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Role of Sourcing Managers in Enhancing the Economic and Technical Scenario of Sourcing From Indian Valve Industries

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ABSTRACT

International sourcing is an upcoming term in India, which creates an environment of trust between industries overseas and Indian manufacturing industries. Sourcing managers are the real king-makers behind the scenes and they are responsible for matching the demand of the parent company to that of the supply of the client company. Sourcing managers not just comply with the business standards, but will also have to maintain a scenario of technical excellence. Sourcing from India is mainly for American countries and will be required to maintain high technical standards. Hence sourcing managers will thrive to achieve both. Sourcing managers will also have to optimize procedures to attain maximum benefit from the sourcing clients. This article is to guide sourcing managers to achieve economic as well as technical benefits. This article has guidelines for sourcing managers in India for valve industries on sourcing operations, economic analysis, and quality standards and also in the recruitment of sourcing inspectors and coordinators. This article has been released as an eye-opener for various options for sourcing managers in India for Valve industries.

Keywords: Valve; Manager; Optimize; Economic Analysis.

1.0 Introduction

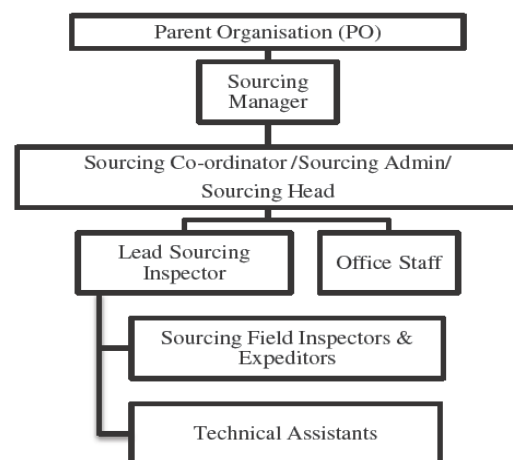
The procurement industry is fast growing in India and this industry is gaining momentum as the scope of this industry lies enormous ahead and gets expanding. Sourcing is the practice of procurement of goods and services across political borders (i.e across countries). A valve company in USA can procure Check Valves from a manufacturer in India. Professionals, who work for the parent procuring company, who survey, make agreements, make quality checks, finalize various procurement economics are Sourcing Managers and they play a key role in the sourcing operations. The hierarchy of any sourcing office is as shown in figure 1

As an organizational head, the key duties that a sourcing manager will perform are as follows,

1. Field survey on various procurement options and decision making to reduce the expenditure on procurement.
2. Negotiation with the supplier and to decide on the terms and conditions to the supplier.

3. To ensure that the products from the supplier meets the requirements of the parent organization.
4. Manage various orders from vendors and suppliers and ensure that the procured products reach on time to the parent organization.

Fig 1: Hierarchy of a Sourcing Office

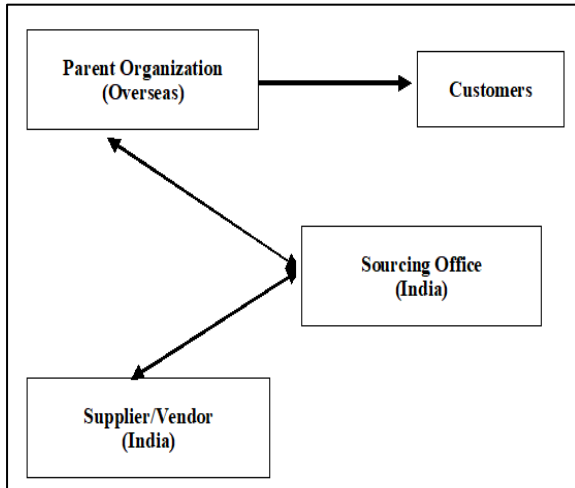


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In general, a sourcing office will be a link between the supplier and the Parent Organization (PO) as shown in Fig.2. Sourcing office may be a part of the organization or may be independent.

