European Journal of Academic Essays 2(2): 11-20, 2015
ISSN (online): 2183-1904
ISSN (print): 2183-3818
www.euroessays.org

Development of Strategies for Effective Project Scope Management: A Study of National Integrated Power Projects (NIPP)

Ubani, Emmanuel[1], Echeme Ibeawuchi[2], Ukwuoma,Benjamin[3]

[1]Department of Project Management Technology,
Federal University of Technology Owerri–Nigeria.
E-mail:*ibeecheme@yahoo.com*

[2]Department of Project Management Technology,
Federal University of Technology Owerri–Nigeria.
E-mail:*ibeecheme@yahoo.com*

[3]Lahmeyer International/OTIS Engineering: NIPP Design Consultants,
Maitama Abuja Nigeria,
Email: *cofact@hotmail.com*

Abstract: Managing projects with little or no scope creep could be a strategy for competitive advantage in the realization of impressive business results. This study examines and analyses strategies for effective project scope management so as to provide avenue to prevent or minimize scope creep for achieving project objectives. Exploratory and descriptive survey methods were adopted in conducting the research using primary data obtained from the NIPP contracting firms through the instrument of questionnaire modeled in Likert 5 point scale. Computer-software of one-way Analysis of variance was used for statistical test of research hypothesis. The results of the analysis infer and establish the cases of adoption and institution, of technology competence in project design with emphasis on creation and analysis of work breakdown structure to the minute details, design review and verification of scope definition with scope checklist in synergy with robust scope communication plan as effective strategies for NIPP scope management. There are needs to devise mechanisms for evaluation of design effectiveness, verification of scope definition/work breakdown structure and seamless information and communication management system.

Keywords: Project management, power projects, scope management, business competitiveness

---

1. Introduction

In the management of projects, there is likely nothing more critical to the success of a project than to begin with an adequate definition of the scope of work and then to gain the acceptance of the definition by the customers. Project managers must define what they plan to do, and most important, must set the outer limits of what they are committed to do. Without a scope definition, "firewall" in place, projects will be in the unenviable position of constantly accepting additional work referred to as "scope creep" throughout the life of their existence. The only way to put finality to into a project is to define the scope of work, and then to avoid the inadvertent acceptance of minor refinement and this requires a result oriented strategy to accomplish the projects successfully. Today's business challenges and fierce global competition requires new ways to improve competitiveness in business. And project management is at the top of the list.

Power projects management are usually characterized by complex engineering design and scope definition with many

Corresponding Author: Echeme Ibeawuchi, Department of Project Management Technology, Federal University of Technology, Owerri, Imo State Nigeria.; Email- ibeecheme@yahoo.com, Tel. +2348032403835

interfacing Work Breakdown Structure (WBS). The study on the scope management of National Integrated Power Projects (NIPP) in Nigeria has become increasingly important in recent years due to elusiveness of the projects objectives since its inceptions. The NIPP was conceived in 2005 by the Federal Government of Nigeria (FGN) as an intervention programme to increase power generation in the country. The projects commenced with the implementation of seven medium power projects in the Niger Delta region of Nigeria. Subsequently the projects were expanded to include additional power stations, enormous transmission and distribution systems all over Nigeria. The bulk transmission systems of the NIPP have been planned to meet specific criteria in an attempt to provide consistence high and reliable power outputs for consumers, but the project objectives are yet to be realized. Some of the challenges of the implementation of NIPP could be attributed to engineering designs complexity, incessant requests for re-scoping of the generations, transmission and distribution contract. One of such is the request for re-scoping of lot 20-3 transmission line from Oji to Delta [1]. The need to delve into the scope management strategies has become imperative so as to fashion out techniques of designing NIPP projects with little or no design errors and without changes in the original scope definition during the implementation stage of the projects. [2] asserts that lack of scope definition has been identified as the root causes of cost overrun, late completion dates, excessive rework, unnecessary disputes, poor team alignment and other problems associated with engineering and construction projects. As engineering progresses, the level of scope definition increases and changes in scope usually follow as a result of poor project definition. This study is therefore set out to examine scope management in order to proffer a way of preventing or minimizing scope changes. Project managers should pay a great deal of attention to managing scope. Allowing the project's scope to change mid-course usually means added costs, greater risks and longer duration. It is a fact that many projects fail due to poor scope management. Because WBS define the total scope of the of the project, it is very crucial to develop good WBS for project design and scope definition. WBS is a deliverable-oriented grouping of the work involved in a project that defines the total scope of the project. In other words, the WBS is a document that breaks all the work required for the project into discrete tasks and groups those tasks into a logical hierarchy. [3] opines that nevertheless, it is difficult to create a good WBS and to create a good WBS, you must understand both the project and its scope and incorporate the needs and knowledge of the stakeholders. The problem of the study is predicated on the abysmal performance of power sector and challenges of NIPP in addressing the problems to successful completion. Rather than focusing the project on "getting the job done" the strategies would focus the project management dexterity on competitive advantage of its outcome and how to make it work effectively through scope control. According to [4], poor state of electricity supply in Nigeria has imposed significant costs on the business sector.

