PROJECT MANAGEMENT AND THE PROJECT MANAGER: A STRATEGY FOR ADDRESSING THE PROBLEM OF BUILDING AND INFRASTRUCTURAL COLLAPSE IN NIGERIA

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Abstract

This study was undertaken to establish how project management and the project manager can be used as a panacea for preventing building and infrastructural collapse in Nigeria. The paper is necessary because of the importance of proper planning and monitoring of project activities in order to avoid building and infrastructural collapse, project failure, project abandonment, project cost and time overruns, etc. The paper examines the different component parts that constitute project management in the building construction industry. The result of the study shows that project management is a major tool with which project managers can achieve successful building project delivery, and that the project managerôs position in the building construction industry should be occupied by a professional who has training in the project management body of knowledge. It is hoped that this paper will therefore, in no small measure, assist project managers, builders, clients and other stakeholders in the building construction industry in checkmating the problem of building and infrastructural collapse in Nigeria.

Key words: Project Management, Project Manager, Collapse of Building, Collapse of infrastructural Projects, Building Projects Professionals, Project Management Techniques.

Introduction

The essence of this paper is to show how project management and the project manager can be used as a strategy to stop the collapse of building and infrastructural projects through the implementation and enforcement of the content of the Nigeria National Building Code. The paper also looks at the challenges facing the achievement of this objective.

All the provisions needed to erect quality buildings are there already in the National Building Code. But why are the implementation and enforcement a problem? Why are builders, developers and clients not working with the contents of the National Building Code in Nigeria? What will it take to make these stakeholders to want to work with this document? How can we motivate clients, developers, builders, project managers, Engineers, Architects, Surveyors and other building development stakeholders, in Nigeria, to implement the National Building Code in all their Building project delivery? These are the issues to look at in this paper. In other words, the paper is to address the challenges and the strategies for the implementation and enforcement of the content of the National Building Code, so as to tackle the problem of building and infrastructural collapse in this country.

We need to look at what project management entails and then who the project manager should be and his responsibilities. Finally, we look at the tools that the project

manager uses to carry out his responsibilities. His responsibilities include ensuring that project abandonment, project failure, collapse of building and infrastructural facilities, project cost and time overruns are avoided. Therefore, using project management and the project manager as a way of enhancing the implementation and enforcement of the National Building Code is a good strategy to be paid attention to.

The Problem

According to Mawdesley and Michael (2007), the means by which a building project is completed demands either hope, guesswork and good fortuine, or regular planning and control. The former method will always almost lead to bad fortune. Mawdesley and Michael, also said thatthe latter is a step in the right direction, although the avoidance of failure cannot be assured due to the differences in the quality of the planning.

This statement describes the situation in the Nigerian building project delivery, because it is a well known fact that majority of building projects in Nigeria are carried out without proper planning and scheduling of the building project activities and without any input from a project management trained project manager. When the projects are planned at all, hardly do the planners use the appropriate scheduling technique to logically sequence the planned activities that make up the building project, in order to ensure effective project execution. Nevertheless, the importance of proper planning, scheduling and monitoring of building project activities cannot be underestimated, especially if project abandonment, project failure, collapse of building projects, project cost and time overruns, must be avoided.

Mulvaney (2005), agrees with the above view because he believes that the objective of planning is to produce a time table of work, so that each job is allocated a start date and a finish date, plus the assurance that the things necessary to deliver each job will be available when required. But in our country Nigeria, public building projects executors do not attach much importance to the scheduling of building project activities. This explains why one hardly finds any scheduling plan being adopted in any public building project. When one does find any, it must be the bar charts, irrespective of the complexity of the building project.

Our building stakeholders do not believe scheduling techniques have any effect in successful building delivery. This is obvious from the fact that when one mentions about network scheduling techniques to our building projects stakeholders, they usually get uninterested, preferring to stress the point that the use of those techniques do not work in Nigeria; that the site workers do not understand them and so nobody uses them; and that it is unnecessary to use them (Barnisile, 2005).