Fig: 2 Organizational Structure



The following sections suggest measures, when implemented in a sourcing office will enhance the process to achieve maximum benefit. This article has been oriented sourcing manager centered, as all decisions are bound through sourcing managers in operations. As a lead in the office, the sourcing manager must function to achieve the sequence of operation to take place effectively:

- Step 01:** Estimate of the company’s willingness to spend.
- Step 02:** Field survey of the suppliers
- Step 03:** Economic comparison for each supplier
- Step 04:** Identify an efficient supplier
- Step 05:** Making agreement between supplier and PO
- Step 06:** Purchase order issue to the supplier
- Step 07:** Quality check of the product from the supplier
- Step 08:** Supervision of export to the PO
- Step 09:** Collecting feedback from PO and reiterate

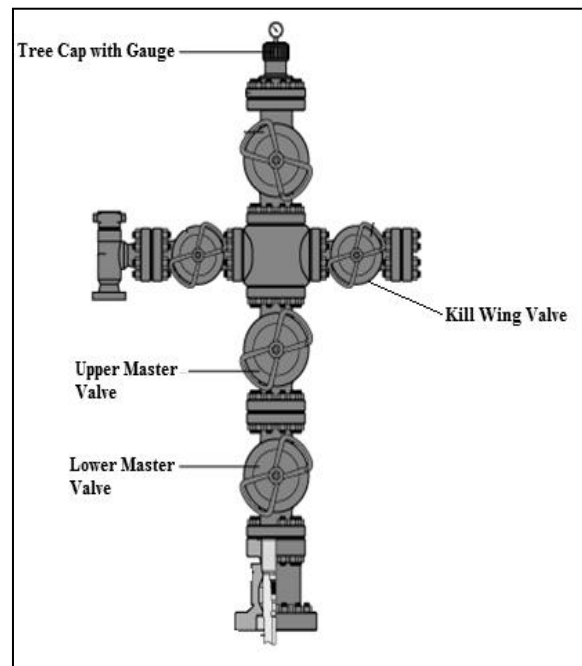
2.0 Role of Sourcing Managers in Surveying

Sourcing managers must be eminent decision makers to make a choice between the available options. A long-term relationship between the Parent Organization (PO) and the supplying industry will exist only when there is satisfaction at both ends. Hence a sourcing manager must perform such that the

product sourced must satisfy the requirements of the PO as well as it gives profit to the supplier too. Sourcing manger must first make a sourcing survey, and the following aspects are suggested in making a survey

1. It is suggested for the sourcing manager to frame a parameter sheet. A parameter sheet will contain all the key parameters that must be evaluated for each and every company surveyed. The parameter sheet shall be initially filled with the decided limits for those chosen parameters. For example, if a company X in Canada wants to source Christmas tree equipment from India, then the following parameters shall be included in the parameter sheet with decided quants.

Fig. 3 Typical Christmas Tree Equipment



Other parameters can also be suitably included in the parameter sheet and an economic study has to be made whether the supplier will be effective enough to cater the needs of the PO. The technical effectiveness is a measure of the quality or eminence of the supplier. This can be evaluated through a visit by sourcing inspectors to the supplier’s plant. The following parameters are suggested to evaluate the technical effectiveness of the supplier. Supplier appraisal is a major part in decision making. A suitable questionnaire shall be prepared and shall be provided to the supplier during the visit of sourcing

inspectors. The supplier appraisal shall be of two stages:

- a. Desktop Appraisal – From available data
- b. Field Visit Appraisal

Table 1: Comparison Parameters for Surveying

Parameter	Requirement
Type of Equipment	Christmas Tree Equipment
Manufacturing / Procurement product	Manufacturing (Customized)
Procurement Standards	API 6A / ISO 10423
Applicability	Petroleum Drilling
Drilling Depth	6000 m
Rig Type	AC Electric Trailer Rig
Tractor Hoist Type	Wheeled Tractor Hoist
Quantity Required	10
Purchase Order Lead Time	4 weeks
Net Price per quantity of the product	Rs. 4,50,000
Net Price per quantity of the product willing to be accepted by PO	Rs. 5,00,000
Technical effectiveness of the supplier (On a scale of 10)	08 (Example)

2. Desktop appraisals shall be made by the sourcing manager and shall be made from available resources about the industry. Strictly speaking, this is spying on the supplier without their knowledge (legally). Information shall be collected about the various products that the supplier produces, economic scenario of the supplier and also an overview about the technology that the supplier has. Desktop appraisal can also be made through telephonic enquiries about the supplier, both directly with the supplier and also to a third party who has knowledge about the supplier. It is suggested to go for field visit appraisal only when the supplier passes the requirements in the desktop appraisal stage. If the supplier is found not to match the requirement, then the process shall be terminated at this point.

