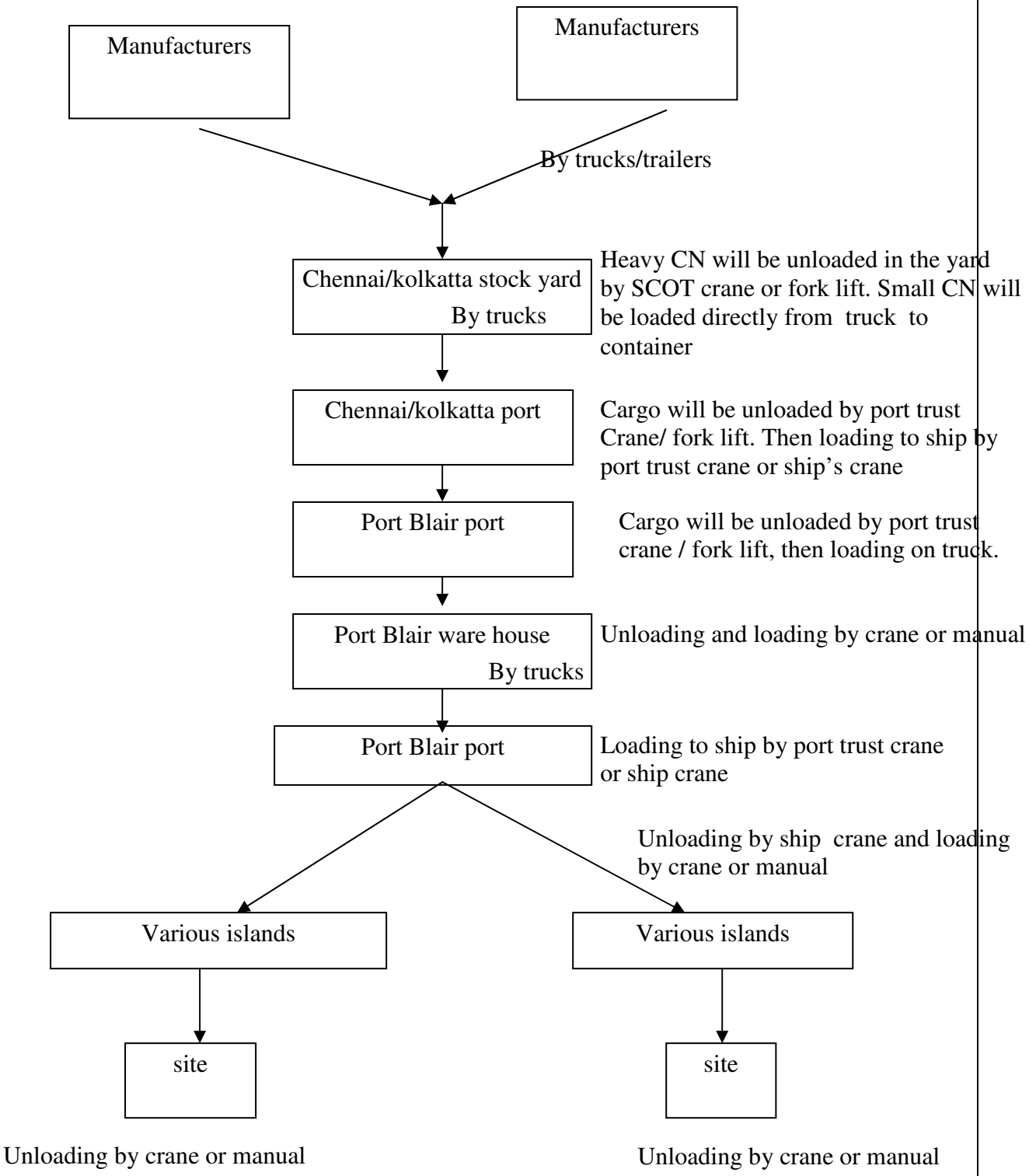
a. Daman, (U.T)
b. Satna (M.P)
c. Rajangaon, Pune (Maharashtra)
d. Gaziabad (U.P)
e. Manesar (Haryana)
f. Baroda (Gujarat)
g. Kolkata (West Bengal)
h. Bhopal (M.P)
i. Chennai (Tamilnadu)

2. Sea transportation:

There is only one mode of transportation i.e. sea is available from Chennai to portbalir and further from portblair to various islands. Since the material is being transported in big ships in the 20 feet containers only. It was deiced to finalize the rates based on the weight or per MT basis. The rate was finalized, inclusive of all the port handling charges. However rate of cables was finalized on the basis of per cubic metric as the vol was much more as compared to weight.

The detail of rates for both type of transportation is given in the annexure 5 and 6.