Nevertheless, every year, our country witnesses a huge wastage of resources and loss of human lives from collapsed buildings. The evidence is everywhere, including Table 1.1 below which refers to some of the reported cases of collapsed buildings across Nigeria.

Table 1.1: Reported Cases of Collapsed Building Across Nigeria.

S/N	Building location	Type	Date	Suspected cause(s) of Building Collapse	No. of lives lost
1	Barnawa Housing (Estate) Kaduna	Residential Building	August 1977	Faculty design	28
2	Barnawa Housing Estate Kaduna	Three storey Residential building	1980	Faulty design	6
3	Bereku Lane, Lagos Island	3 storey building under construction	July 1985	Excessive load	9
4	Gboko, Benue State	Residential building	Sept. 1985	Carelessness	1
5	Oshogbo, Osun State	A mosque	May 1986	Faculty Design/carelessness	2
6	Ona Street Enugu Anambra State	Residential 2 storey building	1986	No investigation	2
7	Olu Obasanjo, Diobu Port Harcourt, Rivers State	Three storey school building	June 1999	Ignorant owner/no structural design	55
8	Enugu, Enugu State	Three storey building under construction	June 1997	Use of incompetent contractors	
9	Four Square Gospel Church Maitama District, Abuja	Three storey building	Oct 1999	Use of quacks	No available date
10	Port Harcourt,	Two storey building	2003	Use of sub-standard materials	

Source: Lagos State Physical Planning and Development Authority

Various factors have been blamed for the collapse of buildings in Nigeria. Factors like the use of inefficient project executors, inadequate funding, rising cost of building materials, poor management cum technical know-how, carelessness and greed, Ignorance, incompetent contractors, use of substandard materials and quacks , and so on, have all received their share of this blame.

But there could be other factors that are causing collapse of buildings and infrastructural facilities in Nigeria and which nobody is paying attention to. This researched paper becomes necessary, because the presenter strongly believes that the non use of project managers and the appropriate building project planning tools and the lack of serious attention to them when planning building projects, are some of them.

The Meaning of Project

According to Harold (2003), organizations perform work. Work generally involves either operations or projects. Work by projects is temporary and unique. Temporary means that every project has a definite beginning and a definite end. Uniqueness means that projects involve doing something which has not been done before.

Luckyer (1995), defined project as a task that has a defined set of performance characteristics that involve large expensive, unique, or high risk undertaking which have to be completed by a certain data for a certain amount of money, within some expected level of performance. He believes that all projects should have well defined objectives and sufficient resources to carry out all the required tasks.

Hendrickson (2003), defined project as a combination of human and non-human resources put together in a temporary organization to achieve a specific purpose or objectives. According to him, certain basic characteristics are always present in any given project namely a set of goals that range from specific time for completion, a limited budget, to a series of complex but interacting activities.

The Meaning of Project Management

According to Guide to the Project Management Body of Knowledge (2004), Project management is the application of knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholdersô needs and expectations from project. Meeting or exceeding stakeholdersô needs and expectations invariably involves balancing competing demands among:

(i) Time, cost and quality
(ii) Stakeholders with different expectations
(iii) Identified requirements (needs) and unidentified requirements (expectations) (PMI Practice Stands, 2001).

But from the perspective of different stakeholders in project management such as Robert (2003), project management has arisen from the definitive understanding of project and management, and involves the coordination of group activity in which the manager plans, organizes, staffs, directs and controls in order to achieve an objective with constraint in time, cost and performance.

Again, project management is seen in the view of Lister (2006), as the application of the system approach to management of technology complex tasks with objectives explicitly stated in time, cost and performance parameters.

According to Harold (1998), project management is a blend of art and science, the art of getting things done through and with people in a formal organized group; and the science of handling large amount of data to plan and control so that project duration and cost are balanced. In project management it is important that implementation be handled by those who understand the project better as they are more likely to work within cost and time schedules and be able to do a good job.

