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COLLEGE OF BUSINESS AND ECONOMICS

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DEPARTMENT OF PROJECT MANAGEMENT

**HUMAN RESOURCES ASSIGNMENT PRACTICES IN MULTIPLE
PROJECTS ORGANIZATION IN ETHIOPIA. A CASE OF FEDERAL
MINISTRY OF HEALTH.**

**SUBMITTED TO ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE IN
PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF
MASTERS OF ARTS DEGREE IN PROJECT MANAGEMENT**

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DECLARATION

I, hereby, declare that this research report entitled **HUMAN RESOURCES ASSIGNMENT PRACTICES IN MULTIPLE PROJECTS ORGANIZATION IN ETHIOPIA. A CASE OF FEDERAL MISNTRY OF HEALTH** is my original work and has not been submitted earlier either to this university or elsewhere for an award of any other degree.

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DEDICATION

I dedicate this research work to my families for their passion, dedication and support.

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I would like to take the opportunity to thank everyone who had contributed to the successful completion of this project. I would like to express my gratitude to my research supervisor, Dr. Abdurezak Mohammed for his invaluable advice, guidance and his enormous patience throughout the development of the research.

In addition, I would also like to express my gratitude to my family and cohesive team members who had helped and given me encouragement throughout the project.

ABSTRACT

Human Resource (HR) is the key factor that determines the success or failure of projects. Multi-project organization works in an environment where an organization runs multiple projects at the same time. Nowadays multiple-project environment is getting more common. In this research, the human resource assignment practices in Ethiopia, in a case of Federal Ministry of Health(FMOH) was studied. Human resource management in multiple-project organization environment is more exposed to different types and sets of challenges. The research begins with the gathering of the information from the literatures than research questionnaire was designed. The collected data was analyzed to find out: 1) Project Team Member Selection Criteria, 2) Project Team Member Selection Methods, 3) Human Resource Management Methods, and 4) Current Challenges and Problems in assigning human resources. The data gathered are tested by Cronbach's Alpha test. Based on the result, the assignment of human resource practice at FMOH taking place at the start of the project and allow employee exchange across the projects. There are few scenarios that project team members assigned after the project starts. Employees are not advised or allowed to work on projects they want to work on due to insufficient expertise and project dependency across multiple projects. The top three criteria for assigning resource in multiple-project environment are: 1) Lifelong Learning Skills, 2) Good Communication Skills, and 3) Good Leadership skills. The research may further enhance the pre-existing theories in the area. The further study can be done to obtain deeper understanding in multiple projects human resource assignment at FMOH federal and state level.

Key words: *Human Resource Management, Human Resource Assignment, Project Management, Multiple Projects Management.*

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CHAPTER ONE

INTRODUCTION

1.1 Background

The first definition of HRM is that it is the process of managing people in organizations in a structured and thorough manner. This covers the fields of staffing (hiring people), retention of people, pay and perks setting and management, performance management, change management and taking care of exits from the company to round off the activities. This is the traditional definition of HRM which leads some experts to define it as a modern version of the Personnel Management function that was used earlier.

HRM as it is the provision of leadership and direction of people in their working or employment relationship. The effectiveness of use of Human resources and organization through the management of people related activities is back bone of HRM success. HRM is concerned with the development of both individuals and the organization in which they operating in. It is engaged not only in securing and developing the talents of individual workers, but also in implementing programs that enhance communication and cooperation between those individual workers in order to nurture organizational development.

HRM is an integral part of a project. According to PMBOK, Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. Project team members may have varied skill sets, may be assigned full or part-time, and may be added or removed from the team as the project progresses. Project team members may also be referred to as the project's staff. Although specific roles and responsibilities for the project team members are assigned, the involvement of all team members in project planning and decision making is beneficial.

As projects become an integral part of organizations, the concept of multiple projects organizations has gained traction in the project management literature. Multiple projects as a setting in which more than one project is carried out at the same time. Nowadays multiple project environment is getting more common. In this research, the human resource management in multiple projects organization studied. Even if human resource management in multiple projects environment is quite similar to the generic human resource management, it is opened to different set of challenges.

In multiple projects organization the complexity of people management increases. The HR function has a double-track course: in general, organizational field and within a given project. The range of project work can vary from single to multiple to simultaneous multiple projects. However, there are many standardized procedures how to organize and execute such projects but the link to standardized human resource practices for this environment is widely neglected. The issue is becoming even more complex if simultaneous projects have to share the same pool of human resources. In order to maximize every project objectives, it is essential to plan the available resources very wisely in a way not to compromise the quality of the work. Projects which need to share common resources have to cope not only with time pressure, profit maximization, external and internal interferences but also with constant uncertainties about their resource usage. As the workload during the project's life cycle can increase or decrease almost on daily basis the workforce is in constant movement between the different projects that they are assigned too. Thus, complications in one project can have major influence on the processes of other projects. Therefore, organizations seek to find methods, supporting software tools or simply improve their existing processes, in order to stay competitive, keep their promised time schedules and guarantee a successful completion of every single project.

