

# **Management of Suppliers' Performance in BWDB: An Evaluation**

Dissertation submitted in partial fulfillment of the  
requirements for the degree of  
Masters in Procurement and Supply Management

Submitted by:

Md. Rakibul Hasan  
MPSM, Batch: 07  
Semester: Fall 2014  
ID-14282045

Masters in Procurement and Supply Management



BRAC Institute of Governance and Development,  
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December, 2014

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Supervised by

Dr. Nazrul Islam  
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Masters in Procurement and Supply Management



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BRAC University

December, 2014

## **DECLARATION**

It is hereby declared that I am the sole author of this dissertation. It is also declared that this dissertation or any part of it has not been submitted elsewhere for the award of any degree or diploma.

December, 2014

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**Md. Rakibul Hasan**

## **CERTIFICATE**

This is my pleasure to certify that the dissertation entitled “Management of Suppliers’ Performance in BWDB: An Evaluation” is the original work of Md. Rakibul Hasan that is completed under my direct guidance and supervision. So far I know, the dissertation is an individual achievement of the candidate’s own efforts, and it is not a conjoint work. I also certify that I have gone through the draft and final version of the dissertation and found it satisfactory for submission to BRAC Institute of Governance and Development (BIGD), BRAC University in partial fulfillment of the requirements for the degree of Masters in Procurement and Supply Management.

December, 2014

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## **ABSTRACT**

Bangladesh Water Development Board (BWDB) mainly implements river bank protection, flood control, drainage and irrigation projects. BWDB has completed many water management related projects and it has around 54 ongoing ADP included projects in this year 2014-15 where there are many suppliers/contractors performing in those projects. Supplier performance management will play a vital role to complete those projects successfully within time frame and budget allocation.

This dissertation focuses on the supplier performance management in BWDB. The objective of this dissertation is to identify the current practices of supplier performance management and performance shortfalls as well as to suggest ways of improvement in supplier performance.

This is an exploratory research that uses case study method. Primary data (qualitative) has been collected from respondents both engineers and suppliers of BWDB working in selected projects through questionnaire survey and interviews. Secondary data (quantitative) has been collected from BWDB website. From the analysis of the both qualitative and quantitative data the major reasons behind the shortfalls in supplier's performance have been identified and suggestions about improving supplier performance have been congregated.

It has been found that only 13% projects are completed in due time and 67% projects need two to three years extension to be accomplished. This is happening due to mainly insufficient budget allocation in the projects by the government. Two to three years delay occurs in 66% projects to get budget allocated in the original DPP. Due to financial insolvency of suppliers they can't start project in due time or even can't accomplish project within given time period. Again suppliers have technical shortfalls like lack of machinery, equipment and manpower. Sometimes it is found that there are no weight measuring scale, sieve, sufficient sewing machine, generator, cc block formwork and labor. Although suppliers show graduate engineers in their manpower list while contracting but practically even no diploma engineers are found in the work site. Moreover, due to lack of supervision by concerned official, contractors often take the chance to deteriorate quality of work. They change the concrete mixture ratio in cc block manufacturing and change thickness of filter material above which cc blocks are laid down in the slope of the river bank.

To improve suppliers' performance sufficient yearly budget allocation as well as quarterly fund release according to original DPP should be done by BWDB. If it is impossible to allocate sufficient yearly budget, suppliers should be allowed to take loan from state owned bank against their work/supply order at low interest rate in compared with private bank. Moreover, the existence of equipment, machinery and manpower according to suppliers' submitted list should be specially checked and verified through visiting suppliers' premises to ensure the technical capability of suppliers while selecting them. Finally, the concerned engineer may motivate supplier through the both approach of motivation i.e. the carrot approach (eg giving recognition and rewards: inclusion on the preferred supplier list, certificate of excellence which will increase the goodwill of the supplier in the market) and the stick approach (eg publicizing debarred/black list for unsuccessful supplier, giving exemplary punishment, including penalty clauses in contract).

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## LIST OF ABBREVIATIONS

ADP	Annual Development Program
BPR	Business Process Re-engineering
BS	British Standard
BUET	Bangladesh University of Engineering and Technology
BWDB	Bangladesh Water Development Board
CC	Cement Concrete
CCTF	Climate Change Trust Fund
CIPS	Chartered Institute of Procurement and Supply
CSFs	Critical Success Factors
DPP	Development Project Proposal
EDI	Electronic Data Interchange
ESI	Early Supplier Involvement
FCI	Flood Control and Irrigation
FM	Fineness Modulus
Geo	Geo-textile
ICT	Information and Communication Technology
IMED	Implementation Monitoring Evaluation Division
JIT	Just In Time
KPIs	Key Performance Indicators
MoP	Ministry of Planning
MoWR	Ministry of Water Resources
O&M	Operation and Maintenance
PPR	Public Procurement Rules
QC	Quality Control
QMS	Quality Management System
RBP	River Bank Protection
R&D	Research and Development
SBS	Supplier Balanced Scorecard
SD	Supplier Development
SLAs	Service Level Agreements
TQM	Total Quality Management
TRBP	Temporary River Bank Protection

# CHAPTER 1: INTRODUCTION

## 1.1 Background of the study

After recurrence devastating flood of 1954 and 1955 Crug Mission was formed in 1957 under United Nations (UN) to boost up food productivity by minimizing flood damage and water resources development & management in this region. As per mission's recommendations, Bangladesh Water Development Board (BWDB) started its operation in 1959 as the water wing of the erstwhile 'East Pakistan Water and Power Development Authority' in 1959. As the principal agency of the government for managing water resources of the country it was given the responsibility of accomplishing the tasks of executing flood control, drainage and irrigation projects to increase productivity in agriculture and fisheries.

BWDB has completed many projects which mainly include Teesta Barrage Project, Meghna-Dhonagoda Irrigation Project, Jamuna-Megna River Erosion Mitigation Project, Muhuri irrigation Project, Monu River Project, Karnaphuli Irrigation Project etc. BWDB has around 54 ongoing ADP included projects in the year 2014-15. There are many suppliers/contractors performing in those projects.

Supplier performance management will play a vital role to complete those projects successfully within time frame and budget allocation. Supplier performance management embraces mainly supplier performance measures, appraising supplier performance, benchmarking and supplier balanced scorecards, quality management and improvement, supplier development and supplier motivation. The process of supplier performance measurement includes firstly, the formulation of performance measures and standards (Key Performance Indicators or KPIs) for suppliers; secondly, methods of monitoring, reviewing and evaluating supplier performance; and thirdly, particular techniques including benchmarking and scorecards. The process of supplier performance management and improvement focuses on quality management and improvement. Supplier development comprises a range of approaches to enhance the capacity, capability and performance of suppliers.

## 1.2 Research objectives

- To identify the current practices of supplier performance management and performance shortfalls
- To suggest ways of improvement in supplier performance.

### 1.3 Research questions

- Does current practices of supplier performance management meet performance requirement?
- What are the reasons behind supplier performance shortfall?
- What are the ways to improve supplier performance?

### 1.4 Significance of the research

Now-a-days the main function of BWDB is to protect river bank from erosion of mainly The Padma, The Meghna and The Jamuna rivers. It has been observed that many projects delay to start as well as time extension needed to accomplish. Due to the delay of the projects huge land area gets eroded and lost in the midst of the river; people become homeless, landless. Again due to the delay in the project start and completion it requires re-design of the projects wasting time and endeavor; materials price rises which demand re-allocation of extra budget. It has also been observed that some projects fail/wash away partially during or after a few months of construction due to poor supplier/contractor performance.

**Figure 1.1** *River bank erosion at Sirajganj*



Huge amount of money gets wasted in every year due to delay and/or poor supplier's/contractor's performance in project completion. This research will try to identify current problems in supplier performance management and will suggest the ways of improvement so that wastage of public money can be reduced through better supplier performance management.

## 1.5 Methodology

This study is an exploratory one and would use both qualitative and quantitative data. The study adopts a purposive sampling technique to attain the research objective. The study would depend on both primary and secondary sources for necessary data and information. I have visited many projects of BWDB situated in different districts of Bangladesh and talked to many suppliers, stakeholders about problems regarding the smooth and timely completion of the projects. Primary data (qualitative) has been collected from 45 respondents (12 Executive Engineers, 15 Sub-divisional Engineers, 3 QC Engineers and 15 Contractors/Suppliers of BWDB) working in those projects through questionnaire survey and interviews. On the other hand, secondary data (quantitative) has been sourced from BWDB website, internet, printed and unprinted materials.

## 1.6 Limitations/Scopes

This study will have core intention on supplier performance management in BWDB solely. It will focus on some selected projects and their respective offices/O&M Divisions of BWDB and will not cover all projects.

## 1.7 Thesis outline

The report will comprise of five chapters.

Chapter one: **Introduction**-This chapter will include background, rationale, problem statement, objective, scope, limitation, assumptions of the dissertation.

Chapter two: **Literature review**-This chapter deals with existing literatures on the supplier performance management as well as the conceptual framework of this dissertation.

Chapter three: **Methodology**-This chapter primarily focuses on the method(s) of data collection. This chapter presents the methodology applied for collecting and processing data.

Chapter four: **Results/Analysis**-This chapter will deal with analysis of collected data and its findings and discussion for interpretation of analyzed data.

Chapter five: **Conclusions/Recommendations**-Based on data analysis and discussion, this chapter will come up with conclusion and some recommendations regarding the improvement in supplier performance in BWDB.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Supplier performance management**

A supplier or contractor of an organization is he who gives supply of something to it or implements a project for that organization. It is desirable for every supplier /contractor to complete their work with good performance level. Supplier performance management embraces mainly supplier performance measures, appraising supplier performance, benchmarking and supplier balanced scorecards, quality management and improvement, supplier development and supplier motivation.

### **2.2 Selection of supplier/contractor**

Supplier performance primarily depends on proper selection of capable supplier both in technically and financially. Buyers have historically given high priority to identifying and evaluating potential suppliers, while paying less attention to the management of supplier relations and performance once contracts have been awarded.

#### **2.2.1 Selection of financially capable supplier**

The assessment of a supplier's financial position is often a very straightforward exercise, and should therefore be undertaken at an early stage. If there are doubts about financial stability, the supplier can then be eliminated from consideration without the need for more elaborate appraisal.

Financial status and stability are measured by factors such as the supplier's profitability, its cash flow position (whether it has working funds to pay its bills, buy materials and pay workers), the assets it owns, the debits it owes, how its costs are structured and allocated, and so its overall financial 'health'.

These factors will reflect on the ability of the supplier to fulfill the current contract with the buyer-and to maintain secure flows of supply for the future. They may raise the risk of delivery or quality problems-and more drastic disruption to supply (and complex legal issues) if the supplier's business becomes insolvent (a scenario called 'supplier failure'). They will also impact on the prices the supplier will be able to charge the buyer, and their ability to pass on cost efficiencies to the buyer.



Dobler and Burt cite three typical nightmare scenarios that can arise if dealing with a financially weak supplier.

- Buyer needs to insist on maintaining quality, but the supplier is forced to cut costs
- Buyer has a financial claim against the supplier, but he does not have sufficient working capital to meet it
- Buyer needs to insist on speedy delivery to meet a promised delivery date, but the supplier cannot afford to pay overtime.

Lysons and Farrington cite a document by the UK Department of Trade and Industry (*Sourcing and supplier appraisal*), which recommends arrange of financial checks when sourcing suppliers and evaluating trends.

- The assessed turnover (total revenue) of the supplier enterprise, over a three-year period
- The profitability of the enterprise, and the relationship between its gross and net profits (highlighting cost efficiency), over a three-year period
- The value of capital assets, return on capital assets and return on capital employed (indicating the efficiency with which the enterprise utilizes its assets and capital resources)
- Whether or not the organization has sufficient resources and capacity to fulfill the order.

### **2.2.2 Selection of technically competent supplier**

Production capacity and technical competency refer to factors in the supplier's operational capacity and facilities, which acts as indicators of its ability to fulfill the buyer's current and future requirements. Technical or operational capability factors include:

- Whether the supplier produces (or can produce) the kinds of items, or deliver the kinds of services required
- How much volume the supplier will be able to handle, and how many units it can produce within a stated time period
- What capabilities and manpower the supplier has in operational areas such engineering, design and so on
- Whether the supplier has the capability to respond swiftly and flexibly to urgent or additional requirements
- What type of plant and machinery it has and whether it is capable of producing items within the tolerances set by the buyer's specification

- How old and how well maintained the plant and machinery is, reflecting the risk of production ‘down time’ if machinery breaks down or wears out.

The term ‘production capacity’ refers to how much volume the supplier will be able to handle, and how many units it can produce within a stated time period. Production capacity will be evaluated taking into account a range of factors including:

- Maximum productive capacity in a given working period
- Whether capacity is currently over-committed (in which case the supplier may not be able to accept additional work, or may be unreliable in estimating lead times) or under-committed (possibly raising doubts about its quality or efficiency, risks of deterioration or obsolescence of its stocks and so on)
- Potential to increase existing capacity if required by future demand (eg by acquiring additional plant, increasing shifts or overtime, subcontracting and so on)- and the supplier’s willingness to do this.

The supplier’s development of, and adherence to, efficient systems and procedures for operation may embrace a number of criteria.

- *Compatibility* of the supplier’s systems and procedures with those of the buyer (or its ability and willingness to adopt to the buyer’s requirements)
- *Willingness to comply* with any procedures, rules or systems specified by the buyer
- *Quality management systems*: the supplier’s standards accreditation (if any); its quality management methods (ideally based on quality assurance, not just quality control).

## **2.3 Supplier performance measurement**

Supplier performance measurement is the comparison of a supplier’s current performance against:

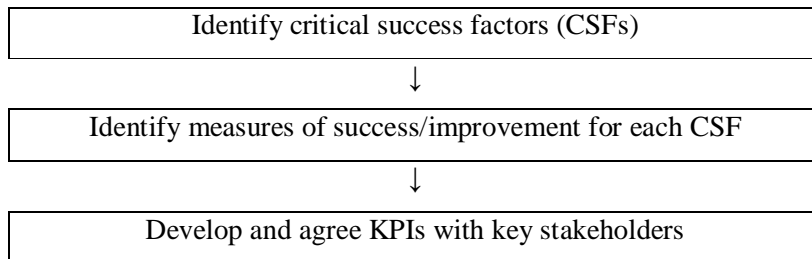
- Defined performance criteria (such as KPIs or service level agreements), to establish whether the aimed-for or agreed level of performance has been achieved
- Previous performance, to identify deterioration or improvement trends
- The performance of other organizations (suppliers, purchasing functions) or standard benchmarks, to identify areas where performance falls short of best practice or the practice of the competitors, and where there is therefore room for improvement.

Performance measurement is important because it supports the planning and control of operations and relationship: it is often said that ‘what gets measured, gets managed’. It is intended to lead to performance improvement and supplier development, by identifying areas in which suppliers’ current performance falls short of desired, competitive or best-practice levels. It is an important tool for communicating with stakeholders about their part in supply chain performance, and how they are doing: performance measures, such as KPIs, can be used to manage, motivate and reward individuals, teams and suppliers.

### 2.3.1 Formulation of performance measures and standards (KPIs)

There are a number of different approaches to setting performance targets and measures, and we will briefly outline some of the main ones here. We begin with key performance indicators. KPIs are clear qualitative or quantitative objectives which define adequate performance in key areas (or critical success factors), and against which progress and performance can be measured. The process of developing KPIs can be summarized as follows: Figure 2.1.

**Figure 2.1** *Developing key performance indicators*



The point about KPIs is that they state performance goes in a way that is capable of direct, detailed, consistent measurement at operational level, using available data collection systems. Where possible, such goes will be quantitative: that is, numerical or statistical. They may, for example, be expressed in terms of cost (eg cost per service delivery, amount of cost savings), time (eg hours per service delivery), quantity of outputs (eg offices cleaned per hour, number of deliveries made on-time-in-full, number of cost reduction initiative proposed) or other statistics (eg the proportion or ratio of deliveries made on-time-in-full, or the number of user complaints per review period).

Some targets, however, will be more qualitative: that is, subjective and pertaining to qualities or attributes that can not readily be quantified. For example, someone may want to evaluate user satisfaction, the effectiveness of the supplier’s account management, its flexibility and

responsiveness or commitment to quality, or the professionalism of purchasing staff. Even so, KPIs in this areas should be expressed as quantitatively as possible: the proportion of services rated satisfactory or non-satisfactory by users; the degree of satisfaction expressed by users (eg using rates scales or points scores); the proportion of requests and proposals responded to, and how quickly; scores on commitment to quality obtained via attitude surveys; number of 'critical incidence' illustrating professional or non-professional conduct; and so on.

KPI can be set in terms of specification also. A specification is simply a statement of the requirements to be satisfied in the supply of a product or service. There are two types of specification: conformance and performance. In **conformance specification**, the buyer details exactly what the required product, part or material must consist of. In **performance specification**, the buyer describes what it expects the supplied item to be able to achieve, in terms of the functions it will perform and the level of performance it should reach.

Some of the benefits of using KPIs as performance measure are as follows.