The Need for Project Management

It has become imperative for the various participants in the building industry to pay greater attention to the efficient use of all client resources required in executing capital projects. This need can be traced to difficulties being experienced with the orthodox way of operating in the building industry and the relationship that exists between client, consultants and contractors which are often not satisfactory in the traditional procurement method. The difficulties have not allowed clients to benefit from the time tested and worldwide accepted better procurement method of project management. The benefits of project management are now becoming obvious and many of the construction industryôs influential clients are

turning to project management as the most effective way to procure a new facility, whether it is a factory building, a multi-storey office block, or any other building project work.

The objectives of project management are to apply management skills and appropriate techniques to the planning and control of all aspects of a project and to optimize the use of resources to produce a well designed and professionally constructed facility which will meet the clientôs requirements of function, quality, time, cost budget and future maintenance. This is possible because project management sees to the overall planning, control and co-ordination of a project from inception to completion, targeting the clientôs requirements and ensuring completion on time, within cost and required quality standards. With the project management structure, management is totally separated from design process and the construction process.

According to Ogunbiyi (2005), if there is one single characteristic which sets a project apart from routine commercial or industrial operations, it is novelty. No two projects are ever exactly alike, and the course of any project may not be predicted with accuracy or the final outcome completely guaranteed. A project is always a journey into the unknown, freight with risk. Projects typically demand the use of resources that are scarce or expensive, but which have to be deployed over a most complex framework of task. The purpose of project management is to minimize, contain or counter the risks and organize and direct the resources so that the project is finished on time, within budgeted costs and with the functional or design objectives fulfilled.

The Need for the Project Manager

the decision is taken to use project management method for the procurement of a building project development, the person at the head of the project team should ideally be technically experienced. He or she should also be a qualified professional who could be a professional builder, an architect, an engineer, a quality surveyor or an estate surveyor. According to Bamisile (2003), the project manager needs to have the following qualities:

i. Perceptive ability to stop potential problems early.
ii. Questioning attitude ï a project manager cannot always believe in progress information or promises without demanding back-up information or proof.
iii. The project manager should be familiar with appropriate project management techniques, which nowadays almost invariably need a computer-system.
iv. He should be an active mobile person, since a project cannot be managed effectively by remaining behind a desk all the time.
v. He should be a good motivator of people, both inside his firm and outside.
vi. A project manager should be a capable organizer, including the handling of meetings.
vii. He should be a good communicator, including having the ability to co-operate with all project participants.

Present Practice of Planning and Delivering Building Projects in Nigeria

The most important aspect of practical planning of a building project is the selection of a scheduling technique with which to plan the execution of the project. Different projects lend themselves to different planning techniques, thus, demonstrating the need to choose the most appropriate tool for the particular job at hand (Mawdesley and Michael, 2007).

Building projects are usually designed by architects and engineers, and the construction executed by builders who hire subcontractors for the structural, mechanical, electrical, and other specialty work. Building construction work involves non-routine activities. They are unique, one time operations designed to accomplish the objective of providing shelter within a limited time frame. Building projects present a host of problems that differ in many respects from those encountered with more routine types of activities. The problem of scheduling and coordinating these project activities can be quite formidable for the large projects that must be carefully scheduled and monitored if the project is to be completed on time and at a reasonable cost.

Scheduling, according to Lister (2006), is the process of formulating detailed listings of activities that must be accomplished to attain an objective. This realization depends on the type of scheduling tool used (Mewdesley and Michael 2007). The bar chart has been the popular tool in use in the building construction industry in Nigeria, for scheduling building project activities.

According to Mulvaney (2005), the bar chart is a popular tool for planning and scheduling simple projects. Its obvious advantage is in its simplicity and this accounts for its popularity in building project execution in Nigeria.

In addition to its good parts, the bar chart also has some serious short comings. For instance, interdependencies among project activities are difficult to show and are often not reflected in the data generated. According to Mulvaney (2005), the bar chart does not provide a basis for knowing which activities are critical and which ones are float activities. Each activity, he continued, receives the same consideration with no indication of where management attention should be focused.