In the past, the PHCN enjoyed the monopoly of generation, transmission and distribution of power in Nigeria, though regulated by the FGN. The monopolistic nature of PHCN is a major hindrance to effective power generation, transmission and distribution with less than 4% of the total capacity due to poor maintenance of power facilities [5]. Industries can only cope with power outage by resorting to internal generating plants. Power generation in the country has been dismal and unable to compare with what is obtained in smaller African countries [6]. For instance [7] observes that power distribution to the industrial sector in the month of June 2006 on the average, was 7.52 hours per day; and it has been on a decline since then. The Nigerian Electricity Regulatory Commission (NERC) was established under the Nigeria Electric Power Sector Reform act and was passed into law in March 2005 and effective took off date was October 31, 2005 [8]. Among the NERC primary functions include: orderly development of a competitive power market, license and regulate persons engaged in electricity business, promote competitiveness and private sector participation etc. [9].

These noble objectives and refined ideas triggered and stimulated NIPP in Nigeria. Many power contracts awarded by NIPP are being plagued by myriad of problems and uncertainties while relying on rule of thumb for scoping management.

The major problem of this study is the failure of some of NIPP contracts due to project scope changes or creep, poor scope definition and incessant request for re-scoping of the contract as one of such is captured from [10]. Reworks, retest, repeat, re-plan and re-definition of project work elements and deliverables that plagued the NIPP could be attributed to scope creep resulting from poor scope definition. The NIPP are characterized by incessant change requests for upwards review and variation of original contract sum, which have resulted to project conflict, lack of trust and goodwill, litigations and most of times, lead to project abandonment.

The aim of the study is therefore to fashion out and evolve strategies to forestall future scope creep of NIPP, determine and establish statistically, the strategies for managing NIPP scope effectively in order to maintain scope stability, minimize or prevent scope creep throughout the implementation phase of project life cycle, These are targeted to avoid harmful effects of scope creep and to explore the result of the analysis so as to provide inferences and policies for effective project definition and scope management as well as instituting and adopting core competences in scope management for achieving business results.

The hypothetical decision variables and factors that influence or affect strategies were captured and extracted from [11], [2] and [12]. The following hypotheses were formulated to evaluate and establish the expert's opinion.

Ho_1: Adoption and institution of strategy based on technology competence in project design, design review and verification of scope definition prior the project implementation is not effective for NIPP scope management.

Ho_2: Policy on periodic human resource development for skills and capacity building of project team members is not effective strategy for NIPP scope management.

Ho_3: Adoption of current information infrastructure and robust communication plan for free flow of information and exchange of ideas among experts and stakeholders are not effective strategy for NIPP scope management.