- Increased and improved (results-focused) communication on performance issues
- Motivation to achieve or better the specified performance level (particularly with KPI-linked incentives, rewards or penalties). Motivation is in any case stronger where there are clear targets to aim for
- Support for collaborative buyer-supplier relations, by enabling integrated or two-way performance measurement (with KPIs on both sides of the relationships)
- The ability directly to compare year on year performance, to identify improvement or deterioration trends
- Focus on key results areas (CSFs) such as cost reduction and quality improvement
- Clearly defined shared goals, facilitating cross-functional teamwork and relationships
- Reduced conflict arising from causes such as goal confusion and unclear expectations.

Setting KPIs for supplier performance, in particular, may be beneficial in the following areas.

- Setting clear performance criteria and expectations: motivating compliance and improvement
- Managing supply risk: controlling quality, delivery, value for money and so on
- Supporting contract management (to ensure that agreed benefits are obtained)
- Identifying high-performing suppliers for inclusion on approved or preferred supplier lists (which in turn supports efficient buying by user departments)

- Identifying high-performing suppliers with potential for closer partnership relations
- Providing feedback for learning and continuous improvement in the buyer-supplier relationship-both for the supplier, and for the purchasing department.

It is worth noting that KPIs can have some disadvantages as well. The pursuit of individual KPIs can lead to some dysfunctional or sub-optimal behavior: cutting corner on quality or service to achieve productivity or time targets, say, or units focusing on their own targets at the expense of cross-functional collaboration and co-ordination. Targets will have to be carefully set with these potential problems in mind.

### **Examples of supplier performance measures**

There are a number of critical success factors in supplier's performance that a buyer may want to evaluate, and a range of KPIs can be selected for each. For a general supply contract, however, sample CSFs and KPIs are suggested in Table 2.1.

**Table 2.1** *General KPIs for supplier performance*

SUCCESS FACTORS	SAMPLE KPIs
Price	<ul style="list-style-type: none"> <li>• Basic purchase price (and/or price compared with other supplier)</li> <li>• Value or percentage cost reductions (and/or number of cost reduction initiatives proposed and implemented)</li> </ul>
Quality and compliance	<ul style="list-style-type: none"> <li>• Reject, error or wastage rates (or service failures)</li> <li>• Number of user complaints</li> <li>• Adherence to quality standards (eg ISO 9000) and/or environmental and ethical standards and policies</li> </ul>
Delivery	<ul style="list-style-type: none"> <li>• Frequency of late, incorrect or incomplete delivery</li> <li>• Percentage of on time in full-OTIF-deliveries</li> </ul>
Service /relationship	<ul style="list-style-type: none"> <li>• Competence, congeniality and co-operation of account managers</li> <li>• Promptness in dealing with enquiries and problems</li> <li>• Adherence to agreements on after-sales service</li> </ul>
Financial stability	<ul style="list-style-type: none"> <li>• Ability to meet financial commitments and claims</li> <li>• Ability to maintain quality and delivery</li> </ul>
Innovation capability	<ul style="list-style-type: none"> <li>• Number of innovations proposed or implemented (and/or investment in R&amp;D)</li> <li>• Willingness to collaborate in cross-organizational innovation teams</li> </ul>
Technology leverage and compatibility	<ul style="list-style-type: none"> <li>• Proportion of transactions carried out electronically</li> <li>• Number of technology breakdowns</li> </ul>
Overall performance	<ul style="list-style-type: none"> <li>• Benchmarking against other suppliers</li> <li>• Commitment to continuous improvement (eg number of suggestions proposed and implemented)</li> </ul>

**Performance measures for services**

Lysons suggests that service levels should be:

- Reasonable (since unnecessarily high service levels may incur higher costs, and may focus service providers' attention on targets to the detriment of overall service)

- Prioritized by the user (eg as 'most important', 'important' or 'less important')
- Easily monitored (using specific, observable and quantifiable measures)
- Stated in a way that is readily understood by both user-side and provider-side staff.

General performance criteria for service levels have been developed as part of an assessment tool called *SERVQUAL* (Zeithaml, Parasuraman & Berry).

- *Tangibles*: appearance of physical facilities, equipment, personnel, communications. For example: does the service provider have smartly-dressed staff and well-maintained equipment? Is its feedback documentation user-friendly?
- *Reliability*: ability to perform the promised service dependably and accurately. For example: is the service always delivered to specification, on time, within budget?
- *Responsiveness*: willingness to help users and provide prompt service. For example: does service staff respond positively to urgent or non-routine requests?
- *Assurance*: user confidence in the service provider, based on demonstrated competence, courtesy, credibility and security
- *Empathy*: user confidence that the service provider will identify with the user's needs and expectations in relation to ease of access, communication and co-operation.

More specifically, key performance indicators (KPIs) can be drawn up to suit the needs of a particular service contract. Using the example of a cleaning service, for example, there might be KPIs covering areas such as the following.

- Time taken to complete designated cleaning tasks
- Thoroughness of cleaning (perhaps specified as amount of dust or number of stains identified in spot checks, or proportion of litter bins left un-emptied)
- Number of re-cleans (or user complaints or requests for re-cleans)
- User satisfaction with overall cleaning service (eg on the basis of feedback reports, or specified as number of complaints, or proportion of complaints to approvals).

Note that it is not wise to want too many KPIs: only those that are indicative measures of performance in areas necessary to achieve critical success factors. Otherwise, it will be too complicated and costly to monitor and measure performance.

## 2.3.2 Methods of monitoring, reviewing and evaluating supplier performance

### Appraising supplier performance

Supplier performance appraisal (or vendor rating) can:

- Help identify the highest-quality and best-performing suppliers: assisting decision-making regarding: (a) which suppliers should get specific orders; (b) when a supplier should be retained or removed from a preferred or approved list; (c) which suppliers show potential for more strategic partnership relationships; and (d) how to distribute the spend for an item among several suppliers to manage risk
- Suggest how relationships with suppliers can (or need to be) enhanced to improve their performance
- Help ensure that suppliers live up to what was promised in their contracts
- Provide suppliers with an incentive to maintain and improve performance levels
- Significantly improve supplier performance, by identifying problems which can be tracked and fixed, or areas in which support and development is needed.

### Performance monitoring and review

Performance monitoring (checking progress and performance against defined key performance indicators or KPIs) and review (looking back at performance over a given planning period) may be carried out in various ways.

- *Continuous monitoring* may be possible in some contexts: electronic monitoring tools, for example, allow variance or exception reports to be produced whenever results (eg productivity, costs or on-time-in-full deliveries) deviate from plan, within defined parameters or tolerances
- More generally, performance may be monitored at key stages of a process, project or contract: for example, at the end of project stages, or production or delivery deadlines
- *Periodic reviews* are often used: examining results against defined measures or targets at regular and fixed intervals. The purpose of such reviews is generally 'formative': supplying feedback information while it is still relevant for the adjustment of performance or plans. So, for example, a buyer may sample a supplier's process outputs periodically, to check quality and conformance to specification. Buyer-side and supplier-side teams may meet periodically to discuss any issues in contract performance
- *Post-completion reviews* are often used for projects and contracts, with the purpose of exchanging feedback and learning any lessons for the future.



There is a wide range of feedback mechanisms for gathering data on supplier performance, and comparing them against relevant performance measures. Which mechanism is used will depend on what kind of quantitative or qualitative data is required, and what aspect of performance is being evaluated. Here are some examples.

- The gathering of feedback from internal and external users and other stakeholders, using feedback groups, complaint procedures, survey questionnaires and project reviews
- The gathering of performance information through observation, testing (eg quality inspections)
- Regular meetings between buyer and supplier representatives (or project or account managers) to review general progress, or specific issues such as rates or delivery problems, and exchange feedback on 'how things are going'
- Project management: reports and meetings at the end of key project stages or milestones; periodic 'highlight' reports by the project manager; and post-completion review and reporting, with the aim of extracting learning for the next project
- The use of consultants to monitor compliance with quality standards, benchmarks or ethical standards (eg monitoring overseas suppliers' treatment of their workforces)
- The use of technical specialists to monitor supplier performance (eg on construction or IT projects) beyond the expertise of purchasers.

## Vendor rating

Systematic post-contract performance appraisal and evaluation is often referred to as 'vendor rating': a vendor being a person or organization that currently sells you something, and rating being a way of evaluating or 'scoring' performance. Vendor rating is the measurement of supplier performance using agreed criteria or KPIs.

One common approach to vendor rating is based on the use of a supplier performance evaluation form: a checklist of key performance factors, against which purchasers assess the supplier's performance as good, satisfactory or unsatisfactory. A weighting is applied to each factor, so that the supplier's performance in key performance areas, and overall, can be summarized as good, satisfactory or unsatisfactory. This is comparatively easy to implement, once meaningful checklists have been developed, but it is fairly broad and subjective.

Another approach is the *factor rating method*, which gives a quantified, numerical score for each key assessment factor. For example, the measure of quality performance might be '100% *minus* percentage of rejects in total deliveries': a supplier whose deliveries contained 3% rejects would score 97% or 0.97 on this measure. Each of the major factors is also given a *weighting*, according to its importance within overall performance, and this is applied to each score, to end up with an overall score or rating: Figure 2.2.

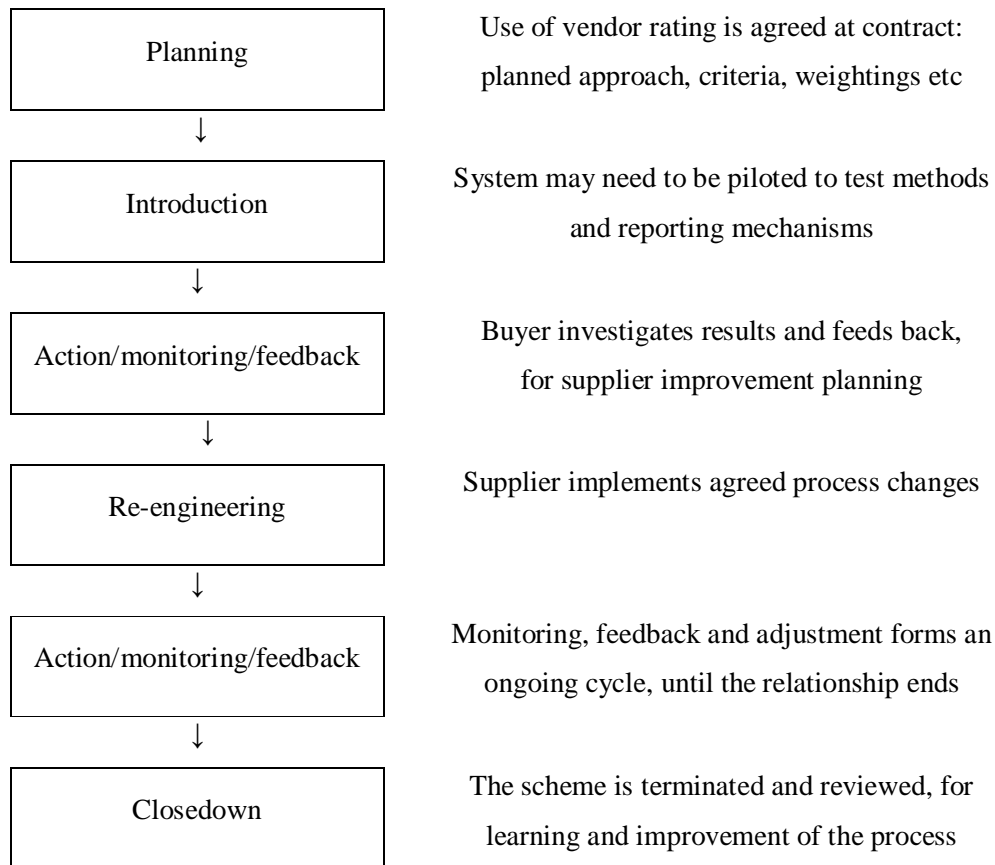
**Figure 2.2** *Factor rating method*

<i>Performance factor</i>	<i>Weighting</i>	<i>Score</i>	<i>Supplier rating</i>
Price	0.4	0.94	0.376
Quality	0.4	0.97	0.388
Delivery	<u>0.2</u>	0.72	<u>0.144</u>
Overall evaluation	<u>1.0</u>		<u>0.908</u>

The supplier in our example has achieved a rating of 0.908 out of a possible 1. This score can be compared with that achieved by other suppliers, and gives a good measure of exactly where each stands in the order of preference. It may also be used year on year, to provide a measure of whether a supplier's performance is improving or declining.

Of course, neither approach to vendor rating diagnoses the *causes* of any performance shortfalls identified, nor what needs to be done to address them. A vendor rating should therefore be seen within the whole process of performance management: Figure 2.3.

**Figure 2.3** *Vendor rating*



### 2.3.3 Benchmarking and scorecards

#### **Benchmarks**

A useful definition of benchmarking is: 'Measuring your performance against that of best-in-class companies, determining how the best-in-class achieve these performance levels and using the information as a basis for your own company's targets, strategies and implementation' (Pryor). The aim is to learn both *where* performance needs to be improved and *how* it can be improved, by comparison with excellent practitioners.

The DTI describe the process of benchmarking as follows.

*Benchmarking is the practice of comparing a company's performance against others to stimulate improvements in operating practices. It can be used across almost all of the company's departments and it can also be the comparison of departments or sites within an organization. It*

*can be used to help clarify where you stand, relative to others, in those practices which matter most in your area of business. The technique can also be used to help companies become as good as, or better than, the best in the world in the most important aspects of their operations.*

Benchmarking can be used to analyze any aspect of organizational performance, such as purchasing, stock control, user service or relationship management, so it has wide application in buyer-supplier performance measurement. Within purchasing, benchmarks may be selected for prices, inventory levels, delivery times, quality, staff training, use of e-procurement - and so on.

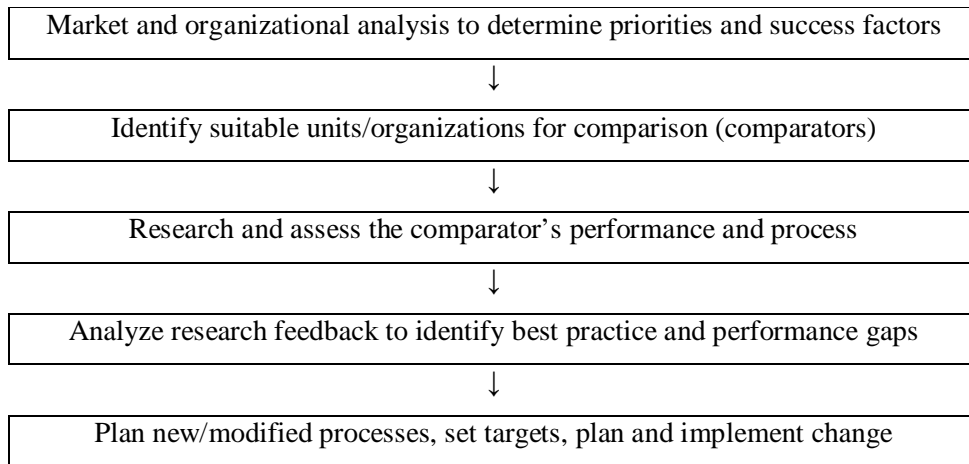
Benchmarked performance targets and quality standards are likely to be realistic (since other organizations have achieved them), yet challenging (since the benchmarking organization hasn't yet achieved them): the most effective combination for maintaining motivation. At the same time, benchmarking helpfully stimulates more research and feedback-seeking into user needs and wants, and generates new ideas and insights outside the box of the organization's accustomed ways of thinking and doing things.

Bendell, Boulter & Kelly distinguish four types of benchmarking.

- *Internal benchmarking*: comparison with high-performing units in the same organization. For example, a divisional purchasing function might be benchmarked against a higher-performing purchasing function in another division
- *Competitor benchmarking*: comparison with high-performing competitors in key areas which give them their competitive advantage
- *Functional benchmarking*: comparison with another, high-performing organization. For example, an electronics manufacturer might benchmark its purchasing against that of a construction company known for effective materials management
- *Generic benchmarking*: comparison of business processes across functional and industry boundaries. The benchmark may be set by 'excellent' companies, learning organizations, ethical leaders - or exemplars of whatever attribute the firm is interested in.

The stages in the benchmarking process are shown in Figure 2.4.

**Figure 2.4** *The benchmarking process*



Whilst benchmarking can make significant contributions to continuous improvement objectives, the following points should also be considered.

- The costs associated with benchmarking projects are somewhat variable in nature, but can be significant. Typical project costs are normally associated with meetings, visits, training, possible consultancy etc and therefore projects must be carefully managed and planned
- One of the most important requirements of a successful benchmarking project is effective communication. It is important to inform concerned parties about project progress and developments via presentations, reports, Analyzes, etc. This not only reduces confusion and conflicts, but may also trigger communication and ideas about how perceived best practice can be cascaded within the organization or supply chain.

### **Balanced scorecards**

The balanced scorecard model was developed by Kaplan & Norton, who argued that purely financial objectives and performance measures are not enough to control organizations effectively. Indeed, they tend to encourage short-term, limited thinking, because managers are judged by criteria which do not measure the long-term, complex effects of their decisions. Other parameters and perspectives are needed for more balanced performance management.