Lister (2006) believes that the bar chart is not an adequate management tool, since it does not show a detailed, integrated and completed plan of operations. With regard to this shortcoming therefore, the bar chart is ineffective for project shortening, resource leveling, etc., since if one of the activities in a project suffers a setback, it will not be possible to know which activities wound have to be addressed as a result.

Another important technique used for scheduling building construction project activities is that of the network, although it is, unfortunately not popular in Nigeria. The network scheduling technique comprises the Project Evaluation and Review Technique and the Critical Path Method, otherwise known as PERT and CPM respectively, which evolved partially from the Gantt Chart. They are planning tools designed to emphasize the interrelationships of tasks (Lister, 2006).

According to Beck (2004), the two network tools have a great deal in common. PERT originally stressed probabilistic activity time estimates because the environment in which it developed was typified by high uncertainty. But the task for which CPM was developed is much less uncertain, and so CPM originally made no provision for variable time estimates.

Present Practice of Planning and Delivering Building Project Activities outside Nigeria

In the United States of America, the network tools are used in scheduling large building project activities. With the appropriate application of the tools, one scarcely hears about such rampant things as in Nigeria like collapse of building structures, project schedule delays, project abandonment, conflicts during project execution and budget overruns. These lead to time overruns, compromised specification, just to mention a few

The numerous benefits offered by the network planning tools are reaped by the building industry in America. Such benefits include the fact that the networks show the sequence and interrelationship of activities, their earliest and latest start and finish times of completion, the entire project completion time, the allocation of resources (human resources, machine resources, financial resources and material resources), etc. These planning tools enable projects to be completed in time, according to specifications and within budgets, in the USA. Due to the constant experience of building and infrastructural collapse in our land, the Nigerian Institute of Building should commence to pay very serious attention to efficient and appropriate application of planning tools in building project delivery, so that Nigeria will also reap the benefits offered by the net-work planning and scheduling tools.

The Project Manager's Working Procedures

The processes and concepts with which the project manager carries out his responsibilities include the following:

Project Planning and Its Processes

Planning can be defined as making decisions now with the objective of influencing the future. The planning process is paramount to the success of all projects (Mulvaney, 2005). Planning involves making decisions about what tasks (activities) will be performed, how they will be performed, who will perform them, and when and in what sequence. Necessarily, the planning process involves anticipating actions and anticipating performance. It is important that an experienced personnel team be involved in project planning, and such personnel should contribute a wide and deep experience of working in their disciplines and on projects of the type under consideration, such as public building construction projects.

Planning is not a computer application. It is a process that is best carried out by assembling the team of project stakeholders and using brainstorming and other techniques to create the Work Breakdown Structure (WBS), Organizational Breakdown Structure (OBS), Responsibility Assignment Matrix (RAM), Logic diagram and activity duration estimates (Belo, 2002). The planning activity for the management of a project is crucial because a project involves doing something that has not been done before, and the amount of planning performed should be commensurate with the scope of the project and the usefulness of the information developed.

According to Mawdesley (2007), to plan something is the second management process of the five management processes of project management that include initiating, executing, controlling and closing processes. Planning is a management process that will need to be undertaken constantly throughout the projectôs life-cycle. It is a process that incorporates a number of core processes or steps such as scope planning, scope definition, activity definition, activity sequencing, etc. and a number of facilitating processes. The facilitating processes are the planning interface with other knowledge areas such as quality planning, organizational planning, communications planning, procurement planning, etc. Project planning serves as the foundation for several related functions, i.e. estimating, scheduling, resource allocation and project control. Planning involves the process of selecting a method and order of work to be used on a project, the available resources and possible activity sequence (Beck, 2004).

Effective Project Planning Requirement

According to Luck (1998), effective project management, like other management functions, is essentially the result of the ability to lead the people doing the work well, making good decisions and communicating effectively with the workers to make effective decisions and take related actions, Luck continued, it is necessary that the project manager and the members of the team have a high level of competency in planning, scheduling and control. Although these functions are directly connected, they are terms that have mutual exclusivity.