Project scope is the work that needs to be accomplished to deliver a product, service or result within the specified features and functions and it is work oriented. Project scope management therefore involves defining and controlling what work is or is not included in the project. The main planning tasks perform as parts of project scope management include planning, scope definition and creating the work breakdown structure (WBS). [3]. During the early stage in the project development, the design engineer must convert the sponsor's project definition into an engineering scope of work. According to [2], the design engineer must define the scope of engineering work to the best of his ability and then develop a budget and schedule based on the designer's assumed scope of work. The design project manager or the design engineer is responsible for managing the overall coordination of the proposal efforts with specific duties which include defining the scope of work, establishing work plan including budget and schedules for the project, indentifying potential problems, communication among team members etc. Work plan usually include scope, cost and schedule for performing the work, and forms the basis for monitoring scope and schedules of design efforts. The scope of work usually defines the design deliverables, the drawings and specification for each discipline in the design efforts. The first step in developing a design proposal is the development of the project execution plan to manage the design process. The plan must include the scope of work covered in the Request for Proposals (RFP) and interfaces with others who will be involved in the project, including both in-house and contract personnel. Too often, RFPs have vaguely defined scopes of work that will later cause unforeseen additional work, which adversely impacts on the budget and schedule. The plan must also include a milestone schedule that shows major phases and areas of work including critical due dates. An overall preliminary budget must be developed to guide the project to ensure that there are no unexpected surprises such as scope creep as the project develops. The design engineer that will actually be doing the work can be extremely valuable for defining scope, identifying potential problem and preparing realistic budgets and schedules for performing the work.

The skills and competency for project managers are usually specific and vary differently from change

management. Understanding the scope and boundaries enable both functions to work effectively together and to avoid any overlap of activities that may create conflicts for projects. It could be on the premises that [13] define scope in terms of its boundaries, activities and deliverables. They state that the main techniques used in scope definition include: analyzing product design and tasks for producing it, identifying alternative approaches to doing the work, understanding and analyzing stakeholders and using expert judgment. Good scope definition is crucial to project success because it helps improve accuracy of time, cost and resource estimates. It also defines baseline for performance measurement and project control and aids in communicating clear work responsibilities. [3] states that the main output of scope definition is scope statement but warns that, work that is not included in the scope statement should not be done. In addition, you cannot control the scope of a project unless you have first clearly defined the scope and set a scope verification process in place.

Researchers have clearly shown that a poorly defined scope or mission is the most frequently mentioned barrier to project success. In a study involving more than 1,400 project managers in the United States and Canada, Larson and Gray (2011) found that approximately 50 percent of the planning problems relate to unclear definition of scope and goals. This and other studies suggest a strong correlation between project success and clear scope definition. Clearly, project scope is the keystone interlocking all elements of a project plan. To ensure that scope definition is complete, [14] have come up and described project scope checklist as: project objectives, deliverables, milestones, technical requirements, limits and exclusions, reviews with customers.

In a survey from [11] and [15], some of the strategy indicators and conditions influencing strategy were stated as; technology competence, human resources such as skills, capabilities etc. and availability of current infrastructure. Development of strategy for scope management considers environmental scanning, as analysis of internal environment helps to identify the strength and weakness of the existing operations [16]. Strength, Weakness, Opportunity and Weakness (SWOT) analysis examine the following:

Strength:- What the firm has eg resource availability, technology, skills and competency etc.

Weakness: What the company has to overcome eg competitive position, industrial relation, equipment/plant age, employee age etc.

Opportunities: The company has to cash on or utilize eg improve communication, globalization of business, government characteristics etc.

Threats:- Anticipate and combat eg competition and competitor strategies, new competitors, new technology etc. The consideration of all these technical issues helps to develop core competencies for managing project scope.

There is a research gap as many researchers have examined the management of scope creep or scope change with no attempt to delve into areas that will prevent or reduce scope creep. It is for this reason that the study on scope management is necessary so as to come up with strategies to prevent or minimize to the barest minimum, scope creep or changes. Scope creep or changes poses problems of additional cost and other resources as well as time overruns. The study is therefore on the premise that prevention of scope creep or changes is better than remedial action of managing scope creep or changes.

It is not possible to define the scope design work without a good definition of the project. Project definition is a prerequisite to engineering design. Project design information include; the scope, WBS or statement of work, their specifications or definitions, engineering drawing which may include, structures, layout, dynamic response etc. Poor project scope definition is the sources of project changes, rework, schedule delays, and cost overruns. The pre-project planning research team of the Construction Industry Institute developed the Project Definition Rating Index (PDRI) as a tool to measure the level of definition of a project. It allows a project team to quantify, rate, and assess the level of scope development on projects prior to authorization for detailed design or construction. The central premise of the research team effort was that teams must be working on the right project in a collaborative manner (alignment) and performing the right work (scope definition) during pre-project planning. Many scholars and authors such as [14]Larson and Gray (2011) [2] and [17] have made significant contributions to the knowledge of