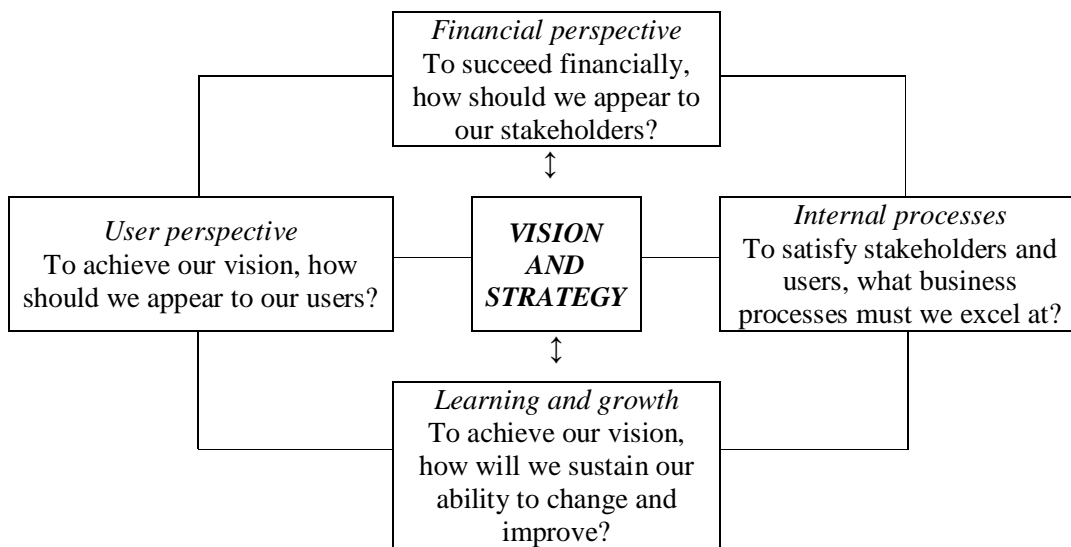
Kaplan & Norton proposed four key perspectives for a balanced scorecard, focusing on long-term 'enablers' of corporate (and supply chain) success.

- *Financial:* financial performance and the creation of value for stakeholders

- *Users*: how effectively the organization delivers value to the user, and develops mutually beneficial relationships with users and other stakeholders
- *Internal processes*: how effectively and efficiently value-adding processes are carried out throughout the supply chain
- *Innovation and learning*: the skills and knowledge required to develop distinctive competencies for future competitive advantage and growth.

This can be depicted as follows: Figure 2.5.

**Figure 2.5** *The balanced scorecard*



The 'balance' of the scorecard is thus between: financial and non-financial performance measures; short-term and long-term perspectives; and internal and external focus. This offers strong motivational potential as a spur to continuous improvement - both for internal units and within the supply chain. Linked buyer and supplier scorecards could be used to integrate strategy, performance measurement and feedback across key supply chain partnerships.

Working with a balanced scorecard requires identification and description of several factors for each perspective selected.

- The organization's long-term goals
- The critical success factors (CSFs) in achieving those goals
- The key activities which must be carried out to achieve those success factors
- The key performance indicators (KPIs) which can be used to monitor progress.

To develop KPIs from the **user perspective**, the organization must define its target users and define value from their point of view. Typical indicators may include measures such as user satisfaction.

From the **internal process** perspective, the task is to identify the key processes the organization must excel at in order to continue adding value in the eyes of users and other stakeholders. Having identified these key processes the next step is to develop the most appropriate performance measures with which to track progress. It may be necessary to consider more innovative solutions, rather than concentrating efforts and resources on incremental improvements to existing activities. All internal and external supply chain activities should be considered within this perspective.

From the **innovation and learning** perspective, the key focus initially should be on the 'enablers' that underpin business success, since people skills, knowledge and learning provide the foundations for all future development. A 'gap analysis' should be carried out to identify shortfalls between the current business infrastructure and that required to achieve future objectives. Performance measures for innovation and learning are then targeted to closing any identified 'gaps'.

From the **financial perspective**, measures should be designed to indicate the extent to which corporate and supply chain strategies, and the way they are being executed, are achieving improved bottom line results and stakeholder value.

Having defined performance criteria related to the four business perspectives, it is important not to view purely as a static list of metrics, but rather as a framework for implementing and aligning complex programs of change, that will constantly evolve over time. The strategic-level scorecard must be cascaded through the organization, and expressed in, or aligned with, functional and operational plans.

It should be noted that there are drawbacks and limitations to the balanced scorecard approach in practice. Developing and implementing the scorecard is a complex and time-consuming exercise. It will often imply radical change of management style and organization culture -for which resources and support may not be available. Commitment from senior management must be genuine and consistent to avoid 'mixed messages' (eg if lip service is paid to the balanced scorecard, but procurement is still judged mainly on its ability to reduce costs...)

## Supplier balanced scorecards

The concept of the scorecard has been extended to supplier enterprises where the associated metrics are commonly referred to as supplier balanced scorecard (SBS). In this form the metrics package is constructed to measure the ongoing supply situation. In order for the supplier to meet ongoing requirements and expectations it is vital to provide them with feedback about their performance. Indeed, many companies allow their suppliers to access this measurement analysis online via the buyer's web pages.

The models used for this SBS formulation can range from standardized models to those that are bespoke to meet the organizational needs. A typical SBS model by which supplier performance is measured is illustrated in Table 2.2.

**Table 2.2** *A supplier balanced scorecard*

<i>Factor</i>	<i>Weighting (%)</i>	<i>Points</i>	<i>Measurement criterion</i>
Quality	30	1.50	PPM (0.7), reject frequency (0.3)
Delivery	25	1.25	On-time-in-full delivery (1.0)
Support systems	15	0.75	Quality management systems, eg ISO 9000 (1.0)
Commercial	30	1.50	Cost savings (0.7), after-sales support (0.3)
Total	100	5.00	

The factors and the associated weighting used in the SBS model will vary to accommodate each business requirement. The weighting for each factor used will usually have a direct alignment with the user's strategic objectives.

Each supplier's performance is assessed in the following manner.

- For each factor, the total scores for each measurement criterion are summed (max 1.0) and multiplied by the factor weighting
- All the factor scores are summed and a score out of 5.0 is recorded
- The factor and criterion scores are formulated via conversion tables devised by the user
- The resultant final score will enable an overall supplier rating to be established for the supplier.



The resultant data from the SBS analysis, if used in positive, future-oriented and development-focused dialogue with the supplier, can be used to establish further improvement targets. Where deficiencies of performance are recorded these can be subjected to gap analysis with a view to setting action targets for improvement.

## **2.4 Supplier performance management and improvement**

### **2.4.1 Quality management and improvement**

#### **Definitions of quality**

'Quality' will mean something different for the purchase of computer equipment, engineering components, building materials, cleaning supplies, accountancy services or catering services. A buyer's definition of quality may therefore focus on a range of different dimensions.

- *Excellence*: the degree or standard of excellence of a product; the design, workmanship and attention to detail put into it; and the extent to which finished products are free from defects
- *Comparative excellence*: how favorably a product is measured against competitive benchmarks (other products), best practice or standards of excellence
- *Fitness for purpose or use*: that is, the extent to which a product does what it is designed and expected to do; or, more generally, the extent to which it meets the user's needs
- *Conformance to requirement or specification*: that is, the product matches the features, attributes, performance and standards set out in a purchase specification. Conformance therefore also implies lack of defects, and therefore reflects on the quality of the supplier's processes
- *Acceptable quality and value for money*: buyers may be willing to sacrifice some performance and features in order to pay a lower price for a product, as long as it is still fit for purpose.

For a buyer looking to appraise the quality of a supplier's products or services as part of the contract management process, the most important definitions of 'right quality' are likely to be fitness for purpose and conformance to specification. The British Standards definition of quality is: 'the totality of features and characteristics of a product or service that bear on its ability to satisfy a given need.'

Ideally, a buyer would like to transfer as much of the cost and effort of quality management as possible to the supplier. Instead of just appraising the quality of the supplier's **outputs** (which might not be a reliable measure, if based on process or output sampling at a particular moment in time), the buyer will want to be assured that the supplier *itself has* robust **systems and procedures** in place for monitoring and managing the quality of its outputs.

### **Costs of quality**

The cost of quality is defined (BS 6143) as: 'The cost of ensuring and assuring quality, as well as the loss incurred when quality is not achieved'.

- The costs of **ensuring and assuring quality** include: *prevention costs* (costs incurred to prevent or reduce defects or failures eg quality circles, specifications, costs of staff training or equipment maintenance) and *appraisal costs* (costs incurred to ascertain conformance to quality requirements eg inspection and testing costs)
- The **loss incurred when quality is not achieved** includes: *internal failure costs* (costs arising from inadequate quality *before* sale to the user eg scrap and rework costs) and *external failure costs* (costs arising from inadequate quality discovered *after* sale to the user eg complaints, warranty claims, returns and recalls, loss of goodwill and so on).

Appraisal and prevention costs can be substantial. Wouldn't it be more cost effective to spend less on such measures, and simply deal with a few defects now and then? Or won't there come a time when the benefits of improving 'that little bit more' will be outweighed by the costs of doing so? The answer generally given these days is: no. The costs of getting quality wrong may well be higher than the costs of getting it right - and the law of diminishing returns may not apply, because there will always be some benefit to improvement. Since the costs of 'getting it wrong' are generally perceived as being higher (and further-reaching) than the costs of 'getting it right', there has generally been an increased emphasis on quality management, with the aim of 'getting it right first time'.

Although someone may come across a wide variety of techniques for managing supply and supplier quality, they generally fall into two basic categories or approaches: reactive detection approaches (finding and fixing problems) such as inspection and **quality control (QC)**; and proactive prevention approaches (stopping problems at source) such as **quality assurance (QA)** and total quality management.

## Quality control

Quality control is based on the concept of **defect detection**. It embraces a range of techniques and activities used to: monitor a batch of items at each step of the supply and production process; identify items that are defective or do not meet specification; scrap or rework items that do not pass inspection; and pass acceptable items on to the next stage of the process. Various degrees of 'tolerance' may be specified: 100% inspection may be used on critical features where zero defects are required, while sampling may be used on less sensitive features.

Quality control has certain obvious limitations. A very large number of items have to be inspected to prevent defective items from reaching users. **Quality guru W Edwards Deming** argued that this ties up resources - and does not in fact improve quality. Defect tolerances may be unacceptably high due to budget and schedule pressures. The process identifies mistakes which have already incurred design, supply and processing costs: 'locking the door after the horse has bolted'. Inspection activity also tends to be duplicated at each stage of the process - magnifying the inefficiencies.

## Quality assurance

Quality assurance is a more integrated and proactive approach, based on **defect prevention**. It seeks to build quality into every stage of the process from concept and specification onwards. It includes the full range of systematic activities used within a quality management system to 'assure' or give the organization adequate confidence that items and processes will fulfill its quality requirements. In other words, quality assurance is a matter of 'building in quality' - not 'weeding out defects'.

Defect prevention systems (such as statistical process control or SPC) were proposed by Deming (*Out of the Crisis*) to identify the potential of a process for producing defective items *before* such items had in fact been produced. Operating processes are monitored and unacceptable variations in output identified as soon as they occur: corrective action is then taken immediately, preventing further defects.

Crosby (*Quality is Free*) argued that: 'a prudent company makes certain that its products and services are delivered to the user by a management system that does not condone rework, repair, waste or non-conformance of any sort. These are expensive problems. They must not only be detected and resolved at the earliest moment, they must be prevented from occurring at all.'

Quality assurance programs (and certification) may build quality measures and controls into: product designs; the drawing up of materials specifications and contracts; the evaluation and selection of quality-capable and improvement-seeking suppliers; communication and feedback mechanisms with suppliers; supplier training (where required to integrate quality systems); motivation of employees and suppliers to maintain and continually improve levels of performance.

The concept of approved supplier lists and supplier certification arises from the recognition that the quality management systems of a supplier and buyer are really part of the same process. If the buying organization can be assured that the supplier has already done all the quality control required to supply 'the right quality' inputs, it won't have to duplicate the effort by monitoring or re-inspecting everything on delivery: it can merely check, from time to time, that the supplier's quality management systems are working as they should, by sampling outputs or inspecting procedures and documentation. Integration may be as simple as getting a 'quality guarantee' from suppliers - or there may be detailed formal systems for responsibility sharing, in areas such as specification, inspection, process control, training, reporting and adjustment.

### **Quality management**

The term quality management is given to the various processes used to ensure that the right quality inputs and outputs are secured: that products and services are fit for purpose and conform to specification; and that continuous quality improvements are obtained over time. Quality management thus includes both quality control and quality assurance.

**A quality management system (QMS)** can be defined as: 'A set of co-ordinated activities to direct and control an organization in order to continually improve the effectiveness and efficiency of its performance'. The main purpose of a QMS is to define and manage processes for systematic quality assurance.

A QMS is designed to ensure that:

- An organization's users can have confidence in its ability reliably to deliver products and services which meet their needs and expectations
- The organization's quality objectives are consistently and efficiently achieved, through improved process control and reduced wastage
- Staff competence, training and morale are enhanced, through clear expectations and process requirements

- Quality gains, once achieved, are maintained over time: learning and good practices do not 'slip' for lack of documentation, adoption and consistency.

There are several British and international standards for measuring and certifying quality management systems of various types, including the ISO 9000 standard developed by the International Organization for Standardization (ISO). Organizations can use the framework to plan or evaluate their own QMS, or can seek third party assessment and accreditation.

### **Total quality management (TQM)**

The term 'total quality management' (TQM) is used to refer to a radical approach to quality management, as a business philosophy. TQM is an orientation to quality in which quality values and aspirations are applied to the management of all resources and relationships within the firm - and throughout the supply chain - in order to seek continuous improvement and excellence in all aspects of performance.

Laurie Mullins (*Management and Organizational Behavior*) synthesizes various definitions of TQM as expressing: 'a way of life for an organization as a whole, committed to total user satisfaction through a continuous process of improvement, and the contribution and involvement of people'. From the buyer's point of view, the provision of 'the right' quality inputs is only one part of a total quality picture, which also embraces excellent supply chains; continuous collaborative improvement; cross-functional co-operation on quality; and so on.

Some of the key principles and values of a TQM approach can be summarized as follows.

- *Get it right first time.* Quality should be designed into products, services and processes, with the aim of achieving zero defects. Taking into account all the costs of poor quality, no proportion of defects can be considered 'optimal' or tolerable
- *Quality chains.* The quality chain extends from suppliers through to consumers, via the 'internal supply chain' (supplier and user units representing the flow of work within the organization). The work of each link in this chain impacts on the next one, and will eventually affect the quality provided to the consumer
- *Quality culture.* Quality is a 'way of life': a key cultural value in the organization, which must be expressed and modeled by senior management, and supported and reinforced by recruitment, training, appraisal and reward systems
- *Total involvement.* Every person within an organization potentially has an impact on quality, and it is the responsibility of everyone to get quality right

- *Quality through people.* Commitment, communication, awareness and problem-solving are more important in securing quality than mere systems
- *Team-based management.* Teams must be empowered and equipped to take action necessary to correct problems, propose and implement improvements, and respond flexibly and fast to user needs. This requires high-quality, multi-directional communication
- *Process alignment.* Business processes should be deliberately designed and modified so that every activity is geared to the same end: meeting the user's wants and needs. Where this is not the case, there may be the need for radical change programs such as business process re-engineering (BPR)
- *Quality management systems.* Attention is focused on getting processes right. Quality systems should be thoroughly documented in company quality manuals, departmental procedures manuals and detailed work instructions and specifications
- *Continuous improvement.* Quality improvement is not seen a 'one-off' exercise. By seeking to improve continuously, organizations stay open to new opportunities and approaches, and encourage learning and flexibility at all levels. In contrast to radical, 'discontinuous' or 'blank slate' change approaches such as BPR, continuous improvement may operate by small-step or incremental changes
- *Sharing best practice.* Quality circles, networks or matrix structures, benchmarking, accreditation and certification schemes and supply chain networking are used to share quality data, techniques and standards.

Total quality management may sound like such a good thing that you wonder why every firm isn't implementing it. Here are a few suggestions as to why this is the case.