3. The process of field visit supplier appraisal shall take in account the following factors for evaluation:

- a. The attitude of the supplier towards the work has to be evaluated. This can be evaluated by assessing the commitment of the employees towards the work order. The sourcing inspector shall visit and observe the supplier facility and shall note the engagement of various sections and the care that the employees take in completing a work.
- b. A talk with supervisors, production managers and engineers of the industry will throw an insight about the technical capability of the supplier industry. Hence the sourcing inspector employed for the purpose must possess profound communication skills. Sourcing manager must choose the right sourcing inspector to send to a particular industry. Sourcing inspectors must possess the quality of differentiating between low technical proficiency and high technical proficiency at the supplier side.
- c. It is suggested that the sourcing manager shall at times visit the supplier’s facility for appraisal. In doing so, the sourcing manager shall examine the process of the industry. Sourcing managers are to have a higher technical proficiency and technical decision making skills more than sourcing inspectors. Hence it is advised that the production process appraisal is done by the sourcing manager. Sourcing manager in that case will examine the various in-house quality assessments done, cleaner production methods employed, work culture of the industry and various methods that are adopted to control quality. Sourcing manager shall observe how frequent quality tests are being done, various statistical quality control methods adopted.
- 4. It is suggested that the sourcing manager make clear the observations that has to be made by the sourcing inspector and the observation that the manager has to make. The sourcing manager shall hold discussion with his sourcing inspector team prior to the supplier visit on what to and what not to. It is suggested that during the appraisal, the sourcing inspectors shall take care of the questionnaire preparation (in consultation with sourcing manager). It is suggested to prepare two different questionnaires, one shall be

filled from the suppliers' side and one shall be filled by the sourcing inspector, based on the facility observation by the sourcing inspector.

5. Questionnaire for to be filled by the supplier side shall include the following aspects:
 - a. Questions shall be posed to the supplier regarding measures adopted by the industry to have an efficient supply chain management (SCM). SCM is the management of goods and products within and from the industry.
 - b. Questions shall be posed to evaluate the technical advancement in the industry. Questions should pertain to enquiring about the latest technology production methods available, knowledge of the supplier about the trends in technological developments in the production sector.
 - c. India is a developing nation and has industries of all economic categories. Sourcing from India must take into consideration the economic position of the industry too! Certain industries will be in a good economic situation facilitating the latest technology production methodologies and there are industries that will be developing, but will have a thrive and longing to improve. Hence the commitment of the supplier for constant improvement must be respected and cared for. Sourcing inspectors during their visit to an industry that is economically poor shall not lethargically ignore their commitment. It is small drops that make an ocean. Such industries must be motivated and the appraisal format shall be made informative too!.
 - d. Questions shall be posed to evaluate various measures that the industry has adopted to reduce the time .of order cycles.
 - e. Questions shall be provided regarding the inventory control measures that are being adopted in the industry and the strategic inventory planning measures that are being adopted.
 - f. Questions shall be posed about various statistical quality control methods employed and the applicability in the supplier side.
6. Questionnaire to be filled by the sourcing inspector shall include the following aspects:
 - a. Sourcing inspector shall frame questions to observe the facility at the supplier's side, whether the facility is modern or old-fashioned, technically. If found old-fashioned, methods employed to match the latest technological needs

shall be noted. Questions shall also be framed to observe the competition that the supplier gives to his competitors if the supplier is running with an old-fashion technical facility.