project scope definition. Scope statement is a document used in developing and confirming a common understanding of the project scope. It describes in detail the work to be accomplished on the project and is an important tool for preventing scope creep-the tendency for project scope to continually increase. According to [3], it is helpful to create a preliminary; or initial, scope statement during project initiation so that the entire project team can start important discussions and work related to project scope. Many projects fail due to poor scope management. Communications are important part of this problem. It is often difficult for people to explain what they want and for all project stakeholders to remain on the same page when it comes to meeting scope goals. Contents of a scope statement, like project charter varies by project type. Complex projects such as the NIPP usually have long scope statements, whereas smaller projects have shorter scope statements. Items often described in a preliminary scope statement include, the products or service requirements and characteristics, a summary of all deliverables, and the project success criteria. The scope statement should usually expand on information provided in the business case and project charter (written agreement describing the right each group has in project management business). The defined scope of the project is usually included into the contractual agreements between the clients and the service providers and Statement of Work (SOW) is one such documents.

[17] further presents how to define project scope and opines that when the project is about to be funded, there should be a set of defined deliverables and objectives for the project. The availability of enough information to cope up with a high level of scope statement will favour working with the clients in order to gather necessary information.

The Nigeria power reform that signals the emergent of NIPP is showing the generating capacities of power plants and distribution of new NIPP in the Niger Delta region of Nigeria are shown in tables 1 and 2.

Table 1: Old Power Plants and Generation Capacities

Station	*Type*	*Inauguration date*	*Installed capacity MW*	*Current output MW*
Oji	Thermal	1956	30	-
Delta	Thermal	1966-1999	900	366
Ijora	Thermal	1978	50	-
Sapele	Thermal	1978-1981	1,020	62
Kainji	Hydro	1968-1978	760	445
Jebba	Hydro	1983-1984	578.4	339
Afam	Thermal	1978-1982	969	85
Egbin	Thermal	1985-1987	1320	241
Shiroro	Thermal	1989-1900	600	281
Total	Hydro		**6237.4**	**1,819**

Table 2: Seven new Federal Government Power Projects in the Nigeria Delta – (NIPP)

S/N	*Power Station*	*State Location*	*Units*	*Total Ouput*	*Commissioning dates*
1.	Odukpani	Cross River	5	561 MW	July 2007 -
2.	Egbema	Imo	3	338 MW	November – 2007
3	Ihovober	Edo	4	451	July 2007 – December 2007
4	Gbarian/Ubie	Bayelsa	2	225	June 2007 – September 2007
5	Sapele	Delta	4	457	May 2007 December 2007
6	Omoku	Rivers	2	230	December 2007
7	Iko Abasi (AISCON)	Akwa Ibom	3	300	Yet to be Awarded
Total				**2562MW**	

2. Materials and Method

The study employed the technique of exploratory and descriptive field survey and non probability sampling

method, which are based on the understanding of the component units, professional skills of the NIPP experts and the nature of research objective. The primary data used for the study was obtained and measured through the instrument of questionnaire modeled in Likert five point scales. A sample size (N) of 54 was used in each of the NIPP contracting firms S_1 S_2 and S_3 The parameters of data collection were based on the following factors and their constructs, being the decision variable.

X_1: **Technology competence:** quality of project design, detailed definition of project scope and WBS, design review, verification of project scope with scope checklist and feasibility analysis prior to implementation, application of computer aided design etc.

X_2: **Human resources:** skills, capabilities, management, capacity building and training, work experience etc.

X_3: **Availability of current communication infrastructure:** availability of project management information at all level, artificial intelligence based on system for top level management, decision support system for managerial and top level, information system computerization etc.

The collected data and research hypotheses formulated were analyzed and tested with one-way Analysis of Variance (ANOVA). The procedure for testing for the equality of three or more means is provided by the statistical technique of ANOVA [18]. This method is based on the F-distribution (F-test). This method is also based on real scores collected from the NIPP experts in the three construction companies in order to test if there is differing opinion on identifying or determining the best strategies for scope management in the implementation stage of NIPP. All the concepts, assumptions and principles of ANOVA were observed and adopted in the study; such as non use of frequency data, comparing three or more populations, partitioning of total variations, normally distributed data, equal standard deviation, chance variation, sample means as good estimator of population mean etc.