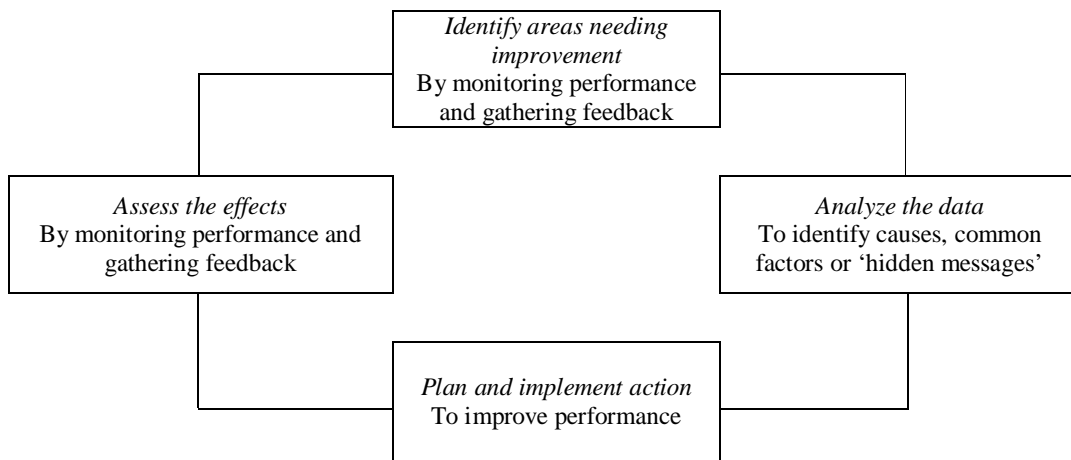
- TQM can prove limited in practice. The initiative may be poorly introduced or managed, and therefore ineffective. Short-term benefits of introducing TQM may wear off over time, as people get complacent or bored
- TQM can be disruptive, if it is introduced with a 'blitz' approach - leaving people unsure about what to do, or what to do next. The extent and trauma of the change required should not be underestimated
- TQM is time-consuming, costly and difficult to introduce, implement and 'settle in' – particularly in large, bureaucratic organizations which may resist new cultural values such as user focus and employee involvement.

## Continuous improvement (*kaizen*)

Quality management involves the ongoing and continual examination and improvement of existing processes: 'getting it more right, next time'. This process is sometimes referred by its Japanese name of *kaizen*: 'a Japanese concept of a total quality approach based on continual evolutionary change with considerable responsibility given to employees within certain fixed boundaries' (Mullins).

*Kaizen* looks for uninterrupted, ongoing incremental change: there is always room for improvement, for example by eliminating wastes (non value-adding activities) or making small adjustments to equipment, materials or team behavior. A basic cyclical approach to *kaizen* may be depicted as follows: Figure 2.6. Somebody may recognize it as a variant of the Plan-Do-Check-Act (PDCA) approach to continuous process improvement.

**Figure 2.6** *Continuous cycle of improvement*



## Quality circles

One technique for continuous improvement, utilized as part of TQM, is the use of 'quality circles': voluntary-participation teams of employees from different levels and functions in an organization (or representatives from the supply chain), which meet regularly to discuss issues relating to quality, share best practice and recommend improvements.

Quality circles may or may not have significant responsibility for making, implementing or monitoring the progress of their recommendations. Even as discussion groups, however, they can have significant benefits: harnessing the expertise of different functions and levels of the organization; overcoming resistance to quality management and creating quality 'champions'; improving communication and information-sharing on quality issues; and general support for a quality culture.

### **Six Sigma Methodology**

Six Sigma is a disciplined application of statistical problem-solving tools to identify and quantify waste and indicate steps for improvement. It uses a broad DMAIC methodology (Define, Measure, Analyze, Improve and Control) in order to:

- Identify and prioritize characteristics that are critical to quality (CTQ) for users
- Define detailed performance standards and tolerances for key variables
- Statistically measure true process capability, using metrics such as number of defects per number of outputs and probabilities of process success or failure
- Control defects and variations in the vital few factors (aiming for zero defects)
- Involve management and staff in the process, to create a quality-focused learning culture.

### **Continuous improvement agreements**

Commitment to continuous improvement - with performance measures and targets for improvement (reviewed and updated periodically) - may be built into long-term supply contracts, relationship charters or partnership agreements.

### **Improving supply chain performance**

At the level of the overall supply chain, performance improvements may be obtained in a wide variety of ways. Here are some examples.

- Improving procedures and criteria for supplier evaluation and selection
- Introducing or developing IT or ICT systems and applications: for example, track-and-trace systems to monitor deliveries and stock movements (eg using barcode or radio frequency identification) or the integration of inventory control and transactions systems with suppliers (eg via EDI systems)
- The planning of logistics and storage and distribution networks to increase efficiency



- Training in contract and supplier relationship management disciplines for buying staff- and perhaps also the account managers of supply chain partners
- Increasing the flow and transparency of information between supply chain partners (eg via open book costing, collaborative planning, cross-organizational project teams, regular meetings and so on)
- Applying techniques for more accurate demand forecasting, enabling more efficient production and logistics planning and lower inventory
- Applying detailed KPIs and performance monitoring and measurement mechanisms such as contract management and vendor rating (for high-priority suppliers, especially if currently underperforming). These may include specific improvement targets for cost reduction, inventory control and so on
- Rationalizing or optimizing the supply base, focusing resources on a few core suppliers (especially for strategic purchases), while retaining enough suppliers to secure supply and choice or competition
- Progressively removing waste (non value-adding) operations and activities from the supply process across the supply chain: a process called 'supply chain optimization'. This is an important element in 'lean' and 'just in time' (JIT) supply, which focus on removing waste, particularly in the form of unnecessary inventory. The preference is to collaborate more closely with fewer suppliers, to enable fast, responsive delivery of small quantities of supplies, as and when they are needed
- Negotiating continuous improvement agreements and KPIs for year-on-year performance Gains
- Introducing early supplier involvement (ESI) to improve new product development and specification (as discussed earlier)
- Implementing supplier development programs to support suppliers in improving their performance or capabilities.

## 2.4.2 Managing the quality of services

A service may be defined as 'any activity or benefit that one party can offer to another that is essentially intangible and does not result in ownership of anything' (Kotler). Some obvious examples include call-centre, cleaning, transport and logistics, and IT services: something is 'done for you', but there is no transfer of ownership of anything as part of the service transaction. (It is also worth remembering that some form of service is part of the 'bundle of benefits' somebody acquires when he purchases materials and goods: sales service, user service, delivery, after-sales care, warranties and so on.)

When it comes for specifying requirements and managing performance, services present buyers with problems additional to those that arise in purchasing materials or manufactured goods.

- Goods are tangible: they can be inspected, measured, weighed and tested to check quality and compliance with specification. Services are *intangible*: specifying service levels - and subsequently checking whether or how far they have been achieved - is therefore fraught with difficulty
- Goods emerging from a manufacturing process generally have a high degree of uniformity, which also simplifies their evaluation. Services are *variable*: every separate instance of service provision is unique, because the personnel and circumstances are different. It is hard to standardize requirements
- The exact purpose for which a tangible product is used will usually be known, and its suitability can therefore be assessed objectively. It is harder to assess the many factors involved in providing a service: what weight should be placed on the friendliness or smart appearance of the supplier's staff, say, compared with the efficiency with which they get the job done?

It is harder to draft accurate specifications and performance measures for services than for goods, because of their intangible nature - and yet this makes it even more important. Otherwise buyer and supplier could argue interminably as to whether the service was exactly what was asked for, or of an adequate standard. An advertising agency or architect might submit a design which meets all the client's stated criteria in regard to aims, inclusions, style and budget- but the client may still find it is not what he wanted or 'had in mind'. Who, if anyone, is at fault - and who pays for the second attempt?

The more work that can be done at the pre-contract stage, the better. This means agreeing service levels, schedules and the basis for charges in as much detail as possible before the contract is signed: disputes often stem from differing expectations on the part of buyer and supplier.

Supplier management is also an important ingredient in successful service buying. Often the level of service agreed upon is expressed in terms which are difficult to measure: it is not like purchasing steel rods, which indisputably are - or are not - of the diameter or length specified. It is vital that from the earliest stages, the supplier is made aware of exactly what the buyer regards as satisfactory performance and exactly what will be regarded as unsatisfactory. This is where service level agreements come in.

### **Service level agreements**

Service level agreements (SLAs) are formal statements of performance requirements, specifying the nature and level of service to be provided by a service supplier. The purpose of a service level specification and agreement is to define the user's service level needs and secure the commitment of the supplier to meeting those needs: this can then be used as a yardstick against which to measure the supplier's subsequent performance, conformance (meeting standards) and compliance (fulfilling agreed terms).

The main benefits of effective SLAs, as summarized by Lysons & Farrington, are as follows.

- The clear identification of users and providers, in relation to specific services
- The focusing of attention on what services actually involve and achieve
- Identification of the real service requirements of the user, and potential for costs to be reduced by cutting services or levels of service that (a) are unnecessary and (b) do not add value
- Better user awareness of what services they receive, what they are entitled to expect, and what additional services or levels of service a provider can offer
- Better user awareness of what a service or level of service costs, for realistic cost-benefit Evaluation
- Support for the ongoing monitoring and periodic review of services and service levels
- Support for problem solving and improvement planning, by facilitating users in reporting failure to meet service levels
- The fostering of better understanding and trust between providers and users.

SLAs are therefore a useful tool for client-supplier communication and relationship management; expectations and conflict management; cost management; and performance monitoring, review and evaluation.

The basic elements of an SLA are as follows.

- What services are included (and not included, or included only on request and at additional cost)
- Standards or levels of service (such as response times, speed and attributes of quality service)
- The allocation of responsibility for activities, risks and costs
- How services and service levels will be monitored and reviewed, what measures of evaluation will be used, and how problems (if any) will be addressed
- How complaints and disputes will be managed
- When and how the agreement will be reviewed and revised.

Of course, these elements will be adapted to the specific nature of the service contract.

### **Mechanisms for monitoring service levels**

A wide range of techniques is available for monitoring - keeping an eye on - service provision and service levels, and feeding back the data in order to identify 'service gaps' which need to be addressed. Depending on the nature of the service and the data collection mechanisms in place, examples of such techniques include the following.

- *Observation and experience*: that is, seeing and experiencing the service. It may be obvious, for example, that an office has (or has not) been cleaned to a promised standard, or that a commitment to deliver goods on time has (or has not) been met. Users may log or report service failures as and when they occur
- *Spot checks and sample testing*: performance may be periodically tested or measured in some way. In the case of our cleaning service, a 'spot check' would involve an unannounced inspection of the offices with a checklist of measures (bins emptied, windows clear, toilets disinfected, carpets vacuumed), while 'sampling testing' might involve analyzing the number of dust particles present in selected areas of the carpet, say
- *Business results and indirect indicators*: services have a purpose - so good or poor quality service has a knock-on effect on users' activities. For example, feedback from the users'

users might indicate dissatisfaction with the cleanliness of the premises, late transport deliveries, or lack of courtesy by call centre staff

- *User and user feedback:* users and users of the service should periodically be invited to complete feedback surveys on the quality of the service they have received. In addition, mechanisms should be in place to facilitate users and users in making complaints, to notify the service manager (and/or the service provider) promptly of specific service failures
- *Electronic performance monitoring:* in some cases, service performance can be monitored using measuring or tracking devices. Examples include clocking-in-clocking-off devices to record hours worked; 'black box' journey recorders used by transport providers to track delays and routes; and computer programs recording the number of transactions processed, telephone calls made or taken, cost and schedule variances from plans; and so on
- *Self-assessment by the service provider:* service providers may require reports by their own staff or supervisors. This may range from a checklist signed off by the cleaners' supervisor at the end of a shift (with notes on where service could not be satisfactorily provided, and why, where relevant), to periodic, systematic self-review reports. (How did we do? How could we do better? What do we need from the user to support improvement?)
- *Collaborative performance review.* Periodically, all the above information should be gathered and shared by user and service provider, with a view to evaluating the success of the service contract.

Whichever method of monitoring and review is used, the information will have to be fed back to service or account managers on both sides, who will in turn disseminate the information to those responsible for performance.

### **Service quality gaps**

The performance data will be measured against the SLA, KPIs or other benchmark targets (eg quality standards), and 'gaps' will be identified where the perceived service level falls short of the target level: the SERVQUAL tool, for example, measures stakeholder perceptions of a provider's service quality against that of an acknowledged 'excellence' (or benchmark) organization. Identified gaps will then be used to develop targets and actions for improvement.

It is worth remembering that 'service quality gaps' may be perceptual - as well as actual - shortfalls. There may be a gap between what is specified and what is *delivered*: that is, a shortfall which the service level agreement will entitle the user to have addressed. However, there may also be a gap between what users or consumers expect and what service managers *think* they expect (and lay down in SLAs): the service may fall short of specification - but be quite acceptable to users, and *vice versa*. The service level agreement and KPIs may themselves need adjusting, so that service quality isn't over-specified (wasting resources) or underspecified (causing user and provider dissatisfaction).

As Lysons and Farrington point out, the services and service levels enjoyed and expected by users do not necessarily correspond to (a) what they really need, (b) what really adds value or (c) what the service provider is capable of offering. This complicates the picture, because 'maintaining service levels' may in fact be wasteful and inefficient (if high levels of service, at high cost, do not add value), or - on the other hand - may miss opportunities for improvement (if specified services or service levels ignore value-adding capabilities of the service provider).

## **2.5 Supplier development**

### **2.5.1 Objectives of supplier development**

Supplier development may be defined as: 'Any activity that a buyer undertakes to improve a supplier's performance and/or capabilities to meet the buyer's short-term or long-term supply needs'.

Hartley & Choi identify two overall objectives for organizations engaging in supply development programs.

- Raising supplier competence to a specified level (eg in terms of reduced costs, or improved quality or delivery performance). *Results-oriented* development programs therefore focus on solving specific performance issues: the buyer supports the supplier in making step-by-step technical changes, to achieve pre-determined improvements
- Supporting suppliers in self-sustaining required performance standards, through a process of continuous improvement. *Process-oriented* development programs therefore focus on increasing the supplier's ability to make their *own* process and performance improvements, without ongoing direct intervention by the buyer. The buyer supports the supplier in learning and using problem-solving and change management techniques. The process of *kaizen* or continuous improvement (mentioned earlier as part of TQM) is an important aspect of this kind of supplier development.

## **2.5.2 Responsibilities for supplier development and improvement**

Supplier development programs will often involve cross-functional representatives from both buyer and supplier organizations, perhaps working in a project team or problem-solving task force. In addition, there will probably be multiple contact points in both organizations, for ongoing monitoring and management. Another common practice is the temporary transfer of staff: supplier staff may be seconded to the buyer organization to learn, or buyer staff may be seconded to the supplier to advise or train, say.

Supplier development is another area in which executive sponsorship is essential. A senior-level manager should oversee the progress of specific supplier development initiatives, especially those of a strategic or partnership nature. The executive sponsor will be the primary driver of the supplier development initiative, and the coordinator and enabler of cross-functional collaboration: his senior position allows him to mobilize resources and apply influence across functional boundaries.

## **2.5.3 Approaches to supplier development**

### **Directive and facilitative approaches**

There are two generic approaches to supplier development programs.

- Directive - suppliers are directed, regulated via specification of targets, goals etc. In some senses this can be viewed as a 'telling' or 'command and control' approach
- Facilitative - buyers and suppliers engage collaboratively in learning, teamwork and improvement planning, to achieve continuous improvement, best-practice sharing, collaborative learning and a 'win-win' orientation.

Both strategies can be used by purchasing as components of the 'supplier development toolkit'. For example, in the initial stages of supplier development programs a more directive, structured approach might be advisable to ensure understanding and alignment of development goals for both parties. As the development program matures and trust increases then the bias of the relationship may move to a more facilitative, emergent approach.

Before it is decided which approach purchasing will use they firstly need to identify the degree of influence the company has with the suppliers concerned: there is little point in expending significant organizational resources where there is minimal scope to manage or influence the

existing marketplace. How important is the buyer's business to the supplier? What is the degree of buying influence in the relationship due to the perceived importance of the business to the supplier?

Generally, buyers will only be able to make demands where they are perceived by the supplier as key clients and/or where a positive business relationship already exists. Table 2.3 summarizes possible buyer considerations.