An important part of a project managerôs responsibility is the coordination of a variety of related activities that make up the project scope. Determining the content, sequence, and interrelationships of such activities will assist greatly in creating a project plan. Then comparing the unfolding actual performance of activities relative to the plan by the project manager is applying control. When project activities are relatively limited and repetitive in nature, fairly simple diagrams or charts may be used to present the information needed for active control. More usually a project is often unique, large, complex and diverse, and involves a great many organizations or subgroups. Accordingly, the project manager requires a clear view of this complicated network of inter-dependencies. The project manager needs to think of the project in its entirety, thus viewing it as a system (Richard, 2008).

Planning and control are two elements in the project management process that are closely connected. According to Mulvaney (2005), planning precedes control, consisting of 80% memory of historic procedure and 20% synthesis or creative thought.

A network showing sequences and interrelationships will aid greatly in coordinating inputs and activities and reducing confusion and delays. Network models have special significance because they have certain mathematical characteristics that enhance their value in finding optimal solutions for complex problems (Richard, 2008). According to Richard (1998), both planning and scheduling are an art needing a personal ability acquired only after years of study, observation and experience.

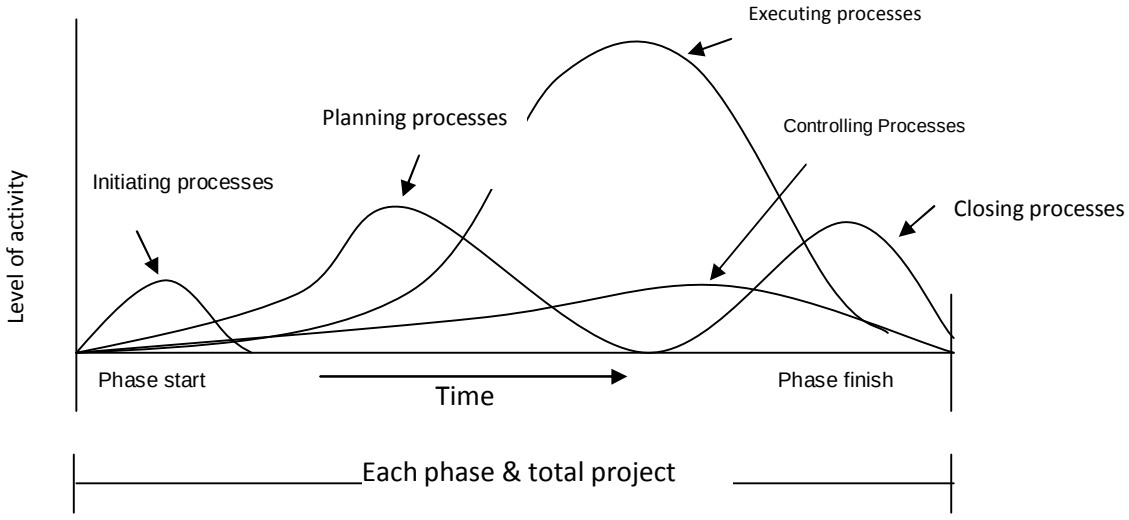

Figure 1: Project Management Processes with Time
Sources: Adapted from Mawsesley et al, (2007), Planning & Controlling.

There are a number of outputs from planning and scheduling and prominent among them is the Work Break-Down Structure (WBS), Organizational Break-Down Structure, the Responsibility Assignment Matrix (RAM), and so on. As shown in Figure 1, initiating and planning of projects will happen at least once in every phase of a project. Initiating happens at the beginning of a phase and extends for a relatively short time within the phase period. The planning process also happens at the same time. Project planning is one of the fundamentals of project management and it is not a one-time effort. It is a process that is required throughout the life-cycle of any project.

Work Breakdown Structure Concept

According to the PMI Practice Standard, (2001), the Work Breakdown Structure (WBS), is the decomposition of the project into all the activities and tasks that are needed to design, procure, implement and complete the project. The WBS is a means of displaying the physical subsystems to be developed or produced and it relates the elements of work to be accomplished to each other and to the end-product. Typically when creating a WBS it is necessary to divide the work of the project into greater and greater levels of detail.