- b. The questionnaire shall be prepared incorporating questions about the capacity of the supplier. The questionnaire shall be prepared in such a way that, it makes the sourcing manager evaluate whether the capacity of the supplier will suit the order to be placed by the PO. This shall be made by the observation by the sourcing inspector. Sufficient capacity is essential to place an order.
- c. Questions on the labors operating machines have to be added. Questions on the technical skills of labors and also on the cleanliness of the labors at work place. This observation will facilitate the sourcing manager to assess the work culture of the supplier industry Questions shall also be to observe the employer-employee relationship. Employer- employee assessment will enable the sourcing manager to forecast a relationship with the supplier if the order is placed. i.e this will forecast the attitude the supplier will show over the sourcing PO.
- d. Questions shall be framed on the quality control methods being practiced. Questions are to be framed on observation on quality control practices actually practiced. Non-destructive testing methods and incoming material quality check and all other aspects have to be considered. Since the sourcing inspectors will have profound knowledge on various standards and quality operations, it will be better if the sourcing inspector does this survey.

After appraisal, the sourcing manager shall compare various options and will decide on the supplier to place the order. The decision must be made with integrity and shall not favor any undeserving candidate.

The chief goals that have be set in are:

- Expenditure occurred in sourcing
- Assurance of quality of the required by the supplier
- Technical capability and procurement time.

Hence, the sourcing manager shall make the decision on where to place the sourcing Purchase Order and shall start initiate the production process.

3.0 Role of Sourcing Managers in Quality Inspection

Quality inspection is the key process in sourcing as the sourced products must meet the required specification proposed by the PO. Valves being one of the crucial equipments that are being used, it is the role of sourcing manager to comply on such hefty issues. For example, if the same Christmas Tree Equipment as shown in Fig.3 is placed with an order with Company Y from India, then the sourcing manager has ensure that it meets the API 6A (ISO 10423) specification. To ensure that the equipment meets the specification, the sourcing manager along with the team of sourcing inspectors shall inspect the product. The following measures are suggested during inspection of valves for sourcing in India.

- a. Sourcing managers should ensure that the sourcing inspectors employed possess sufficient knowledge about valve standards. Since, sourcing is for a PO abroad, it is necessary that the product meets the required specifications. Ensure that the sourcing inspector possesses knowledge about the following standards in Table 2.

Table 2: Important Valve Standards

API / ASME Standards	ISO Standards	Description
API 526		Flanged Steel Pressure-relief Valve
API 527		Seat Tightness of Pressure Relief Valves
API 528		Standard For Safety Relief Valve Nameplate Nomenclature
API RP 574		Inspection Practices for Piping System Components
API RP 576		Inspection of Pressure-Relieving Devices
API 529		Cast - forged Steel plug valves flanged ends
API 591		Process Valve Qualification Procedure
API 594		Check Valves: Flanged, Lug, Wafer, and Butt-welding
API 595		Cast-Iron Gate Valves, Flanged Ends

API 597		Steel Venturi Gate Valves, Flanged And Butt-welding Ends
API 598		Valve Inspection and Testing
API 599		Metal Plug Valves— Flanged, Threaded, and Welding Ends
API 600	ISO 10434	Steel Gate Valves – Flanged and Butt welding ends, Bolted Bonnet.
API 602	ISO 15761	Gate, Globe, and Check Valves for Sizes DN 100 (NPS 4) and Smaller for the Petroleum and Natural Gas Industries
API 603		Corrosion-resistant, Bolted Bonnet Gate Valves—Flanged and Butt-welding Ends
API 604 (Withdrawn)		Ductile Iron Gate Valves, Flanged Ends
API 607	ISO 10497	Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats
API 609		Butterfly Valves: Double-flanged, Lug- and Wafer-type
API SPEC 6FA		Fire Test for Valves
API SPEC 6FC		Specification for Fire Test for Valves with Automatic Backseats
API BULL 6RS		Standardization Of Valves And Wellhead Equipment
API STD 608		Metal Ball Valves- Flanged, Threaded and Welding Ends
API 6D	ISO 14313	Specification for Pipeline Valves
API STD6D		Supplement to API 6D. Specification for Pipeline Valves.
API SPE14D		Specification for wellhead surface safety valves for offshore service
API 6A	ISO 10423	Drilling and production equipment for Wellhead and christmas tree equipment for Petroleum and natural gas industries
	ISO 5208	Pressure test of metallic valves