**Table 2.3** *The importance of buyer influence*

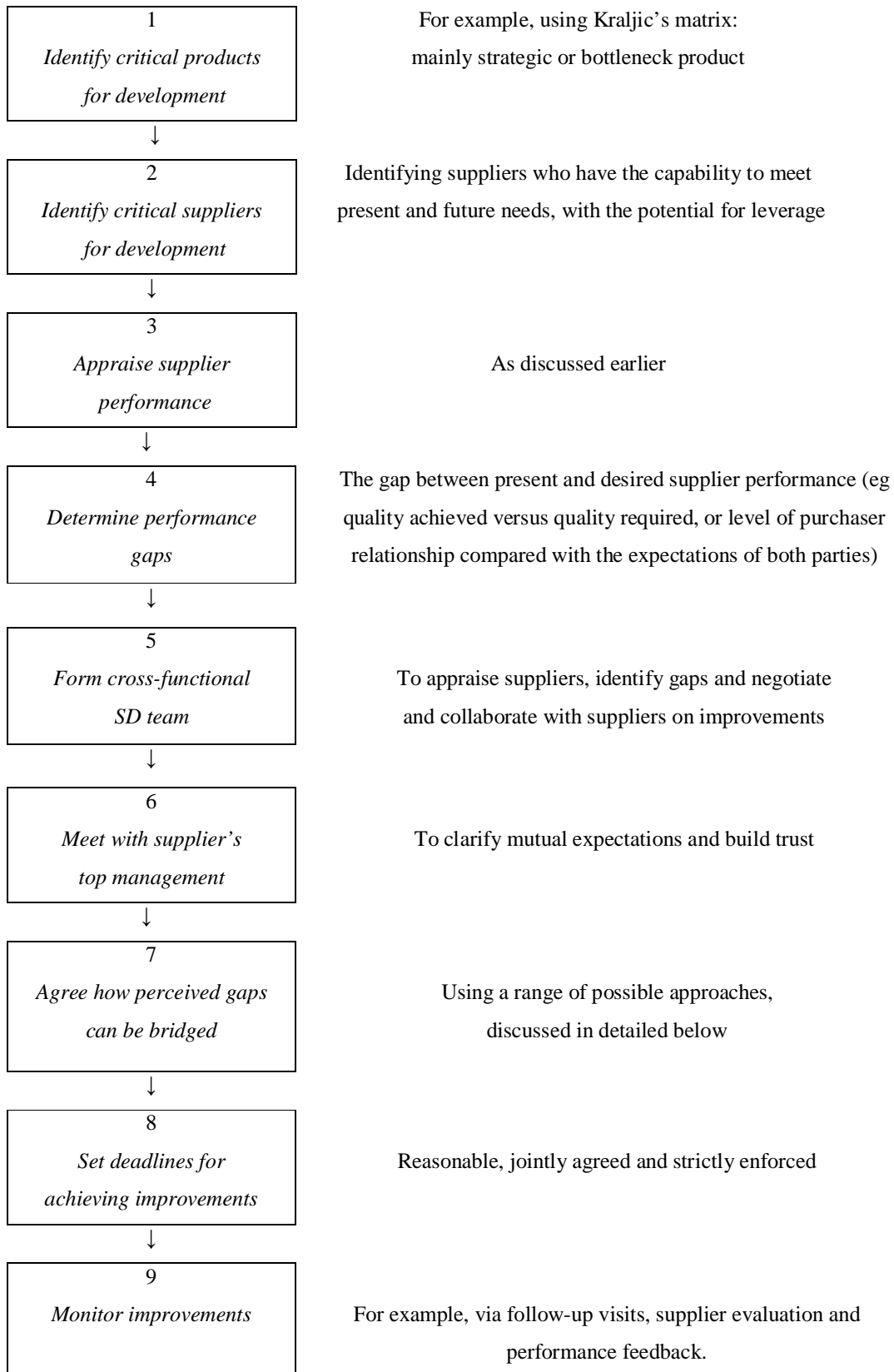
DEGREE OF BUYER INFLUENCE	POTENTIAL BUYER ACTIONS
High	Very demanding via directive and/or facilitative control
Moderate	Target key areas of improvement only
Low	<ul style="list-style-type: none"><li>• Seek alternative sourcing</li><li>• Concentrate on developing supplier awareness</li></ul>

### **A supplier development program**

A nine-stage approach to implementing a supplier development program is suggested by Lysons & Farrington: Figure 2.7.



**Figure 2.7** *The stages in a Supplier Development (SD) program*



A wide variety of approaches may be used to bridge perceived performance or relationship gaps. Here are some examples.

- Enhancing working relationships (eg by improved communication systems and routines)
- Clarifying or increasing performance goals and measures (eg KPIs for improvement in waste reduction or delivery lead times), and associated initiatives and penalties to motivate improvements
- Seconding purchaser's staff to the supplier (or vice versa) for training, coaching, consultancy, support or liaison
- Providing capital (eg to help finance a new development project or the acquisition of new plant and equipment)
- Providing progress payments during the development of a project or product, to support the supplier's cash flow
- Loaning machinery, equipment or IT hardware. Some practical examples including: a buyer providing electronic terminals to suppliers, so that buyers can use purchasing cards; a buyer paying for a supplier's manufacturing processes to be updated, in return for discounted supplies in future; and a buyer giving an outsource supplier the machinery previously used to perform the activity in-house
- Granting access to IT and ICT systems and information (eg extranets and databases, inventory systems, computer aided design capability and so on)
- Using the purchaser's bargaining power to obtain materials or equipment for the supplier at a discount
- Offering training for the supplier's staff in relevant areas (eg technical aspects of the requirement, or benchmarked best practice)
- Providing help or consultancy on value analysis (waste reduction) programs, costing or other areas of expertise
- Encouraging the formation of supplier forums or a supplier association (*Kyoryoku kai* in Japanese, since this is a feature of large Japanese manufacturing). These bring key suppliers together on a regular basis to share information, expertise and best practice, and to encourage joint problem-solving and improvement planning. According to Hines, they may facilitate the flow of information across the supplier network; improve the skills of suppliers and encourage best practice; keep suppliers in touch with market developments; helps smaller suppliers lacking specialist resources (eg for training); and increase the length and strength of business relationships.

## 2.5.4 Costs and benefits of supplier development activities

Bearing in mind the expense and effort that may be involved in supplier development, buyers will expect to make significant gains from: sharing in the specialist knowledge of the supplier; taking advantage of the supplier's capabilities to support the outsourcing of non-core activities; or improving supplier and supply chain performance to achieve better quality, delivery or cost. Like other forms of collaborative relationship, however, the aim is for benefits to accrue to both sides.

The benefits and costs of development activities, from both the buyer's and the supplier's perspective, are summarized in Table 2.4.

**Table 2.4** *Costs and benefits of supplier development activities*

### BUYER'S PERSPECTIVE

COSTS	BENEFITS
Cost of management time in researching, identifying and negotiating opportunities	Support for outsourcing strategies
Cost of development activities and resources: risk of over-investment in a supply relationship which may not last or prove compatible	Improved products and services: time-to-market, quality, price, delivery-supporting increased sales and profitability
Costs of ongoing relationship management (where required)	Streamlining systems and processes: reduced waste, process efficiencies, cost reduction
Risks of sharing information and intellectual property	Gaining discounts or other benefits as a <i>quid pro quo</i> for development

### SUPPLIER'S PERSPECTIVE

COSTS	BENEFITS
Cost of management time in researching, identifying and negotiating opportunities	Support for production and process efficiencies and cost savings, leading to greater profitability
Cost of development: risk of over-investment and over-dependence, if user turns out to be too demanding or unprofitable	Improvements in user service and satisfaction, leading to retained or increased business
Costs of ongoing relationship management (where required)	Improved capacity and service levels, leading to additional sales to other users
Risks of sharing information and intellectual property	Direct gains in knowledge and resources provided by the user
Cost of discounts or exclusivity agreements given as <i>quid pro quo</i>	Enhanced learning and flexibility: skills for problem-solving and continuous improvement

## **2.6 Supplier motivation**

‘Motivation is the process by which human beings calculate whether it is worth expending the energy and resources required to reach a particular goal. It is also the process by which one party influences or supports this kind of calculation in another, in order to secure their agreement and effort in pursuit of a goal. Leaders motivate their teams, for example, by offering praise, recognition and perhaps financial bonuses for high-level performance or improvement. Similarly, buyers can motivate suppliers by offering initiatives for them to perform to the required standard, or to improve their level of service, or to add value in some other way.

Contracts are themselves part of the process of supplier motivation, because they are legally enforceable: they include sanctions and penalties for non-performance, which the supplier will wish to avoid. Although contracts themselves are part of the process of supplier motivation, further supplier motivation is necessary as contracts only set a minimum level or ‘floor’ for compliance. If the buyer wants the extra benefits of commitment, flexibility, innovation, proactive problem-solving, continuous improvement and co-operation — over and above what is expressly required by the contract — it will have to make it worth the supplier’s while. A purely compliance-based approach to motivation creates a compliance-based approach to performance.

### **2.6.1 Carrot approach of motivation**

Motivation can operate positively (the ‘carrot’ approach), by offering incentives and rewards which are valued by a supplier, and therefore make it worthwhile to put extra effort into attaining the desired behavior or level of performance.

Here are some examples of supplier incentives, both financial and non-financial.

- Staged payments (so that the supplier only gets paid in full on completion of the project) or contingency payments (eg part of the payment is linked to results) or faster payment for early delivery (eg pay-on-receipt arrangements)
- Specific key performance indicators (KPIs) or improvement targets linked to recognition and rewards: inclusion on the approved or preferred supplier list, publicized supplier awards and endorsements, financial bonuses (eg for extra units of productivity, or each day/week ahead of schedule); and so on
- A capped price for the product or service that decreases year on year, motivating the supplier progressively to improve efficiency in order to preserve his profit margins
- The offer of development support (eg training or technology sharing)

- Positive feedback sharing, praise and thanks from the buying team for job well done. (The interpersonal aspects of motivation may not be sufficient to secure performance, but they do contribute meaningfully to it. Nobody likes their contribution to be ignored or treated with ingratitude!)

### 2.6.2 Stick approach of motivation

Motivation can also operate negatively (the ‘stick’ approach), by threatening sanctions or penalties which the supplier will think it worth the effort to avoid, by attaining the desired behavior or level of performance. This approach is to use the threat or fear of being penalized for non-compliance with expectations.

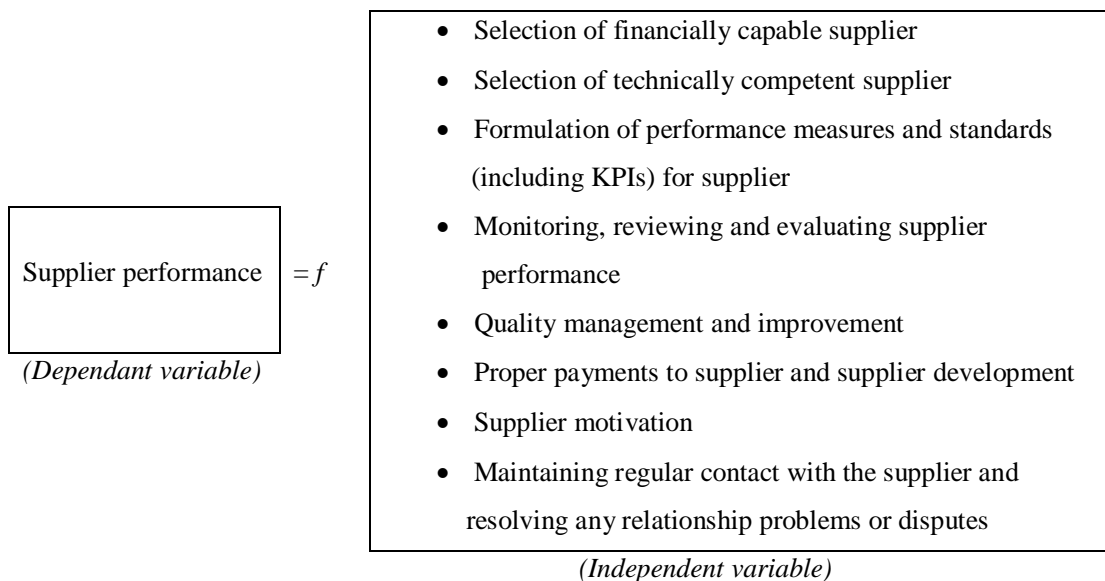
Here are some potential sanctions or penalties.

- The threat of reduced business for poor performance
- The threat of removal from the approved or preferred supplier list
- Publicized poor supplier grading (‘name and shame’) or debarred/black list
- Penalty clauses in contract, entitling the buyer to financial damages in compensation for any losses arising from supplier’s failure to fulfill the contract.

## 2.7 Development of conceptual framework

A conceptual framework has been developed which is depicted by a model below in Figure 2.8.

**Figure 2.8** *A model of supplier performance*



## **CHAPTER 3: METHODOLOGY**

### **3.1 Data sources**

This is an exploratory research that uses case study method. The study depends on both primary and secondary sources for necessary data and information. Both qualitative and quantitative approach has been used to understand the perception of respondents in regarding to existing performance and find out the possible ways for improvement.

Primary data (qualitative) has been collected from respondents both engineers and suppliers of BWDB working in selected projects through questionnaire survey and interviews. The researcher has visited these projects of BWDB situated in different districts of Bangladesh and talked to the respondents about problems regarding the smooth and timely completion of the projects. After the exchange of general idea of the research objectives, the questionnaire was given to them. They were requested to fill the questionnaire based on the practical experience they had regarding the implementation of project.

Secondary data (quantitative) has been collected from internet (BWDB website) about the budget allocation and project implementation scenario of the selected projects.

### **3.2 Sample design**

Certain number of projects, engineers and suppliers/contractors concerned with these projects has been selected as research sample since this research focuses on supplier performance and suppliers basically perform for implementing projects under supervision of engineers. The projects have been selected with reference to the preferences and historical analysis. For example, projects of historically most vulnerable areas such as Sirajgonj, Chandpur, Bhola, Faridpur, Bogra etc. have been selected. Some of these are ADP included and rests are CCTF projects.

### **3.3 Questionnaire design**

Both open-ended and close-ended questions were set in the questionnaire to reveal the real perception of the respondents. They were asked to give their perception regarding the current practices of supplier performance management, performance gaps, reason behind performance shortfalls and probable solutions to improve supplier performance.

### 3.4 Determination of sample size

Fifteen projects (including river bank protective work, khal excavation, river restoration projects) under thirteen O&M Divisions (Sirajgonj, Bogra, Jamalpur, Pabna, Gopalganj, Kushtia, Bhola 1, Bhola 2, Shariatpur, Chandpur, Noakhali, Rajbari & Faridpur O&M Divisions) of BWDB have been selected for this study purpose. Thirteen of them are ADP included and rests two are CCTF project. The sample size of projects is shown in Table 3.1.

**Table 3.1** *The sample size of projects*

Type of project	Sample size
ADP included project	13
CCTF included project	2
<b>Total sample size</b>	<b>15</b>

The sample size of respondents is forty five who are working in the selected projects and it is shown in Table 3.2.

**Table 3.2** *The sample size of respondents*

Type of respondent	Sample size
Executive Engineer	12
Sub-Divisional Engineer	15
QC Engineer	3
Contractor/Supplier	15
<b>Total sample size</b>	<b>45</b>

### 3.5 Data analysis

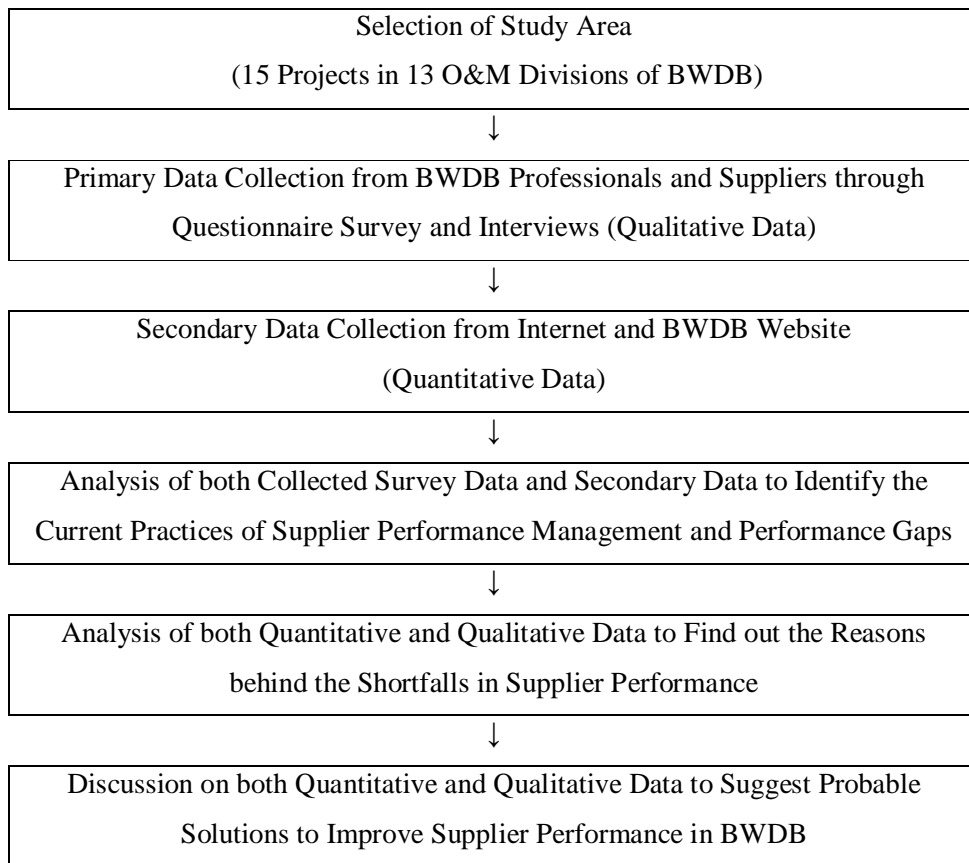
As a means of processing, collected raw data have been cleaned, arranged and converted into grouped data before analysis. Microsoft Excel has been used for analysis of the data. The graphical representations of the data/answers in the form of “pie chart” have been given for easy understanding of the responses. Microsoft Excel has been used for constructing pie charts. Both the quantitative and qualitative data have been analyzed to identify the current practices of supplier performance management and performance gaps. The data analysis has also been done to find out the reasons behind the shortfalls in supplier performance as well as to suggest probable solutions to improve supplier performance in BWDB.

### 3.6 Report writing

Microsoft Word has been used for writing the report. The dissertation has been written in English in A4 sized paper with 1.5 line spacing and 1 inch margin on all sides. ‘Times New Roman’ font has been used in writing the report.