For the employment of ANOVA as the analytical tool, the following calculations and components of the model are considered:

SST = Sum of square of total = $\sum_{I=j}^{n} y^2 - \frac{T^2}{nk}$ 1

SSB = Sum of square between group $= \frac{\sum T^2}{n} - \frac{\sum T^2}{nk}$ 2

SSE = Sum of square of error = SST – SSE……3

i = row, j = column; degree of freedom df = n – 1

where df = k – 1,

k = number of population samples or columns of the samples. n = number of observation in each k, T = the overall total of all the nk observation

Where df = n – k

Table 3: ANOVA Model

Sources of Variation	*Sum of square*	*Degree of freedom*	*Means of sum of square*	*f-ratio*
Between groups	SSB	k-1	$\frac{SSB}{k-1} = MSB$	$\frac{MSB}{MSE}$
Treatment error	SSE	n-k	$\frac{SSE}{n-1} = MSB$	

From the F-distribution table, the F-ratio (F_c) is compare with F-ratio (F_α) from the table and the decision rule is as follow:

The null hypothesis Ho is rejected if $F_c \geq F_\alpha$ (k-1, n-k), otherwise it is accepted where α = level of significance.

3. Results

Considering the verse quantity of data obtained from the field survey, the study avoided manual computation, but employed computer-based ANOVA by using applicable computer software of Statistical Program for

Social Science (SPSS) version 15. The ANOVA test of research hypotheses were conducted at 0.05 level of significant with the power of test, p-value for interpretation of result and inferences.

Table 4: Frequency of responses for HO_1 From S_1

Options scale	*Miden System Ltd (S_1)*		*Pivot Engineering Co Ltd (S_2)*		*Oilserv Ltd (S_3)*	
	No of Resp	*% of Resp*	*No of Resp*	*% of Resp*	*No of Resp*	*% of Resp*
SD	2	3.70	6	11.11	5	9.26
D	4	7.40	8	14.81	4	7.40
N	10	18.53	5	9.26	5	9.26
A	24	44.44	15	27.78	22	40.75
SA	14	25.93	20	34.04	18	33.33
Total	54	100.00	54	100.00	54	100.00

Table 5: Frequency of responses for HO_2 From S_2

Options scale	*Miden System Ltd (S_1)*		*Pivot Engineering Co Ltd (S_2)*		*Oilserv Ltd (S_3)*	
	No of Resp	*% of Resp*	*No of Resp*	*% of Resp*	*No of Resp*	*% of Resp*
SD	12	22.22	10	18.52	12	22.22
D	14	25.93	16	29.63	4	7.40
N	16	29.63	14	25.93	5	9.26
A	7	12.96	6	11.11	10	18.52
SA	5	9.26	8	14.81	23	42.59
Total	54	100.00	54	100.00	54	100.00

Table 6: Frequency of responses for HO_3 From S_3

Options scale	*Miden System Ltd (S_1)*		*Pivot Engineering Co Ltd (S_2)*		*Oilserv Ltd (S_3)*	
	No of Resp	*% of Resp*	*No of Resp*	*% of Resp*	*No of Resp*	*% of Resp*
SD	1	1.85	0	0.00	2	3.70
D	1	1.85	3	9.56	2	3.70
N	13	24.07	10	18.25	10	18.52
A	16	29.63	22	40.74	19	35.19
SA	23	42.60	19	35.18	21	38.89
Total	54	100.00	54	100.00	54	100.00