This research paper aimed to see what is the human resources assignment practices in multiple projects organization in Ethiopia, a case of Federal Ministry of Health(FMOH).

According to the national statistical agency population report estimates, Ethiopia with over 100 million people, became the second most populous country on the African continent.

One of the major mission of FMOH is promoting health and wellbeing of Ethiopian through providing and regulating a comprehensive package of promotive, preventive, curative and rehabilitative health services of the highest possible quality in an equitable manner. For the success of the program, the ministry highly invested on different projects/ programs and process. As a result, the country made lot of progresses and results on improving the lives of the population, not to forte lot need to be done on ensuring the equity as well as quality of health services at all level throughout the country.

Among different reason provided for low quality of health in the country, lack of enough man powers in the health sector is a major reason. Ethiopia is among those countries in the world with low health workforce density of 0.7/1000 population, which is far below the minimum threshold density of 2.3 health workers (MD, nurses & Midwives) per 1000 pop for countries to achieve essential services (a targeted 80% coverage rate for skilled birth attendance). In the African region, the average threshold is 1.6 of doctors, nurses & Midwives per 1000 pop (WHR, 2006). This problem is not only the problem at health facility level rather it is a problem at the federal ministry of health and others branch organization under FMOH.

However, FMOH with the close coordination and collaboration of development partners, the ministry created different projects and programs in order to improve the country health service sector as a whole and health service provision at health facility level. For the success of the program, FMOH have four core processes which mainly working at federal and regional level for the improvement of the public health sector. These all core process are delegated for managing projects that are keen for improving the lives of the population. Maternal and Child health program is among those core process mainly working on projects that focus on improving the lives of mothers and children in the country at national level. There are different strategies and polices under implementation as well as different projects under process to decrease mortality and morbidity rate of children and mothers through strong interventions at community, health facilities and at national level as a whole with a close collaboration and financial coordination of government and development partners. The purpose of this research is to see the human resource assignment of these projects at head office level under the maternal and child health core process. This research focused on this specific core process called Maternal and Child Health and analyze

the current practice of human resource assignment and understand what are the criteria for selection of project teams as well as current challenges encountered by the core process. The research began with the gathering of the information from the literatures and subsequently the research questionnaires designed and shared with all available respondent including project managers, project members and the focal director.

1.2 Statement of the Problem

Most of the projects at FMOH run by different directorate, there are significant delay often occurs in many projects. Not only that there are times that difficult to get adequate resources. Resources could be human, material and budget. The other frequently happening problem is Project coordinator/ Project manager so much overburdened for many projects at a time. this in return decrease motivation of project team members. The other most commonly happening challenges FMOH faced routinely are; - project interdependencies due to limited resources, having to share the available resources with other projects, priority setting and resource assignments and re-assignment, competition between projects (for shared resources), and short-term orientation. At multiple projects organization, there is only so much that can be distributed in terms of either time or manpower in even the largest businesses. Organization must pick and choose among their projects and decided on the kind of attention and when. This process is likely to cause competition within the organization as well as confusion and occasionally delays.

Most programs involve the simultaneous management of multiple projects or a portfolio of projects managed to ensure the aggregate results at the end of the program. Multiple project programs further add to the level of complexity of the resource management equation. In managing largescale software implementations, the success of any program is largely dependent on the effective utilization of its resources across multiple projects.

1.3 Basic Research Questions

The following are the major questions for this research:

1. What are human resource management practice for multiple projects under Federal ministry of health?

2. What are the criteria for assigning human resource in multiple projects environment at FMOH?
3. What are the main challenges and problems in allocating human resources in the case organization FMOH?

1.4 Research objective

Base on the problem statement, the aimed of this research is to identify human resource assignment for Multiple project under Federal Ministry of Health. The aimed can be achieved with below objectives:

- To identify the human resources assignment practices implemented by Federal ministry of health
- To determine the criteria for assigning human resource in the case organization
- To identify major challenges in the current human resources assignment methods in FMOH

1.5 Significance of the Research

HRM is perhaps the most misunderstood and poorly utilized system not only in our country but also even in a developed world. There are some studies conducted on HRM in Ethiopia. But so far, I did not see study conducted on HRM assignment at FMOH and not even on public health sector projects. Not only for health sector but in general in many sectors, the question of how human resources are assigned to different projects and the reason still not clear or not well articulated. With this research I tried to see Human resource assignment practice at FMOH for multiple project run by directorates. I have a hope that this could be something new for the public health sector projects to see what the human resource assignment practices look like currently and it can show where we are now through identifying challenges and problem.