Simple flow chart for material movements



Implementation of Logistic System

For effective implementation of any logistics arrangement, standard operating procedures are very much required, covering all the activities along with the responsibilities of each person involved in that chain.

After awarding of contract by siemens to TCI ltd, the main issue was to how to implement the logistics arrangement. For this following steps were suggested

1. detailed discussion with all the partners,
2. formulation of sop's and authority matrix.

Based on these suggestions, a detailed discussion was conducted with both the representatives of TCI as well as TCI seaways about the smooth functioning of total logistic arrangement.

SOP's (standard operating procedures) were formalized covering all the activities related to material movement and responsibilities of each channel partner were indicated including the responsible person.

The detailed SOP's are given in the enclosed anexxure-8 .

Main features of these SOP'S were.

1. After material is ready at supplier's end, inspection call will be raised with power grid by Siemens ltd.

2. CIP/MICC will be collected from power grid either by supplier or Siemens ltd.

3. Siemens ltd will issue a dispatch instruction to the supplier with a copy to TCI (annexure –10)for dispatching the material to Chennai. The copy of dispatch instruction for supplier is given in annexure –9.

4. Siemens will advice the TCI about the complete weight and vol along with the type of vehicle to be placed.

5. TCI ltd will take the material to Chennai and will hand over to TCI seaways.

6. TCI seaways will move the material from Chennai to portblair and will hand over the material at the stores of Siemens ltd.

7. whenever, material will be required at different islands of Andaman-Nicobar , a packing list will be given to TCI seaways, TCI will lift the material from Siemens godown and will ship the material to required island.

8. All type of loading / unloading of material after getting the material from supplier, will be responsibility of the TCI and TCI seaways.

9. TCI Seaways will load the material in Chennai in the first available ship and accordingly intimate the Siemens about the date of sailing.

10. The average speed of truck/trailer will be considered as 250 kms per day and for shipping time from Chennai to port Blair max time will be four days. For material to be dispatched from port Blair to other islands, max shipping time will be three days, subject to availability of ships and clear weather.

Control parameters

The success of this whole logistic arrangement is dependent upon the multiple information flow across all the three channel partners. In this case there are three channel partners

a. Siemens
b. Various Suppliers across all over the India
c. TCI Seaways & TCI ltd

Based on the process requirements, a flow chart should be developed depicting all the flows of information from one partners to another.

A flow chart, considering this Andaman project, and depicting all the information/material/documentation flow is given in the annexure-11.
For flow of information, in the right form, at right time and right place, across all these channels, functioning point of view, some control parameters are also required as per the requirement of the process as given below

a. Checklists,
b. Daily progress reports,
c. Continuous information flow.
d. Tracking on internet.
e. Matching of LR and BOL.
f. Monthly meeting between Siemens head office, site office, and TCI seaways

As per these control parameters, TCI Ltd and TCI Seaways were asked to furnish the daily progress report of each vehicle and ship, as given in the annexure-12.

For smooth flow information, various steps were suggested and same were implemented during this project as given below.
whenever some dispatch instructions were sent to any supplier by Siemens, the same was sent to TCI for further action at their end as per annexure-10

An estimate of material to be transported in a month was given in advance to TCI ltd and TCI seaways, so that they can arrange their resources for that. For this the email channel was used.
TCI ltd was specifically asked to update all the records, related to vehicles of this project, on their website, so that any moment, we can track the position of any vehicle in transit.
The responsibility of each party as well as each section/person, involved in this contract was finalized in the form of stand operating procedures, with definite responsibilities and person, as given in the enclosed annexure-8.

As the material was first moving through TCI ltd for which a LR was being issued and then material was moving from Chennai to portblair by TCI seaways, and a bill of lading was being issued.

So to match the both LR and bill of lading for each supply, following actions were planned at respective end.

1. TCI Ltd upon intimation from Siemens, will lift the material from supplier and a LR will be issued, one copy will be given to the supplier, Two copies will move along with the material , upon one of which the receipt from TCI Seaways will be taken and sent back to the Siemens. From Chennai, TCI Seaways will take the total custody and responsibility of the material.
2. TCI seaways will move the material from Chennai port to port Blair and will issue bill of lading according to the LR only. The material will be received by the Siemens person in the store, setup in portbliar, and accordingly receipt will be given on the original bill of lading.
3. TCI ltd will submit the freight bills along with the LR copy duly received by the TCI Seaways and TCI seaways will submit the freight bills along with the copy of LR and the duly endorsed copy of bill of lading.
4. For effective tracking a sheet is being continuously updated in Siemens office and regularly being sent to all the channel partners as given in the enclosed annexure-13.