The Methodology is depicted in the following Figure 3.1.

**Figure 3.1** *Research methodology*





## CHAPTER 4: RESULTS AND ANALYSIS

### 4.1 Data Presentation

The collected secondary data (quantitative) of the fifteen projects about the budget allocation scenario as well as difference in project implementation period between approved DPP and actual are given below.

1. Name of project: Protection of Faridpur FCI project (Area-1) at Bakhshipur-Sengram area in Rajbari from the erosion of Padma river.

Project implementation period:

DPP	Starting	Completion
Original	2009-10	2010-11
Amended	2009-10	2013-14

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2009-10	5566.22	100.00
2010-11	4268.83	3000.00
2011-12	-	3000.00
2012-13	-	1500.00
2013-14	-	1021.08
Total	9835.05	8621.08

2. Name of project: Protection of flood control embankment at the right bank of Jamuna river at Antarpara, Daripara in Bogra.

Project implementation period:

DPP	Starting	Completion
Original	2010-11	2011-12
Amended	2010-11	2013-14

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2010-11	3537.16	200.00
2011-12	8149.73	500.00
2012-13	-	2000.00
2013-14	-	3400.00
Total	11686.89	6100.00

3. Name of project: Chandana-Barashia river excavation project.

Project implementation period:

DPP	Starting	Completion
Original	July, 2010	June, 2012
Amended	July, 2010	June, 2014

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2010-11	3883.88	336.88
2011-12	2068.61	1700.00
2012-13	-	1482.92
2013-14	-	1800.00
Total	5952.49	5319.80

4. Name of project: Protection of Chandpur irrigation project (1<sup>st</sup> amended) from the erosion of Meghna river at Ibrahimpur-Sakua adjacent to Puran bazar of Chandpur district.

Project implementation period:

DPP	Starting	Completion
Original	2009-10	2011-12
Amended	2009-10	2013-14

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2009-10	99.99	99.99
2010-11	4499.98	4499.98
2011-12	9003.01	5250.00
2012-13	3492.50	3693.01
2013-14	-	3800.00
Total	17095.48	17342.98

5. Name of project: Chorfashion-Monpura town of Bhola district protection project.

Project implementation period:

DPP	Starting	Completion
Original	2009-10	2011-12
Amended	2009-10	2013-14

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2009-10	2077.06	997.00
2010-11	7094.00	1299.53
2011-12	5116.50	438.79
2012-13	11272.77	998.88
2013-14	-	1000.00
Total	25560.33	4734.20

**6. Name of project: Faridpur town protection project.**

Project implementation period:

DPP	Starting	Completion
Original	December, 2009	June,2013
Amended	December, 2009	June,2014

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2009-10	5770.46	1250.00
2010-11	3542.42	2570.00
2011-12	3817.75	3300.00
2012-13	4613.58	2300.00
2013-14	-	3000.00
Total	17654.21	12420.00

**7. Name of project: RBP project at Fukra along the left bank of Modhumoti river in Gopalganj.**

Project implementation period:

DPP	Starting	Completion
Original	January, 2011	June, 2012
Amended	January, 2011	June, 2014

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2010-11	0.00	0.00
2011-12	749.73	749.73
2012-13	1570.00	1570.00
2013-14	1199.10	500.00
Total	3518.80	2819.73

8. Name of project: Gorai river restoration project (phase II).

Project implementation period:

DPP	Starting	Completion
Original	2009-10	2013-14
Amended	2009-10	2016-17

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2009-10	24137.61	1300.00
2010-11	33173.95	10044.00
2011-12	21076.35	14115.00
2012-13	15826.64	23000.00
2013-14	-	6000.00
Total	94214.55	54459.00

9. Name of project: RBP project at Tamuruddin and Bangla bazar area of Polder 73/1 (A+B) under Hatia upazilla of Noakhali district.

Project implementation period:

DPP	Starting	Completion
Original	November, 2010	December, 2012
Amended	November, 2010	June, 2014

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2010-11	399.96	399.96
2011-12	750.00	750.00
2012-13	3000.00	2300.00
2013-14	1909.26	1100.00
Total	6059.22	4549.96

**10.** Name of project: RBP project from the erosion of Jamuna river from Bahadurabad ghat to Futani bazar of Jamalpur district.

Project implementation period:

DPP	Starting	Completion
Original	April, 2010	June, 2013
Amended	April, 2010	June, 2014

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2009-10	98.78	100.00
2010-11	2299.57	2400.00
2011-12	18324.02	3300.00
2012-13	15004.49	5500.00
2013-14	5973.85	4000.00
Total	41700.71	15300.00

**11.** Name of project: Protection of right bank of Jamuna river at Kazipur and Sirajganj sadar upazilla of Sirajganj district.

Project implementation period:

DPP	Starting	Completion
Original	October, 2010	June, 2013
Amended	October, 2010	June, 2015

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2010-11	6187.46	513.78
2011-12	11222.30	1674.73
2012-13	11130.44	4350.00
2013-14	-	3510.00
Total	28540.20	10048.51

12. Name of project: Shahbazpur gas field protection project from the erosion of Meghna river at Borhanuddin upazilla of Bhola district (phase II).

Project implementation period:

DPP	Starting	Completion
Original	May, 2010	June, 2012
Amended	May, 2012	June, 2014

Yearly budget allocation: (In Lac Taka)

Financial year	According to DPP	Actual allocation received
2009-10	-	100.00
2010-11	1586.51	1500.00
2011-12	3000.00	2000.00
2012-13	8823.74	1500.00
2013-14	-	1600.00
Total	13410.25	6700.00

13. Name of project: Protection of Sureswar darbar sharif from erosion of Padma river under CCTF at Naria upazilla of Shariatpur district.

Project implementation period:

DPP	Starting	Completion
Original	2012-13	2012-13

Yearly budget allocation: (In Lac Taka)

Financial year	According to DPP	Actual allocation received
2012-13	1500.00	1000.00
Total	1500.00	1000.00

**14.** Name of project: TRBP work at Chandipur launch ghat area from the erosion of Padma river under CCTF at Naria upazilla of Shariatpur district.

Project implementation period:

DPP	Starting	Completion
Original	2012-13	2012-13

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2012-13	1500.00	-
Total	1500.00	-

**15.** Name of project: Protection of left bank of Padma river at different places of Sujanagar upazilla and protection of right bank of Jamuna river from Nagarbari to Kazirhat of Bera upazilla under Pabna district.

Project implementation period:

DPP	Starting	Completion
Original	January, 2011	June, 2013
Amended	January, 2011	June, 2014

Yearly budget allocation:

(In Lac Taka)

Financial year	According to DPP	Actual allocation received
2010-11	3715.34	200.00
2011-12	8613.31	2500.00
2012-13	7760.60	2000.00
2013-14	-	2200.00
Total	20089.25	6900.00

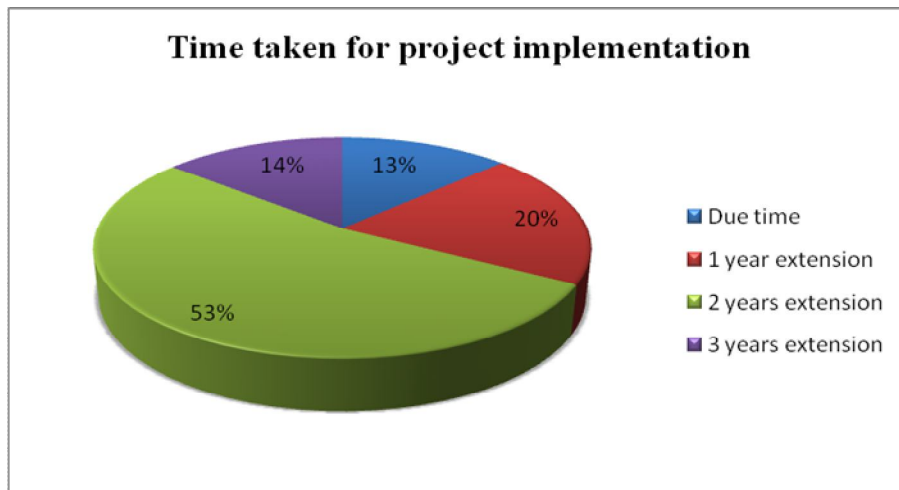


## 4.2 Results and Analysis

### 4.2.1 Findings from the quantitative data

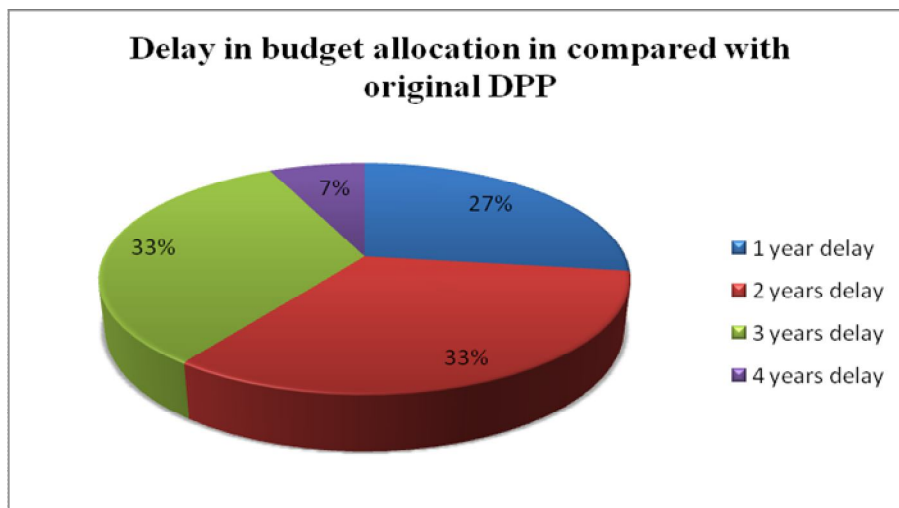
According to quantitative data (secondary) of the fifteen projects stated above, it has been found that two of fifteen projects i.e. 13% completes in due time, 20% needs one year, 53% needs two years and 14% needs three years extension from the original DPP. The result is shown in following Figure 4.1.

**Figure 4.1** *Time taken for project implementation*



Again it is found that no project gets its allocated budget in due time according to original DPP. Moreover, it is found that one year delay occurs in 27% projects, two years delay occur in 33% projects, three years delay occur in 33% projects and four years delay occur in 7% projects to get the total allocated budgets. It is shown in following Figure 4.2.

**Figure 4.2** *Delay in budget allocation in compared with original DPP*



## 4.2.2 Findings from the qualitative data (questionnaire survey)

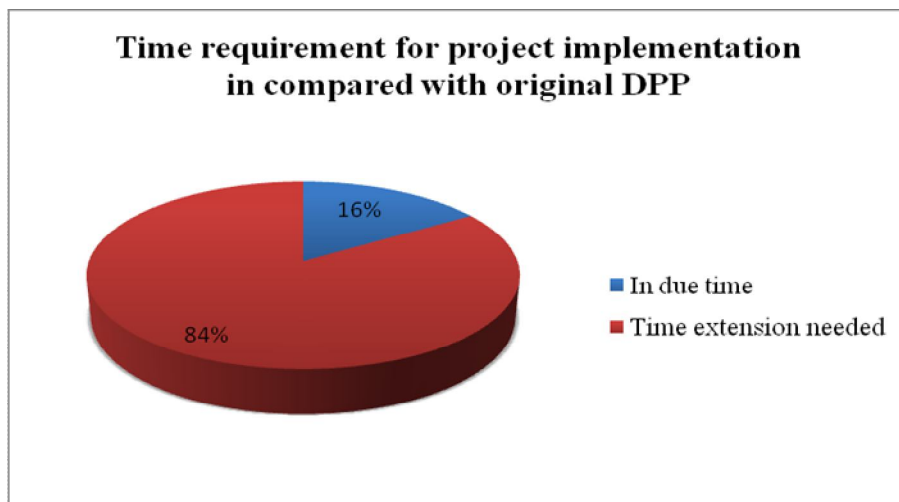
To identify the current practices of supplier performance management in BWDB and to suggest the possible ways of improvement, a questionnaire survey was conducted among 45 respondents (12 Executive Engineers, 15 Sub-divisional Engineers, 3 QC Engineers and 15 Contractors/Suppliers of BWDB). The results are summarized below.

### 4.2.2.1 Project implementation scenario

*Question: Are the BWDB projects implemented in due time or extension of time needed?*

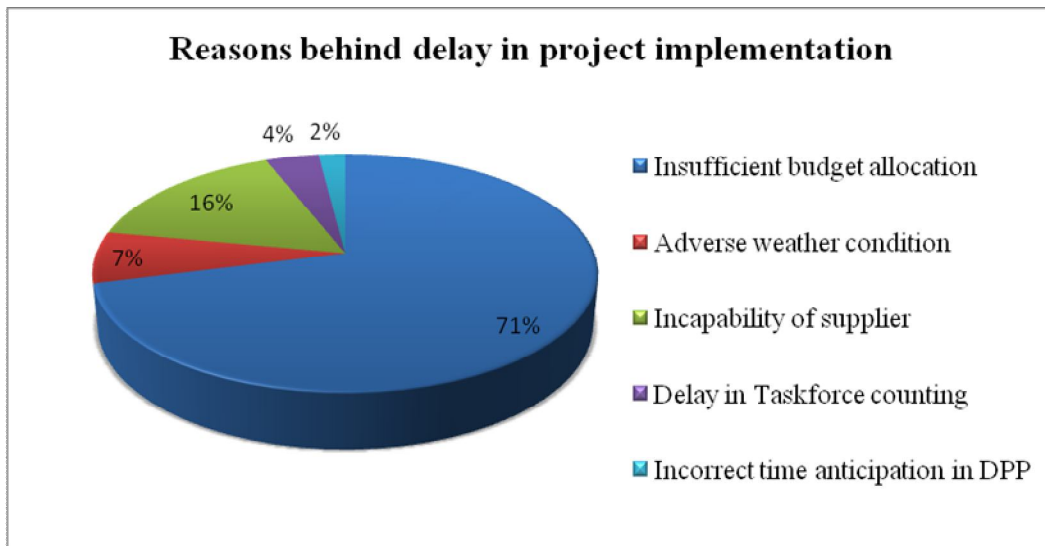
This question has been asked to get the perception of the respondents regarding time requirement for the implementation of the projects. About 84% respondents have expressed their opinion that the projects need time extension whereas 16% respondents have said that projects are implemented in due time according to original DPP. It is represented in following Figure 4.3.

**Figure 4.3** *Time requirement for project implementation in compared with original DPP*



*Question: What do you think are the reasons behind delay in project implementation?*

**Figure 4.4** *Reasons behind delay in project implementation*



71% respondents have expressed their opinion that reason behind delay in project implementation is insufficient budget allocation in the projects. As contractors/suppliers often take loan from bank at high interest rate, they stop work after making some progress if payment is not given to them for that progress. Even they don't start work if they somehow can know that there is insufficient budget in that work. For example, in 2012 only one contractor started work in due time at Bogra project and others even didn't start as there were too insufficient budget.

7% respondents have argued that during rainy season due to excessive rainfall and wave/current in river cc block casting and geo bag dumping have to stop to avoid rain spot in cc block and improper dumping of geo bag in the river respectively.

16% respondents think that due to financial insolvency and technical incapability of suppliers they can't start project in due time or even can't accomplish project within given time period. Suppliers may have several projects at hand at a time and may invest their money in other projects and hence can't start this project. Again suppliers have technical shortfalls like lack of machinery, equipment and manpower. Sometimes it is found that there are no weight measuring scale, sieve, sufficient sewing machine, generator, cc block formwork and labor. Although suppliers show graduate engineers in their manpower list while contracting but in practically even no diploma engineers are found in the work site. Moreover, during harvesting season labors claim high rate and hence contractors don't think it profitable to hire them at high rate and they stop work.

4% respondents have advocated that project implementation delays due to delay in counting of geo bags and cc blocks by BWDB Taskforce members. Since without their counting no geo bag and cc block can be dumped, project work delays.

2% respondents have answered that due to incorrect anticipation of time requirement for project implementation in DPP, it seems to be delayed but it is not actually delayed.