	ISO 5209	Marking of Valves
	ISO 17292	Metal Ball Valve for petroleum and petrochemical industries
	ISO 5752	Metal Valves for Flanged Pipes
	ISO 15848-1	Qualification Procedure for Type Testing of Valves
	ISO 5996	Cast Iron Gate Valves
	ISO 15156	Materials for use in Hydrogen Sulphide containing environments in oil and natural gas industries
	ISO 12149	Bolted bonnet steel globe valves
	ISO 6002	Bolted bonnet steel gate valves
	ISO 10631	Metallic Butterfly Valves
	ISO 7121	Steel Ball Valves for general purpose applications
	ISO 7259	Predominantly Key-Operated Cast Iron Gate Valves For Underground Use
	ISO 683	Heat-treated steels, alloy steels and free-cutting steels
	ISO 4401	Four-port directional control valves and Mounting Surfaces
	ISO 9393	Pressure test methods and requirements of Thermoplastic Valves
ASME F1565		Standard Specification for Pressure-Reducing Valves for Steam Service Application
ASME B16.5		Pipe Flanges And Flanged Fittings
ASME B16.10		Dimensions of Valves
ASME B16.11		Forged Fittings, Socket-Welding and Threaded
ASME 16.25		Butt welding ends
ASME 16.34		Flanged, Butt-welded, Threaded Valves
ASME F1794		Hand-Operated Globe Valves and hydraulic systems
ASME F992		Specification for Valve

		Label Plate
ASME F993		Specification for Valve Locking Devices
ASME F1020		Specification for Line Blind Valves for Marine Applications

b. The sourcing manager is suggested to frame a valve inspection plan shall be prepared in discussion with the sourcing inspectors. A 14 step procedure is suggested for effective quality assurance during valve test:

- Step 01:** Team Discussion and verification of drawing sheets
- Step 02:** Verification of WPS and PQR Documents, NDT Documents, PWHT Documents and Material Test Certificate.
- Step 03:** API 598 based Closure Tests, Shell Test and Back-seat Test
- Step 04:** Visual and Dimensional Inspection of Casting
- Step 05:** Initiation of casting repair methodology
- Step 06:** NDE Tests
- Step 07:** Visual and Dimensional Inspection of Valve Assembly
- Step 08:** Valve Functional Tests and Pressure Tests (API 598 based)
- Step 09:** Painting Inspection
- Step 10:** Final Dimension Inspection
- Step 11:** Non-conformity report
- Step 12:** Packing and Loading Inspection
- Step 13:** Shipping document verification and approvals
- Step 14:** Follow-up with PO regarding unloading and Incoming QC

c. API 598 can be termed “The Bible” for sourcing engineers and inspectors as it provides guidelines for valve testing and inspection. This valve standard API 598 is applicable to Gate Valve, Globe Valve, Plug Valve, Check Valve, Floating Ball Valve, Butterfly and Trunnion Mounted Ball [1] and major tests such as Shell Test, Backseat Test, Low Pressure and High Pressure Closure Tests, Casting Visual Examination and High Pressure Pneumatic Shell Tests have been specified in this standard. Hence it is suggested for sourcing managers to comply with the standard as close as possible.