To resolve any problems/ issues arising in this contract, on time to time, it was decided to conduct regular meetings amongst Siemens and TCI seaways either at Chennai or at port Blair.

Present scenario

Based on the study done, first lot of material was dispatched from M/s poly cab Wires, Daman on 28th of Aug, through TCI ltd in trailers, and complete track of that material was kept, and the same material reached at Chennai and then at the port Blair through TCI seaways, in the already targeted time period.

Till Mar-08 end, around 70% of total material has already been dispatched from all the major supplier, spread all over India, and same has been received at port Blair.

Around 1000 MT of material has also been moved from port Blair to various islands such as Little Andaman, and Car Nicobar, till date. Although there are regular problems of rough weather in that area.

Although there was some delay in transporting the material in the month of Oct-Nov from Chennai to port Blair, due to unfavorable weather conditions on the Bay of Bengal Material movement is as per requirement of the project.

Bal 30% material is expected to be transported in the year 2008.

Conclusions and recommendations.

Implementation of any project related to logistic is just like a the magician's trick of pulling a scarf out of his hand, and as he pulls it the scarf keeps going and going. It is a good way to think of planning and running a project related to logistic. At first you see the initial scarf – the need to plan the logistics flow of a product through a supply chain – and while it may be large you think you understand the scope of it. But as you pull at it, many more scarves – many aspects of the project – become apparent, and like watching the magician, you're not always sure where they are coming from.

Based on the recommendations and suggestions for logistics arrangements, till date more than 70% of material has been dispatched by siemens. More than 450 no's of vehicles have moved and LR's have been issued under this project and all the LR's have been duly receipted at site without any misplacement and damage to material. All this has been achieved with proper planning and co-ordination amongst the entire channel partners i.e. Siemens, suppliers and logistic service provider.

Main recommendations to handle logistics activities for such type of projects are:

1. **Complete transparency amongst all the channel partners.**
   Proper co-ordination and transparency is very much required amongst all the channels partners, so that effective utilization of resources can be done at all the stages of the logistic. Along with this timeliness of the information flow is very much important in such type of project. For e.g the information about the exact size and weight of the consignment should be available from supplier to the transporter for enabling him to finalize the most suitable vehicle.
2. **A sense of mutual trust and risk sharing mechanism.**
   Since in this type of project three main parties are involved and the main priorities are different of each of them. For success of the project in the most cost effective way, a sense of mutual trust and risk bearing ability should be their. For e.g. if the rate has been finalized for a 15mt of vehicle. and the total weight of the consignment is 16 mt. In normal cases the priority of transporter is to place a 20

mt vehicle, resulting in additional outgo for the company. But in this case, transporter placed the 15 mt vehicle only and carried the 16 mt consignment. And the company paid for the additional 1 mt on pro-rata basis.

In this way, by paying for 1 mt additionally, the company saved a large amount of money, without any loss to the transporter. The supplier saved on the time front, as he had to place and load only one vehicle in his works as compared to two vehicles. This is actually a win-win situation for all the parties.

3. **A project specific control mechanism.**

In such kind of project, which is vast in all respect, more no of items, more no of supplier, multi location dispatches, time frame is large, and multiple mode of transportation. A specific control mechanism is very much required to have a complete control on all the channel partners and for effective reconciliation of all the activities. This is also required to find out the activities where are going in the wrong direction, so that a timely corrective action can be taken in the initial stage only. As in this case. Material was produced at no of location all over India. And after final inspection of this material by M/s power grid , the subject material was handed over to TCI ltd by the supplier. The subject material was then handed over to TCI seaways in Chennai by TCI ltd. Finally the material was delivered in port Blair in Siemens's store by local transportation wing of TCI seaways. So, to get the material at site in perfect form at that in the required time frame, a control mechanism was implemented at every stage.

4. **Selection of feasible and practical approach.**

One of the most important thing in such type of project is to evaluate no of feasible options and then selecting the most practical option or the approach. Before planning any activity, select no of options available considering the various resources available and the limitations. And then the most feasible approach should by implemented.

5. **Areas of Responsibility**

Generally in such type of projects, we make a big mistake in assuming that the other players in the chain, operate according to the same structure or methodologies, we have perceived or thought off. The pressures, priorities,

timeframes, and culture of the different channel partners that have to interact to make a such type of project successful, may be completely different, making the task of the company, even more complex. In cases such as this, there is no such thing as "too much communications" – even the simplest task may be loaded with differing assumptions and understandings that only clear and continual communications can bring into line. In order to come on a single path or platform, a well defined responsibility metrics should be defined, which should cover, all the activities of all the channel partners, with definite responsible person. The total accountability and the responsibility of each activity, should be clearly defined, with a person specific.