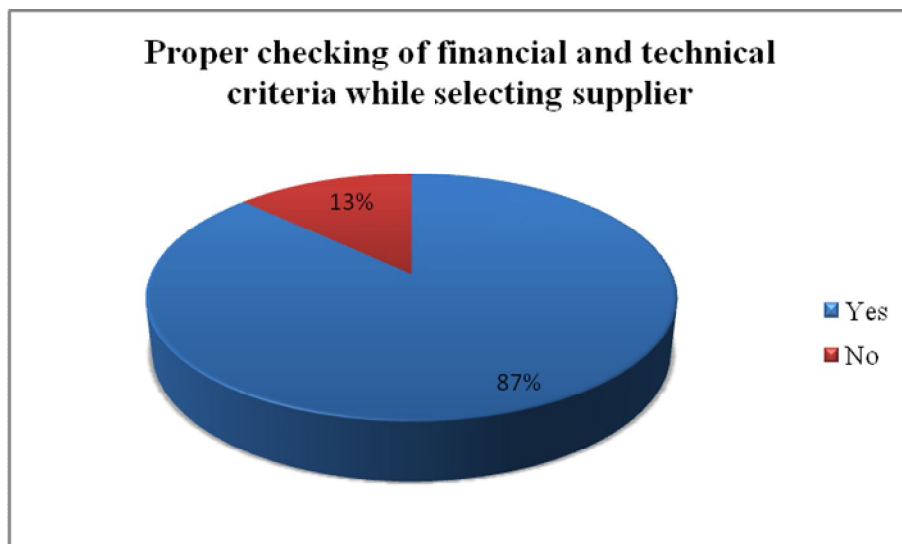
#### 4.2.2.2 Supplier selection

*Question: Are the financial and technical criteria properly checked while selecting supplier/contractor?*

87% respondents have expressed their opinion that financial and technical criteria are properly checked while selecting supplier/contractor. Turnover and liquid assets (eg bank statement, line of credit facility) are checked as financial solvency checks. General experience, similar work experiences are checked as technical capability criteria.

13% respondents have argued that proper checking is not done. In case of equipment, machinery and manpower, only it is checked whether supplier gives a list of these items but these are not properly checked to ensure existence through visiting supplier premise. As a result, it is often found that there are no weight measuring scale, sieve, sufficient sewing machine, generator, cc block formwork and labor. Although suppliers show graduate engineers in their manpower list while contracting but in practically even no diploma engineers are found in the work site.

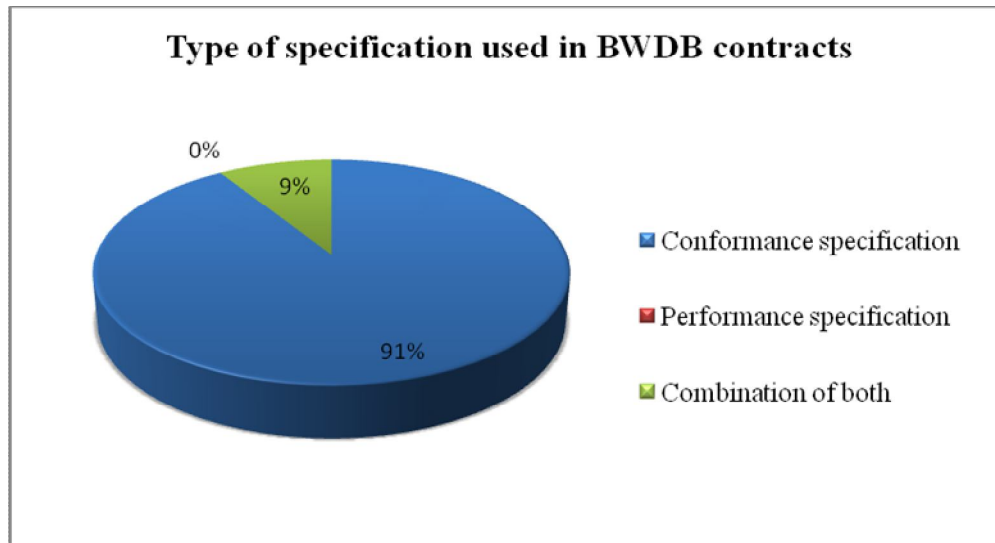
**Figure 4.5** Proper checking of financial and technical criteria while selecting supplier



#### 4.2.2.3 Contract specification

*Question: What type of performance measures or standards i.e. specification is used in BWDB contracts?*

**Figure 4.6** Type of specification used in BWDB contracts



91% respondents have said that conformance specification is used in BWDB contracts. For example, in sand filled geo bag dumping contract, it is specified that FM of sand  $\geq 1.0$ , material of geo bag should be polypropylene, thickness of bag  $\geq 3$  mm etc. Again in case of cc block manufacturing, it is specified that FM of sand  $\geq 1.5$ , size of block ( $30 \times 30 \times 30$  cm<sup>3</sup> or  $40 \times 40 \times 40$  cm<sup>3</sup> or  $45 \times 45 \times 45$  cm<sup>3</sup>) and the cement, sand, aggregate mixture ratio should be 1:2:4 and so on. That means almost every requirement is specified clearly and the duty of supplier is just to conform to the specification.

Nobody has answered that there is purely performance specification in practice for BWDB contracts.

However, 9% respondents have argued that BWDB is practicing combination of the two types of specification in its contract. It gives relax in some procedures of work so that suppliers can perform their work as per local or situational requirement. Sometimes, it is observed that according to local demand geo bag dumping is done using boat rather than using barge.

*Question: Comment on the type of specification to use to get better supplier performance and why?*

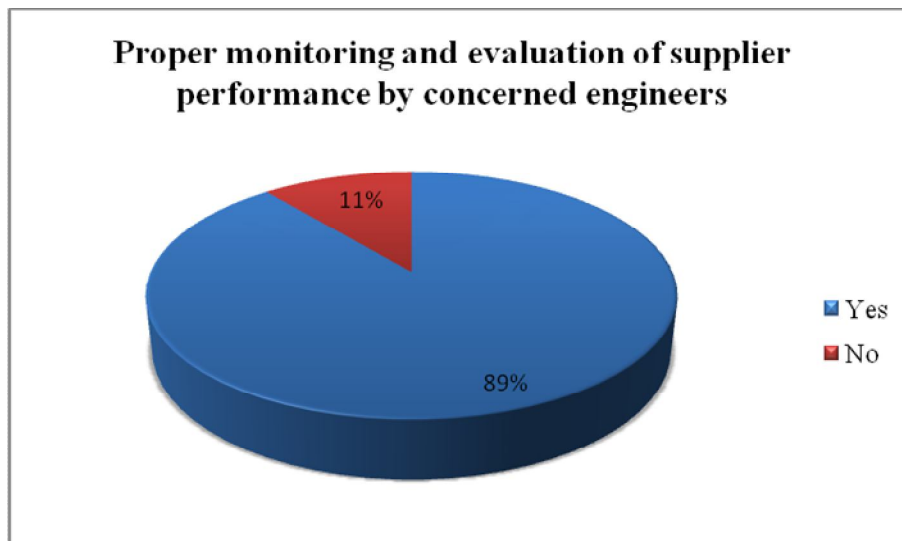
Some respondents have commented that performance specification should be used to allow supplier for bringing innovation, flexibility, new suitable technique to better perform their task and it is not possible if conformance specification is used. For example, in RBP work at Jamalpur, barge was written initially in the specification to be used for dumping geo bags in the Jamuna river but it was found impractical to use barge to make sufficient progress before rainy season. So, suppliers used boat in lieu of barge to accomplish the project and specification was revised for that change.

Most of the respondents have suggested that combination of both the specification will be fruitful to get better performance from the contractors. Contractors will conform to some critical criteria and in other tasks they will follow their innovative, suitable technique as per local/situational demand.

#### **4.2.2.4 Monitoring, reviewing and evaluating supplier performance**

*Question: Can the concerned engineers regularly and properly monitor, review and evaluate supplier performance?*

**Figure 4.7** *Proper monitoring and evaluation of supplier performance*



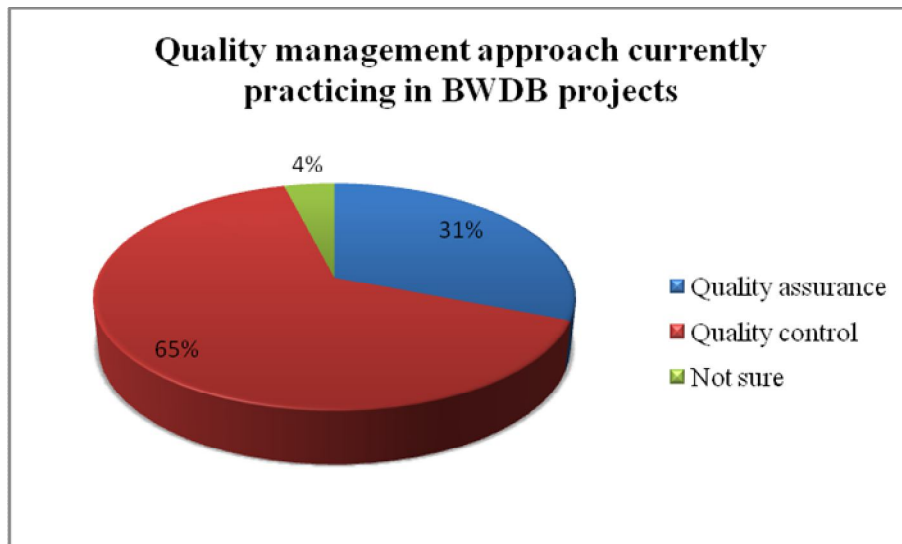
89% respondents have said that concerned engineers regularly and properly monitor, review and evaluate supplier performances. They are doing it through regular site visits; testing of cc block, geo bag, cement at BUET; sending fortnightly progress report, monthly IMED 05, quarterly IMED 03 report to concerned superior authority.

However, 11% respondents have argued that it is not always possible for engineers to full time monitor contractor's all activities via site visits as they have to do their official duty (eg miscellaneous file works) as well. For this reason, they send work assistants to the work sites for full time supervision. But as every work assistant has to supervise 2 or 3 mixture machine at a time, labors, in the twinkling of an eye, change the concrete mixture ratio from say 1:2:4 to 1:3:6 in any chance even short absence of the work assistant. The tested items are not representative of the huge number of cc blocks or geo bags as only 2 or 3 blocks or geo bags are tested at BUET. Rejection of cc block once manufactured is very much tough task. So, contractors take the chance to deteriorate quality. Moreover, due to lack of supervision, contractors often make 1 inch sand layer and 1 inch brick chips layer as filter material in lieu of 3 inch each layer under the cc blocks laid down in the slope of the river bank. Once it is done it is quite impractical to rectify the filter materials.

#### 4.2.2.5 Quality management

*Question: Which approach of quality management is practiced in BWDB projects?*

**Figure 4.8** *Quality management approach currently practicing in BWDB projects*



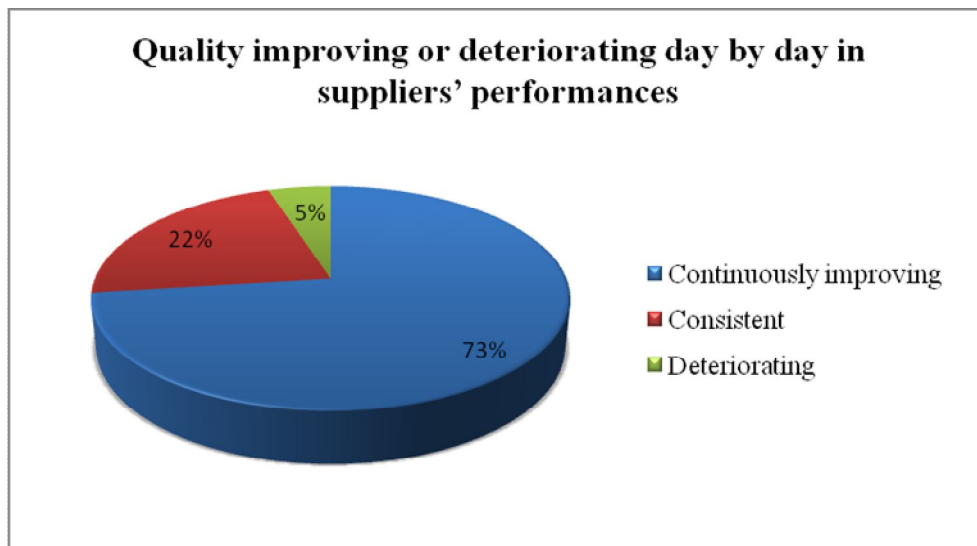
31% respondents have answered that quality assurance is being practicing in BWDB. They give example in supporting their answer that BWDB has a Taskforce team of about 25 dedicated members who, being present at the work site, allow the sand filled geo bags to dump in the river after ensuring the quality of sand and bag. To ensure quality often division offices take the supply of empty geo bags and then handover those to the dumping contractors.

65% respondents have said that quality control approach is practiced in BWDB. For example, sometimes, rectification is ordered if sand filled bags are not to the requirement as well as re-excavation of khal is recommended if excavation is not done properly. Moreover, re-alignment of reinforcement is ordered if it is not aligned as per design in regulator construction work.

4% respondents are not sure about which approach is being practiced in BWDB.

*Question: Is quality in suppliers' performances improving day by day?*

**Figure 4.9** *Quality improving or deteriorating day by day in suppliers' performances*



73% respondents have said that suppliers' performances quality is continuously increasing day by day because of the presence of internal and external audit, internal dedicated taskforce team, good governance, media pressure, civil society etc.

22% respondents think that suppliers' performances quality is remained consistent.



5% respondents have argued that suppliers' performances quality is deteriorating day by day as no work can be finalized without checking by the taskforce member. For example, in case of emergency geo bag and cc block dumping need to protect river bank from sudden erosion, field officers have to wait until any taskforce member comes. Hence, often it becomes impossible to do the required task in proper time due to the counting delay by the taskforce member.

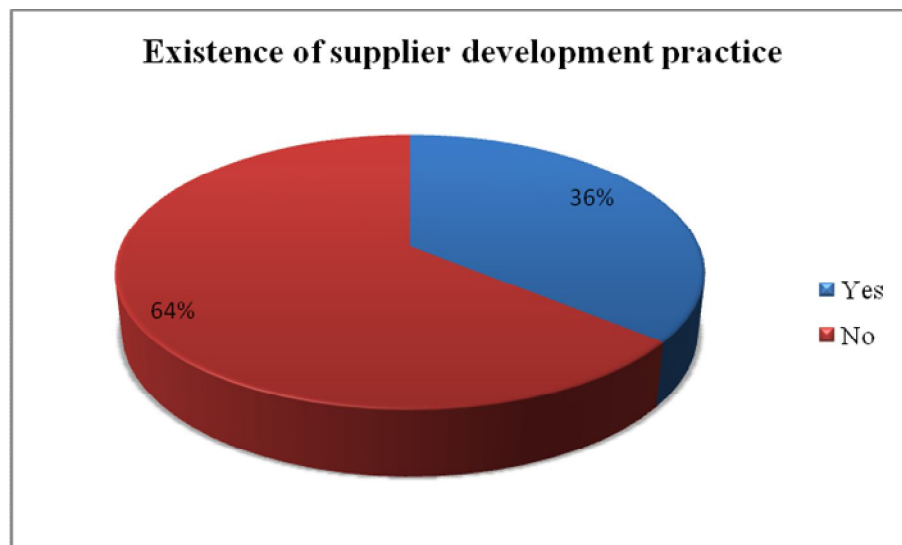
#### 4.2.2.6 Supplier development

*Question: Is there any practice of supplier development?*

36% respondents have said that supplier development is being practiced in BWDB. Progress payments, loaning equipment (eg a BWDB owned barge was allowed to move Jamalpur from Kaitala, Pabna to be used by the contractor) etc. are practiced here.

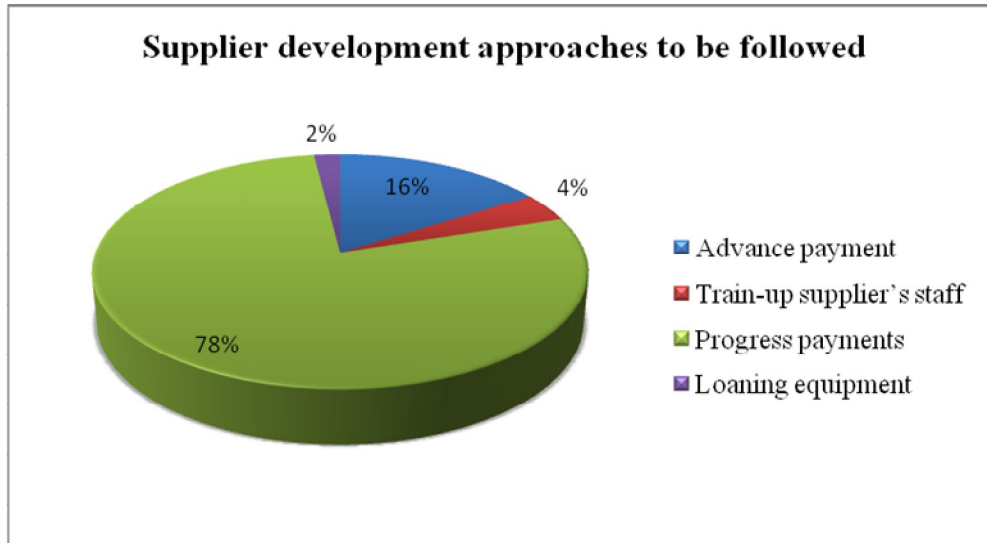
64% respondents have argued that there is, in fact, no significant supplier development in this organization. Advance payment is not made, progress payment is totally insufficient and suppliers don't get their bills even after years of full accomplishment of project.

**Figure 4.10** Existence of supplier development practice



*Question: How can suppliers be developed to implement the projects in time with satisfactory quality?*

**Figure 4.11** *Supplier development approaches to be followed*



16% respondents have suggested that advance payment should be made to develop supplier. In PPR 2008, it is also said that advance payment can be made for equipment, machinery, materials and mobilization of those.