The WBS shows successive subdivisions of the work on a chart similar to that used for conventional organizational charts. Although the number of levels is dependent upon the size and complexity of the project; it could be five, six or more levels. The purpose of the WBS is to divide the project into what is referred to as work packages which will allow the assignment of time and cost estimates, management activity and task responsibility.

The WBS activities should all have an activity (code) number, a description, and an assigned responsibility. By the time the WBS is completed, all work on the project will have been completely defined. In addition to this listing is a unique number code that is assigned to each activity; this assumes that the project is large and complex and computerized scheduling will be needed to handle the volume of information.

Project Organization Breakdown Structure

According to Hendrickson (2003), the organization structure of a project should be designed as early as possible in the projectôs life-cycle. This should clearly establish the communication channels, responsibilities and the authority of each participating entity as these are key elements that affect project success. The most appropriate structure depends on the nature of the project, on the environment in which the project is performed and on the structure of the participating entities. The project organizational breakdown structure (OBS) is a graphical representation of the participating organizations. In the same way that the WBS can be arranged in a hierarchical treelike formation, so the OBS can be similarly represented. The OBS is the people structure that will be needed to undertake the conception, definition, implementation and completion phases. It is necessary for the project management team to determine the disciplines and plan the numbers of skilled personnel needed to execute the tasks identified in the WBS. Once the project organizational structure is defined and each participating unit assessed for work activities then, it is possible to further define and break the work content into additional activities and tasks. Thereafter, each activityôs duration can be estimated. The breakdown and estimating of activity durations are part of the planning process (Ward, 2006).

Responsibility Assignment Matrix

According to Naylor (2002), the Responsibility Assignment Matrix (RAM) is also sometimes referred to as the Linear Responsibility Chart (LRC), but to a very large degree LRC is an historic term used by veterans in project management. The RAM is a tool for combining the WBS and the OBS. Its purpose is to show a work activity, the organization responsible for it and members of that organization that will carry out that work activity. The RAM summarizes the relationships between the project participants, the stakeholders, and their roles for each activity required to carry out the project.

All individual efforts should be reviewed with the particular participant. At the initial phase of a project this may only be possible at organization or department level; as the planning becomes more refined the participating individuals can be identified. The RAM becomes an input and a very useful device for determining resource requirements.

The project team should use the RAM to review the completeness and the adequacy of the WBS activities. The matrix may throw up duplicated activities, missed activities, critical interfaces between activities or matters requiring special attention. Interactions between the RAM and WBS should be carried out as many times as needed to ensure completeness and that they accurately reflect what is seen to be the totality of the planned work (Naylor, 2002).

Activities Sequencing

The next step in the planning process is to develop a logic diagram (Mawdesley, 2005). Mawdesley says that other terms used instead of logic diagram, are ósequential activity diagram and flow diagramô. The logic diagram is a sequential flow diagram that is often used in process engineering. It presents the project activities in the form of boxes (the activities) connected by arrowed lines that point from left to right (all flow diagrams used in the planning of projects óflowô from left to right). The logic diagram is what it says it is. It presents a procedure, a sequence, for undertaking the project activities.

According to Lockyer (1995), a sequence of adjacent points connected by lines is called a chain. When the chain is oriented so that it is possible to move along it from point to point, it is called directed chain or a path. A chain that begins and ends at the same point is a cycle or circuit network. Logic diagrams can contain a number of paths or chains.

Each activity listed in the WBS is written into a box on the logic diagram sheet. The activities are then connected together to form a logical sequence. According to Richard (2008), in labelling the activities and event boxes it is recommended, where possible, to abbreviate the activities and tasks by using one noun and one verb. Sometimes this is not possible so more words are used, but where it is possible the abbreviated form should be the norm. Activity descriptions should generally be reviewed for accuracy since descriptions can affect activity sequencing.