1.6 Scope of the Research

According to John Payne(1995), most of the literature on project management is dedicated to single-projects. However, Payne identified this gap in scientific research more than twenty-three (Huemann et al. 2007) pointed out the missing link between the HRM and PM (Project

Management) literature, most of the HRM literature concentrates on routine organizations, the importance of new functions and practices for multiple project organizations have been neglected.

The purpose of this research is to see the actual practices of human resources assignment in multiple project organization in Ethiopia, for the case of Federal Ministry of Health(FMOH) in which projects are run concurrently at same time using pool of shared resources. This research has a descriptive nature describing the existing phenomenon as it exists. Descriptive research includes surveys and fact-finding enquiries of different kinds.

In this research, human resources are the only concern to understand the research topic in the case organization. Further research could investigate other resources assignment practices in the case organization. The research began with literature review. In literature review listed the finding gathered from previous studies of multiple project. From literature review elaborated the problem statement. The research methodology used quantitative and qualitative manner, which using questionnaire to gather the information from the right audiences. The targeted audience were those who are currently working on maternal and child health projects at FMOH.

1.7 Ethical Consideration

The researcher took into account the ethical obligations to the professionals in the industry whose input from the research questionnaire were kept confidential and only used for academic purposes. Respondents to the questionnaire had the right not to answer questions that they felt were not appropriate without any intimidation. Respondents were given assurance about anonymity of their responses.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1 Human Resource Management

Human Resource Management (HRM) is an ideological framework to effectively and efficiently manage worker (Marlow 2006; Huemann et al.2007). HRM's practices help to shape the employee's experiences and the employment relationship (Guest 2002). HRM function has evolved since the 1980s, from the function of managing payroll administration to the one of developing skills and managing competencies. Nowadays, HRM makes part of an organization strategy and considers people as resource rather than cost, it is about managing people and creating value for a company (Demilliere 2013). (Huselid,1995: cited on Huemann et al.2007) described HRM as it is of strategic importance in all organization, it contributes to the success of the organization and create competitive advantage for the organization.

Many scholars able to agree on HRM transitioned from as seen as a traditional managing function that dealt with personnel administration, recruitment, union relations and salaries establishment to a more and more as a strategic function (Demilliere 2013). HRM has strategic importance in all organizations. It contributes to the success of the organization through creating competitive business advantage over other organization. It is about managing skills and competencies to add value to the company. Its purpose is to maximize the productivity of an organization by optimizing the effectiveness of its employees. Human capital is the knowledge, skills, and abilities of employees (Hayton, 2005 cited on Dabic et al.2011), while human resource management (HRM) includes all activities related to the management of employment relationships in the firm (Lin et al., 2008 cited on Dabic et al.2011). Strategic HRM provides firms with the internal capacity to adapt and adjust to their competitive environments by aligning HRM policies and practice.

As per business dictionary definition, HRM is the term used to describe formal systems devised for the management of people within an organization. The responsibilities of a human resource manager include conducting job analyses, planning personnel needs, recruiting the right people for the job, orienting and training, managing wages and salaries, providing benefits and incentives, evaluating performance, resolving disputes and communicating with all employees at all levels.

Among the core qualities of HR management are extensive knowledge of the industry, leadership, and effective negotiation skills and HRM refers to the policies and practices including HRP, job analysis, recruitment selection, orientation, compensation, performance appraisal, training development, and labor relation (Dessler, 2007). According to Harvey Bowin (1996) HRM function performed in organizations that facilitate the most effective use of people (employees) to achieve individual and organizational goals and objectives. Storey (1995) considered HRM as a distinctive approach to employment management which seek to obtain competitive advantage through the deployment of a highly committed and skilled workforce using an array of techniques. Beer et al (1984) viewed HRM as involving all management decisions that affect the relationship between the organizations and employees. The purpose of HRM is to improve the productive contributions of employer and provide competitive advantage to the organizations (Werther and Davis, 1996).

A number of studies have focused on human resource management practices as facilitating service climate through showing a concern for employees and for customers. Organizations can express their concerns for their employees by successfully putting into practice sound human resource practices and policies, such as reward systems and human resource development programs that motivate employees to provide quality service to customers. It then follows that the important resources for any organization are the human capital that is the people who work and drive the organization to success.