4.0 Suggestions to Sourcing Managers in Recruiting Sourcing Inspectors and Expeditors

1. In recruiting sourcing inspector and expeditor, a sourcing manager must pay attention to both the attitude and the technical skill of the person to be hired. A single stage interview will be sufficient to hire sourcing inspectors and expeditors. Sourcing manager shall not waste time in conducting a written test for the candidate who have opted for the job.
2. During interview for sourcing inspector selection, the sourcing manager shall start questions that would reflect the managing capability of the candidate. Candidates who are attending interview for the post of expeditor shall be posed a larger number of questions testing the managerial skill, than those who have applied for sourcing inspector post.
3. Evaluating a candidate for sourcing inspectors and sourcing expeditors shall be divided into the following categories:
 - Evaluation of Problem Solving Capability
 - Evaluation of Technical Effectiveness
 - Evaluation of Multi-tasking
 - Evaluation of Attitude and Corporate Culture
4. Problem solving capability is mandatory for sourcing expeditors and inspector. To test this, the candidate who attends the interview shall be posed with a mock-situation and shall be made to express his/her views in handling the situation. The way the person answers will give an insight about the problem solving capability of the candidate. It is preferred to provide a real-time situation to the candidate and observe his effectiveness in problem solving. It is preferred to hire candidate who give a practical explanation than those who talk ideally. Sourcing manager must observe whether the explanation provided by the candidates conforms to the work-ethics of the PO. Some candidate give selfish explanations some provide ideal or legal explanation and some provide irrelevant explanations. Such candidates must not be preferred for selection. Candidates must be checked for a vibrant and energetic problem solving capability.
5. Technical effectiveness shall be evaluated by posing questions from Quality Control, Instruments for Quality Assurance, Policies and

- Standards. Questions asked in interview shall be application oriented and specific. Generalized questions shall be avoided. If necessary questions shall be posted on current projects of PO or recent developments in QC and QA.
6. Multi-tasking is an important skill that every sourcing inspector and expeditor should perform. The sourcing inspectors and expeditors must monitor sourcing in more than one company simultaneously. India being a very vast country, candidates who apply for the job must be ready to travel miles and miles from one company to another. Hence it is mandatory that the candidate is checked for multi-tasking skills.
 7. Corporate culture is a language that every engineer must possess. Sourcing expeditors and inspectors do visit a lot of companies and they must take care that they comply with corporate culture. Some of the key behavioral aspects that a sourcing inspector or expeditor needs to maintain during visit to other companies are:
 - Inspectors/Expeditors during their visit must never criticize the employees of the visited company to their employers.
 - In case of any negative situation, Inspectors and Expeditors must not express their anger openly. They must behave sensible, patient and must hold their anger back.
 - Sourcing Inspectors and expeditors must be careful in what they say. They must be trained not to get into trouble with unnecessary words.
 - Sourcing Inspectors and expeditor must never use dishonest scales. This will affect the integrity of the PO as well.
 - Inspectors and expeditors must never use alcohol during their visit. Alcohol is for people who are dying and for those who are in misery.
 - As iron sharpens iron, sourcing inspectors and expeditors, who visit sourcing companies must learn from one another. They must not remain stubborn inspectors must remember that any insincere talk that hides what they when corrected.
 - Finally expeditors and really think is like glaze on a low quality clay pot

Hence, sourcing inspectors, must keep in mind the above aspects that a sourcing inspector should

follow and hence must pose questions in the interview such that they would comply with these aspects.

5.0 Conclusions

Sourcing is a land of opportunities. Most companies that do not have a procurement office in India, set up a local sourcing office and they employ native Sourcing Managers. Sourcing managers are hard-working people who hardly have weekend-offs and strive hard to maintain the sourcing quality between the local supplier and the PO. They never hesitate to travel throughout India. They miss their family, friends and travel long distances, eat what they get at places, yet meet the suppliers with a clear smile. Sourcing managers in India will have to deal with suppliers of diverse practices, India being a land of different cultures and different languages. Many sourcing manager never avail summer vacations, they work all months, grow with the PO, just for achieving their position objectives. The authors request all industries to treat well all Sourcing Managers, Sourcing Inspectors and Sourcing Expeditors who visit their companies for business activities. Not all can possess the qualities of a sourcing manager and not all can live the life of a Sourcing Manager.

The authors salute all Sourcing Managers, Sourcing Inspectors and Sourcing Expeditors who work in India for Valve sourcing for overseas companies.

Nomenclature

1. API – American Petroleum Institute
2. ASME – American Society of Mechanical Engineers
3. ISO – International Organization for Standardization
4. WPS – Welding Procedure Specification
5. PQR- Procedure Qualification Record
6. NDT- Nondestructive testing
7. PWHT- Post Weld Heat Treatment
8. NDE- Non Destructive Evaluation
9. QC – Quality Control
10. QA- Quality Assurance

References

- [1] American Petroleum Institute (API) 598 Standards
- [2] API, ISO, ASME Standards