When connecting an activity to the others in the diagram, it is necessary for the planner to keep asking the following three questions:

(i) What activities must be done before the activity I am considering;
(ii) What activities can be commenced after the activity I am considering;
(iii) What activities can be carried out at the same time as the activity I am considering (Hendrickson, 2003).

This can be referred to as the plannerôs thought spiral. According to Mulvaney (2005), there are three designations given to activities: (a) predecessor, which are all the activities that come before the activity being considered; (b) successor, which are all the activities that come after the activity being considered; and (c) concurrent, which are all activities that can happen at the same time as the activity being considered. In summary, predecessor comes before; successor comes after; and concurrent takes place at the same time.

For an illustration, if activity E is being considered then: (See Figure 2)
(i) Activity B is a predecessor to E;
(ii) Activities G and H are successor activities to E;
(iii) Activities D and F are likely to be concurrent to E.

A flow diagram starts with a start node and finish with a finish node. In other words, they demonstrate the start and finish of the diagram. These nodes are optional except that it is a good practice when preparing logic diagrams so that one does not have what is referred to as dangles. According to Robert (2003), dangles are activities, which are missing either a connecting line coming into the left of their box or a connecting line leaving from the right of their box.

The lines, which connect boxes, demonstrate that there are relationships between those activities that are connected. These connection lines are known as dependencies and there are two types: mandatory and discretionary (Naylor, 2002).

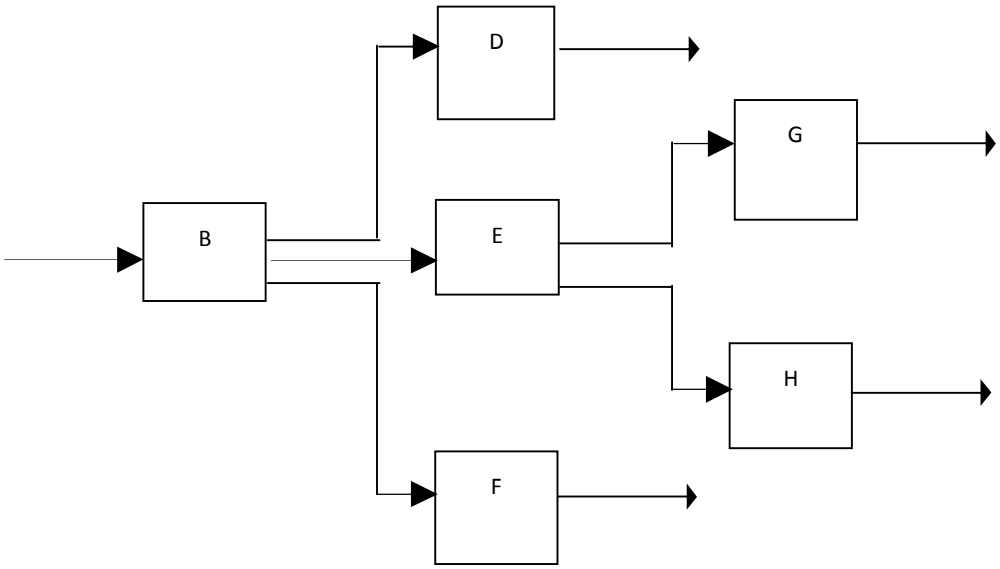

Figure 2.4 Illustration of Network Terminology

Mandatory dependencies, otherwise referred to as hard logic, are relationships between activities that are inherent in the nature of the work being undertaken. For example, it would be impossible to undertake an activity like ñtest assemblyò except after all components of the assembly have been connected together and checked as being complete.

Discretionary dependencies, otherwise referred to as soft logic, are relationships between activities that are defined by the project team. They fall into two categories namely, (i) those activities, which are being sequenced due to knowledge of óbest practicesô (i.e.

sequences that are desirable and customary so long as the projectôs overall duration is not affected) and (ii) those activities that are sequenced due to knowledge of some unusual aspect of the activity and this is called preferential logic.