Table 7: Descriptive Statistics for S_1, S_2, and S_3 respectively

	N	*Means*	*Std. Deviation N*	*Std. Error*	*95% Conference Interval for Mean*		*Minimum*	*Maximum*	*Between component variance*
					Lower Bound	*Upper Bound*			
S_1: 1	16	2.50	1.033	.258	1.95	3.05	1	5	
2	21	2.62	1.071	.234	2.13	3.11	1	5	
4	9	3.00	.0000	.000	3.00	3.00	3	3	
5	6	4.00	1.095	.447	2.85	5.15	3	5	
Total fixed effects	2	5.00	.000	.000	5.00	5.00	5	5	
Model Random Effects	54	2.89	1.110	.151	2.59	3.19	1		
			.958	.130	2.63	3.15			
				.371	1.86	3.92			430
S_2: 1	16	2.19	1.424	.356	1.43	2.95	1	5	
2	21	2.48	1.365	.298	1.86	3.10	1	5	
4	9	3.22	1.481	.494	2.08	4.36	1	5	
5	6	2.17	1.472	.601	.62	3.71	1	2	
Total fixed effects	2	2.00	.000	.000	2.00	2.00	2	5	
Model Random Effects	54	2.46	1.397	.190	2.08	2.84	1		
			1.400	.191	2.08	2.85			
				.191[a]	1.93[a]	2.99[a]			.012
S_3: 1	16	3.25	1.528	.382	12.44	4.06	1	5	
2	21	2.43	.811	.177	2.06	2.80	1	4	
4	9	2.22	1.093	.364	1.38	3.06	1	4	
5	6	4.00	.000	.000	4.00	4.00	4	4	
Total fixed effects	2	5.00	.000	.000	5.00	5.00	5	5	
Model Random Effects	54	2.91	1.263	.172	2.56	3.25	1	5	
			1.085	.148	2.61	3.20			
				.426	1.72	4.09			.570

Table 8: Test of Homogeneity of variance for the three samples S_1, S_2 and S_3

	Levene Statistic	df_1	df_2	*Sig*
S_1:	6.387	4	49	.000
S_2:	1.150	4	49	.344
S_3:	7.231	4	49	.401

Table 9: ANOVA result for HO_2

	Sum of Square	df_4	*Means square*	*F*	*Sig P-value*
Between groups	20.381	4	5.095	5.554	0.001
Within groups	44.952	49	0.917		
Total	65.333	53			

From the result of the analysis for H_{A1}, p-value = 0.001≤ α 0.05, and therefore, the test is significant. The opinions of the experts did not differ significantly and therefore the result can be used for decision making in formulating strategy for NIPP through technology competence with emphasis on quality of project design, creating and analysis of WBS to the minute details and verification with scope checklist.

Table 10: ANOVA result for HO_1

	Sum of Square	df_4	*Means square*	*F*	*Sig P-value*
Between groups	7.361	4	1.840	0.939	0.449
Within groups	96.064	49	1.960		
Total	103.426	53			

The p-valve = 0.449 > 0 α = 0.05, the test is not significant in the sense that opinion of the experts differ significantly.

Table 11: ANOVA result for HO_3

	Sum of Square	df_4	*Means square*	*F*	*Sig P-value*
Between groups	26.839	4	6.710	5.968	0.001
Within groups	57.698	49	1.178		
Total	84.537	53			

The p-value = 0.001< = 0.05, the test is significant; Also the opinion of the expert did not differ significantly and therefore the adoption of current information infrastructure and robust communication plan is effective strategy for NIPP scope management.

4. Discussion of the Results

The Statistical tests of research hypothesis established the case that Ho_1 and Ho_3 are significant; indicating that the opinion of the expert did not differ significantly on the two strategies for effective scope management. Therefore, the adoption and institution of technology competence in project design, design review and robust communication plan will provide quality of design with accurate definition and analysis of WBS created to the minute details will ensure a significant level of effectiveness and success in the scope management of NIPP. According to [19]Fleming (2003), WBS acts as a vehicle for breaking the work down into smaller elements, thus providing a greater probability that every major and minor activity will be accounted for. The results will be also used for managerial decision making and policy formulation for result oriented project quality of project design, scope definition and WBS accuracy in project scope management. The ranking of the level of agreement among S_1 S_2 and S_3 on the decision variables X_1 X_2 and X_3 based on the hypothesis testing Ho_1, Ho_2 and Ho_3 by using ANOVA is X_1, X_3 and X_2.