4% respondents have said that offering training for the supplier's staff in relevant areas (eg technical aspects of the requirement) may be an approach of supplier development.

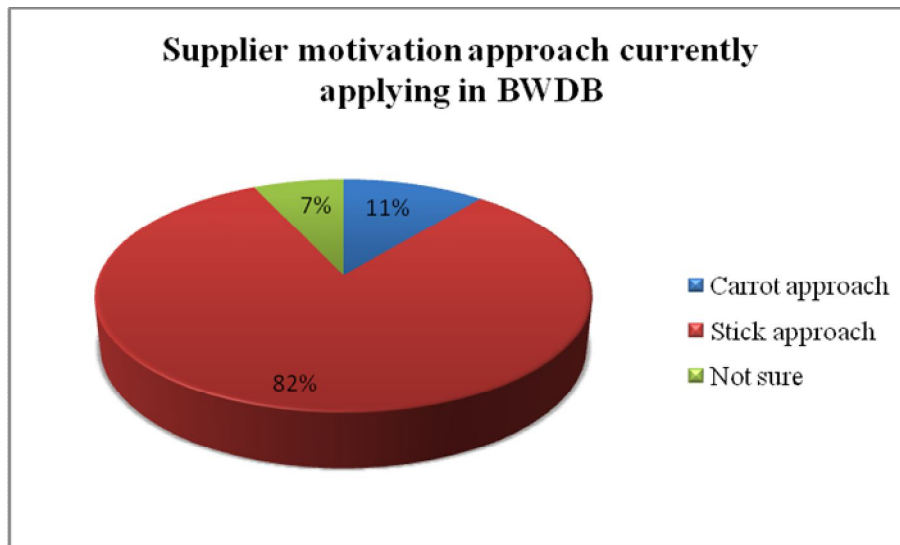
78% respondents have advocated that main approach of supplier development is the proper issuing of progress payments so that they can reinvest that money in the remaining works. As suppliers often have to take loan from commercial bank at high interest rate, if they don't get staged payments their business will not bring reasonable profit and hence they will not become sustainable supplier in the long run which undergoes against the "sustainable procurement" theme.

2% respondents think that loaning machinery, equipment may develop supplier.

#### 4.2.2.7 Supplier motivation

*Question: Which approach of supplier motivation is followed in BWDB?*

**Figure 4.12** *Supplier motivation approach currently applying in BWDB*



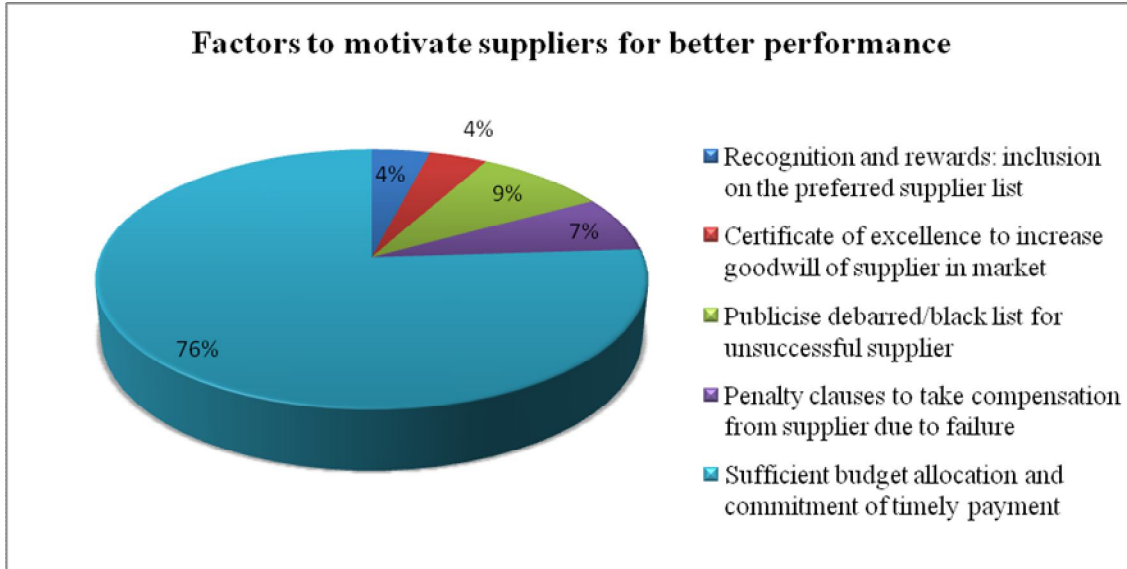
11% respondents have answered that carrot approach of supplier motivation is currently being applied in BWDB. All suppliers are not paid equal bill but according to their percentage of progress and hence it is motivating supplier as 'work quickly, get paid quickly'. Another motivating carrot is 'successful completion certificate' which is given to the contractors if they can implement their task successfully and it increases the goodwill of the supplier in the market.

82% respondents have argued that stick approach of supplier motivation is applied here. There are penalty clauses in contract to take compensation from supplier due to his failure to fulfill contract and threats of becoming debarred or black listed for unsuccessful supplier.

7% respondents have expressed their opinion that they are not sure about which approach is used here.

*Question: What will motivate suppliers better to accomplish the projects in due time and as per requirement?*

**Figure 4.13** *Factors to motivate suppliers for better performance*



4% respondents think that suppliers may be motivated to perform in a committed way (over and above mere compliance) if they are given recognition and rewards such as inclusion on the approved or preferred supplier list to be considered for future extension of contract or to get new contract.

4% respondents have said that providing suppliers with certificate of excellence may motivate them to perform better as it will increase the goodwill of the supplier in the market.

9% respondents have advocated that publishing poor supplier grading ('name and shame') or debarred/black list for unsuccessful supplier may motivate them to perform as per requirement within specified time.

7% respondents have expressed their opinion that inclusion of penalty clauses in contract to take compensation from supplier due to his failure to fulfill contract will motivate him to conform to the specification.

76% respondents have suggested that sufficient budget allocation and commitment of timely payment are the main motivating factors to get better as well as committed (over and above mere compliance) performance from the contractors. Since suppliers often have to take loan from commercial bank at high interest rate, if they don't get staged payments timely their business will not bring reasonable profit. For this reason they stop work after making some progress if payment is not given to them for that progress. Even they don't start work if they somehow can know that there is insufficient budget in that work. On the other hand, if commitment of timely payment can be given to contractors, they become motivated and anyhow manage finance to accomplish the project properly as they think that after getting the payment from this project they will be able to repay the loan as well as make reasonable profit to reinvest in some other profitable business. So, contractors will implement the project quickly as per specification.

## **CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS**

### **5.1 Conclusions**

From the analysis it is obvious that there are some shortfalls in supplier performance management by BWDB and some performance gaps by the suppliers. Only 13% projects are completed in due time in compared with original approved DPP and the remaining projects need time extension. Even 67% projects need two to three years extension to be accomplished. According to 71% respondents this is happening due to mainly insufficient budget allocation in the projects by the government. It is found that no project gets its allocated budget in due time according to original DPP. Two to three years delay occurs in 66% projects to get budget allocated in the original DPP.

Due to financial insolvency of suppliers they can't start project in due time or even can't accomplish project within given time period. Suppliers may have several projects at hand at a time and may invest their money in other projects and hence can't start this project. Sometimes, suppliers submit false line of credit facility document against which bank actually doesn't give loan. Moreover, as contractors/suppliers often take loan from bank at high interest rate, they stop work after making some progress if payment is not given to them for that progress. Even they don't start work if they somehow can know that there is insufficient budget in that work. For example, in 2012 only one contractor started work in due time at Bogra project and others even didn't start as there was too insufficient budget.

Again suppliers have technical shortfalls like lack of machinery, equipment and manpower. Sometimes it is found that there are no weight measuring scale, sieve, sufficient sewing machine, generator, cc block formwork and labor. Although suppliers show graduate engineers in their manpower list while contracting but practically even no diploma engineers are found in the work site. Moreover, during harvesting season labors claim high rate and hence contractors don't think it profitable to hire them at high rate and they stop work.

It is not always possible for engineers to full time monitor contractor's all activities via site visits as they have to do their official duty (eg miscellaneous file works) as well. For this reason, they send work assistants to the work sites for full time supervision. But as every work assistant has to supervise 2 or 3 mixture machine at a time, labors, in the twinkling of an eye, change the concrete mixture ratio from say 1:2:4 to 1:3:6 in any chance even short absence of the work assistant. The tested items are not representative of the huge number of cc blocks or geo bags as only 2 or 3

blocks or geo bags are tested at BUET. Rejection of cc block once manufactured is very much tough task. So, contractors take the chance to deteriorate quality. Moreover, due to lack of supervision, contractors often make 1 inch sand layer and 1 inch brick chips layer as filter material in lieu of 3 inch each layer under the cc blocks laid down in the slope of the river bank. Once it is done it is quite impractical to rectify the filter materials. It will cause sliding of cc block as water cannot pass through the faulty filter material.

## **5.2 Recommendations**

According to the results and analysis of both the quantitative and qualitative data the following recommendations can be made regarding the ways to improve supplier performance in BWDB.

Sufficient budget allocation and commitment of timely payment are the main motivating factors to get better as well as committed (over and above mere compliance) performance from the contractors/suppliers. Since suppliers often have to take loan from commercial bank at high interest rate, if they don't get staged payments timely their business will not bring reasonable profit. For this reason they stop work after making some progress if payment is not given to them for that progress. So quarterly progress payment should be given to suppliers. If commitment of timely progress payment can be given to contractors, they will become motivated and will anyhow manage finance to accomplish the project properly as they think that after getting the payment from this project they will be able to repay the loan as well as make reasonable profit to reinvest in some other profitable business. So, contractors will implement the project quickly as per specification. According to original DPP yearly budget allocation as well as quarterly fund release should be done by BWDB. If it is impossible to allocate sufficient yearly budget, suppliers should be allowed to take loan from state owned bank against their work/supply order at low interest rate in compared with private bank.

To ensure the financial solvency of supplier, his submitted liquid asset documents (eg bank statement, line of credit facility) with the tender should be verified well while selecting supplier since suppliers often submit false line of credit facility document. It should also be verified from the bank, that issues commitment of line of credit facility document, whether it will actually give loan against the specified work/supply order or not. Moreover, the existence of equipment, machinery and manpower according to supplier's submitted list should be specially checked and verified through visiting supplier's premise to ensure the technical capability of supplier.

Proper monitoring system should be established by concerned engineers. If engineers are busy with office work, they can send sufficient work assistant in the site to ensure work quality. Work assistant should inform the concerned engineer if anything goes wrong i.e. if quality corner is cut by the contractor or his labor. The concerned engineer may motivate contractor through the both approach of motivation i.e. the carrot approach (eg giving recognition and rewards: inclusion on the preferred supplier list, certificate of excellence which will increase the goodwill of the contractor in the market) and the stick approach (eg publicizing poor supplier grading 'name and shame' or debarred/black list for unsuccessful supplier, giving exemplary punishment, including penalty clauses in contract to take compensation from supplier due to his failure to fulfill contract).



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## Appendix A

### Questionnaire for Executive Engineer/Sub-Divisional Engineer

#### **Questionnaire survey on Supplier Performance Management in BWDB.**

Dear respondent,

I have been doing a research titled “Management of Suppliers’ Performance in BWDB: An Evaluation”.

This research is a part of requirements for the degree of Masters in Procurement and Supply Management under BRAC Institute of Governance and Development (BIGD), BRAC University. The aim of this research is to find the current practices of supplier performance management in BWDB and to suggest the possible ways of improvement for which your expert opinion would be valuable.

The information you provide will be used absolutely for academic purpose. Participation in this study is voluntary and you are free to withdraw at any stage. Furthermore, all information you provide is confidential and in no way will personally identifiable information be made available without your consent.

Thank you for your participation.

Md. Rakibul Hasan  
MPSM, Batch: 07  
Semester: Fall 2014  
E-mail: hmd.rakibul@gmail.com

1. Are the BWDB projects implemented in due time or extension of time needed?
  - a. In due time
  - b. Time extension needed
  
2. What do you think are the reasons behind delay in project implementation?
  - a. Insufficient budget allocation
  - b. Adverse weather condition (eg heavy rainfall, excessive current/wave in river)
  - c. Financial insolvency/technical incapability of contractor/supplier
  - d. Delay in counting by BWDB Taskforce members
  - e. The project duration couldn't be anticipated properly during DPP formulation
  - f. Others (Please specify):

3. Are the financial and technical criteria properly checked while selecting supplier/contractor?
- a. Yes (Please specify the criteria that are checked):
  - b. No (Please specify the necessary criteria to be checked):
4. What type of performance measures or standards i.e. specification is used in BWDB contracts?
- a. Conformance specification
  - b. Performance specification
  - c. Combination of both
5. Comment on the type of specification to use to get better supplier performance and why?
- Comment:
6. Can the concerned engineers regularly and properly monitor, review and evaluate supplier performance?
- a. Yes
  - b. No (Please comment why):
7. Which approach of quality management is practiced in BWDB projects?
- a. Proactive prevention approach (stopping problems at source) i.e. quality assurance
  - b. Reactive detection approach (finding and fixing problems) i.e. quality control
  - c. Not sure
8. Is quality in suppliers' performances improving day by day?
- a. Continuously improving (Please specify how):
  - b. Consistent
  - c. Deteriorating (Please specify why):
9. Is there any practice of supplier development?
- a. Yes (Please specify how):
  - b. No

10. How can suppliers be developed to implement the projects in time with satisfactory quality?

- a. Advance payment
- b. Offering training for the supplier's staff in relevant areas (eg technical aspects of the requirement)
- c. Progress payments
- d. Loaning machinery, equipment or IT hardware
- e. Others (Please mention how):

11. Which approach of supplier motivation is followed in BWDB?

- a. Carrot approach
- b. Stick approach
- c. Not sure

12. What will motivate suppliers better to accomplish the projects in due time and as per requirement?

- a. Recognition and rewards: inclusion on the approved or preferred supplier list
- b. Certificate of excellence which will increase the goodwill of the supplier in the market
- c. Publicize poor supplier grading ('name and shame') or debarred/black list for unsuccessful supplier
- d. Penalty clauses in contract to take compensation from supplier due to his failure to fulfill contract
- e. Sufficient budget allocation and commitment of timely payment
- f. Others (Please mention):

## Appendix B

### Questionnaire for Contractor/Supplier

#### **Questionnaire survey on Supplier Performance Management in BWDB.**

Dear respondent,

I have been doing a research titled “Management of Suppliers’ Performance in BWDB: An Evaluation”.

This research is a part of requirements for the degree of Masters in Procurement and Supply Management under BRAC Institute of Governance and Development (BIGD), BRAC University. The aim of this research is to find the current practices of supplier performance management in BWDB and to suggest the possible ways of improvement for which your expert opinion would be valuable.

The information you provide will be used absolutely for academic purpose. Participation in this study is voluntary and you are free to withdraw at any stage. Furthermore, all information you provide is confidential and in no way will personally identifiable information be made available without your consent.

Thank you for your participation.

Md. Rakibul Hasan  
MPSM, Batch: 07  
Semester: Fall 2014  
E-mail: hmd.rakibul@gmail.com

1. Are the BWDB projects implemented in due time or extension of time needed?
  - a. In due time
  - b. Time extension needed
  
2. What do you think are the reasons behind delay in project implementation?
  - a. Insufficient budget allocation
  - b. Adverse weather condition (eg heavy rainfall, excessive current/wave in river)
  - c. Financial insolvency/technical incapability of contractor/supplier
  - d. Delay in counting by BWDB Taskforce members
  - e. The project duration couldn't be anticipated properly during DPP formulation
  - f. Others (Please specify):

3. What type of performance measures or standards i.e. specification is used in BWDB contracts?

- a. Conformance specification
- b. Performance specification
- c. Combination of both

4. Comment on the type of specification to use to get better supplier performance and why?

Comment:

5. Which approach of quality management is practiced in BWDB projects?

- a. Proactive prevention approach (stopping problems at source) i.e. quality assurance
- b. Reactive detection approach (finding and fixing problems) i.e. quality control
- c. Not sure

6. Is there any practice of supplier development?

- a. Yes (Please specify how):
- b. No

7. How can suppliers be developed to implement the projects in time with satisfactory quality?

- a. Advance payment
- b. Offering training for the supplier's staff in relevant areas (eg technical aspects of the requirement)
- c. Progress payments
- d. Loaning machinery, equipment or IT hardware
- e. Others (Please mention how):

8. Which approach of supplier motivation is followed in BWDB?

- a. Carrot approach
- b. Stick approach
- c. Not sure

9. What will motivate you better to accomplish the project in due time and as per requirement?

- a. Recognition and rewards: inclusion on the approved or preferred supplier list
- b. Certificate of excellence which will increase the goodwill of the supplier in the market
- c. Publicize poor supplier grading ('name and shame') or debarred/black list for unsuccessful supplier
- d. Penalty clauses in contract to take compensation from supplier due to his failure to fulfill contract
- e. Sufficient budget allocation and commitment of timely payment
- f. Others (Please mention):