Most dependencies are internal to the project, i.e. they are dependencies between two, or more, of the projectôs activities. These are called internal dependencies. Some are external dependencies involving interfaces with other projects or of non-project activities of one, or more, of the stakeholder (Hendrickson, 2003).

Any of the dependencies may require specification of a lead or lag period so as to define accurately the relationship. For example, there may be a two day delay between completing F and starting H in Fig.2. When drawing connecting lines that cross, we should either create a bridge or cut one of the lines as shown in Fig.3 (Mulvaney, 2005).

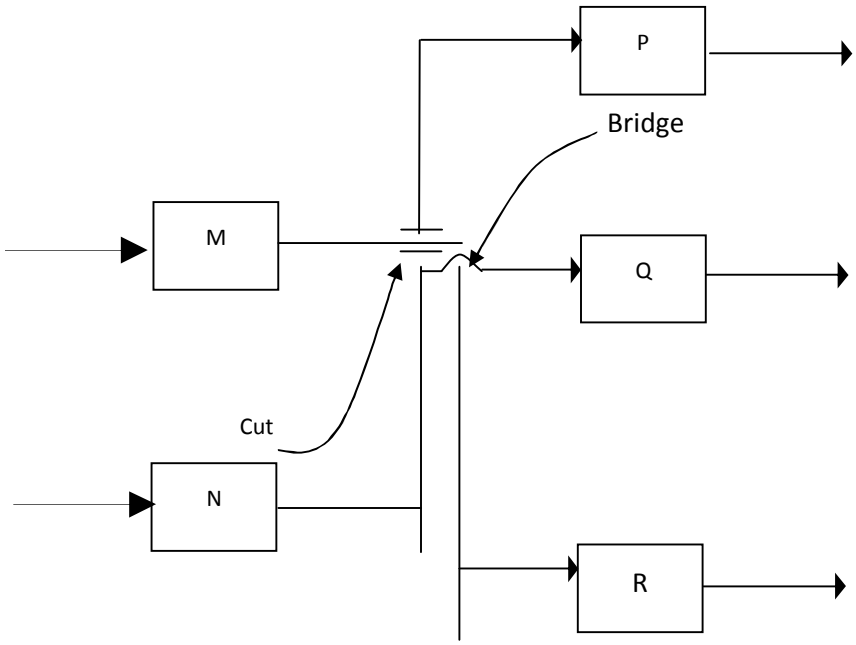

Fig. 3 Representation of Connecting Lines that Cross

According to Belo and Agbatekwe (2002), the dependencies considered thus far imply that a successor activity cannot start until its predecessors have been completed. However, in certain cases the start of a successor activity is linked or constrained by the start of a predecessor activity. In other cases the finish of a successor activity is constrained by the finish of a predecessor activity. In yet another relationship, it is possible to have the finish of a successor activity constrained by the start of a predecessor activity. Richard (2008), argues that whatever the case, the project planner should be someone who has significant and appropriate experience of projects of the type being considered. This is because it takes a little imagination to visualize the way in which logic diagrams can be useful in analyzing projects that require the performance of a number of activities, some of which must be completed before others are begun.

A logic diagram represents the essential tasks that must be performed to complete the project (Richard, 2008). Such a representation forces the planner to define carefully the tasks

that must be performed and to specify any linkages that exist between tasks. Once this has been done an obvious result is a picture that shows which activities await the completion of others and which ones can be conducted simultaneously. This gives the model plan for the project.

Conclusion

As can be seen from this paper, the collapse of building and infrastructural projects is a problem that needs urgent attention. It is a problem that needs solution from different angles, including using project management and the project manager strategy. Additionally, this paper recommends that as strategies to address the problem:

- Building professional bodies should continue to mount workshops and seminars to educate all building related stakeholders about the need to adopt the network processes in building projects delivery in Nigeria.
- Building project Professional bodies should work with the government to ensure that the cost of building materials, including cement and reinforcing rods, are very much reduced. This will make people build houses with the specified materials.
- There should be a professionally trained project manager in every building project production execution.

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