Effective scope management of NIPP is knowledge-based and requires detailed specifications and definition of work content and WBS, design review and verification of accuracy of scope definition with the scope checklist prior to approval and implementation of the project. Also communication flow and partnering for exchange of ideas among the expert for scope review will help to achieve the accuracy of project scope definition and prevent scope

creep. Clearly defining project objectives, scope and specifications vastly improve time and cost estimate accuracy. [3], their estimates are based on estimates of elements found in the WBS of the project scope. Once the project deliverables and works are clearly identified and defined, following it up with an internal communication plan is vital. [14] observe that stories abound of poor communication as a major contributor to project failure. [20] posits that proper communications are vital to the success of projects and avers that internal experts providing content will have communication needs related to providing useful information, and so on.

5. Conclusion

For effective scope management of NIPP, managers should provide apt avenues and techniques for defining project scope, establishing detailed WBS, evaluate project design effectiveness and devise scope review and verification mechanism with scope checklist. Robust communication plans can go a long way towards informing project team and stakeholders on the project scope boundaries as well as exchange of ideas among the experts on the scope details and technical requirements. Also partnering with experts for similar projects outside the country, bearing in mind that such projects have unique and similar tasks and WBS. However, dexterity and experience of project team members have been found to be adequate, yet scope creep of NIPP is still a common phenomenon. The inferences necessitate continuous exploration of key area of superior quality of project designs, innovation and modern communication infrastructure. Also knowledge management, which is the practice of gathering and disseminating collective wisdom and experience of company's employees, could as well strengthen scope management competence.

6.References

[1] L. C. Odionyenma & B. Ukwuoma (2009), Rescoping of Transmission Line. Odionyema@yahoo.com.uk

[2] G.D. Oberlender, Project Management for Engineering and Construction. Seventh Edition, McGraw Hill, Irwin, 2000.

[3] K. Schwalbe, Introduction to Project Management, 2006. [Online]. Avaliable: Themson Course Technology www.course.com

[4] A. Adenikinju, Analysis of the Cost of Infrastructure Failures in a Developing Economy. The case of Electricity Sector in Nigeria. Centre for Economics and Allied Research. African Economic Research Consortium, Nairobi, 2005.

[5] E.C. Ubani, Power Sector Reform, System Reliability and Successful Powerri Delivery in Nigeria. West African Journal of Industrial and Academic Research. Vol 3 No 1. ISSN: pp. 227-229, 2012. www.wajiredu.com e-mail:info@wajiredu.com

[6]E.E. Okafor, Development of Power Supply and Implication for Industrial Sector in Nigeria. Stud. Tribes, 6(2) PP 83-92, 2008.

[7] P. Odinaka, Power Sector Reform. Still a Reign of Blackout, Guardian, 2006.

[8] A.U. Adoghe , Power Sector Reform in Nigeria-Likely Effects on Power Reliability and Stability in Nigeria, 2008. [Online]. Available: http://www.weathat.com/plugis/print

[9] S. Haggard and S.B. Webb, What do we know About the Political Economy of Economic Reform. The World Bank Research Observer, 1993. [Online]. Available: http:/www.empbook.com/scope.htm.

[10] http://mail.com/default.aspx?=wsignin1.0 (2009)

[11] M. Telsang, Industrial Engineering and Production Management, 2010. Available: http://Tutorialspoint.com(2011) [Accessed: January, 10, 2015]

[12] P. Wallace, Scope and Change Control; Why, What, How? epMbook, 2007.

[13] J. Cadle and D. Yeates, Project Management for Information Systems. Fifth Edition. Pearson Prentice Hall, www.pearsoned.co.uk, 2008.

[14] E.W. Larson and C.F. Gray, Project Management: The Managerial Process. McGraw Hill International Edition Fifth Edition, 2011.

[15] E.C. Ubani, Production and Operations Management: Concepts, Strategy and Applications. Ultimate Press Ltd. Owerri Nigeria ISS: 978-978-51063-0-5, 2012.

[16] W.J. Stevenson, Operations Management Instructors Edition. McGraw Hill, Irwin, 2007.

[17]tutorials point.com (2011)

[18] G.E. Nworuh, Basic Research Methodology for Researchers, Trainees, and Trainers in Management Sciences. Ambix publishers, 2001.

[19] Q.W. Fleming, Project Procurement Management: Contracting, Subcontracting, Tendering. First Edition, 2003,

,

[20] H. Kerzner, Project Management. A System Approach to Planning, Scheduling and Controlling. Second Edition, CBS Publishers and Distributors, 2004.

.