The typical HR practices that have been investigated are recruitment and selection, training and development, performance appraisals, performance related incentives, internal career paths, job security, benefits, grievance systems, empowerment, and information sharing (Boselie et al., 2005; Paauwe & Richardson, 1997 cited on C. Byremo 2015. Human Resource Management and Organizational Performance) The way HRM practices and policies take shape also affects the employee's experiences of work and the employment relationship. HRM is therefore important in any organization. The multiple project organization is no different in this regard. However, we suggest that specific features of the project-oriented company create specific challenges for HRM in that context, which are not widely recognized in the general management, HRM or project management (PM) literatures.

2.2 Human Resource Management in Project Management

Project by its characteristic is unique. Every project is different in view of its objectives, goals and environment in which it operates. There are two ways of defining the success of project. One says the success of the project purely depends on the effectiveness of meeting all stakeholder's expectations (PMBOK 5th edition). Others say project success is related to attainment of strategic targets through pertinent businesses thereby is relevant to products or services of the organizations, whereas the success of management is the attainment of targets related to budget, quality and relevant conventional methods for the control of the project (Müller and Turner cited in Adeel Khan & Rasheed 2015). These two broad classifications of project success evidently have one thing in common that is the all-important dependency on Human Resource (HR) because the former facet of success draws its strength from the latter.

HRM is required to identify, acquire and manage the resources needed for the successful completion of the project. These processes help ensure that the right resources to be available to the project manager and project team at the right time and place.

Every time a new project or program is started, HR configuration of the organization changes. Within this dynamic environment, different and additional practices are required from the traditionally managed organization. Projects require people to execute. When there is an involvement of people, there is need for human resource management. The Project Management Institute(PMI) motto is Making project management crucial for business results.

For the success of any project, it is necessary to adopt human resource practices, principles and techniques to support and maintain an environment which helps project team to achieves their goal. The PMBOK® Guide, 5th edition, continues to present a view of human resources focused on the people who carry out activities to complete the project; in other words, the human resources—also known as the project team. According to Dinsmore & Cabanis-Brew (2011), the most important resource to a project is its people called a project team. Project Resource Management includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project. These processes help ensure that the right resources to be available to the project manager and project team at the right time and place.

Key assumptions of HR role in Project Management are Human Resource Planning, Acquire Project Team, Develop Project Team and Manage Project Team. HRM focuses on people leading a specific project by managing and organizing them. The potential created value is linked to the project success and achievement (Dinsmore & Cabanis-Brew 2011).

Below are the suggested steps that every project must follow while it is executed for its effective implementation and to avoid human resource related concerns.

- Human Resource Planning
- Acquire Human resources
- Develop Team
- Manage Team
- Control Human resources

2.2.1 Human Resource Planning(HRP)

PMBOK 5th edition defined HRP, it is the process of defining how to estimate, acquire, manage, and use team and physical resources. The key benefit of this process is that it establishes the approach and level of management effort needed for managing project resources based on the type and complexity of the project. This process is performed once or at predefined points in the project. Each resource planning components has its own inputs, tools and techniques and out puts.

According to (Geister 1967), HRP is the process including forecasting, developing, and controlling by which the organization ensures that it has the right number of people and the right kind of people, at the right place, at the right time, doing work for which they are economically most useful. Organization dependence on the availability of the right person, at the right time for fulfilling job requirements cannot be debated. All well thought out plans for replacement of staff, growth of business, or for attempts to diversify depend on the timely availability of qualified employees. The HRP is very important for the project as the employees are constantly changing and also employees moved around projects to projects so management needs to respond to the changes and update the plans accordingly.

Dinsmore & Cabanis-Brew (2011), describes HRP as all the information about a project's human resource planning, monitoring and control, and execution support is documented in the human

resource plan. The identification of reporting relationships among those roles is often captured in the form of organization chart of some sort for the project. Finally, a plan for how and when the people come and go from the project takes shape. The staffing management plan documents all of the human resource planning information (Sundar & Sivakumaran 2018), It is the process of identifying and documenting project roles and responsibilities, required skills, reporting relationships and creating a staffing management plan. Also defining how to estimate, acquire, manage and use team. This step need to be performed at the stage of project plan development after project is kick started and clear scope of the project is developed.

Another important step for resource planning is the integration of a WBS (Work Breakdown Structure) into the project plan. As the name already indicates the total workload of a project to be divided into many small components in a hierarchical order (Kasse 2004). That allows a more detailed view and increases the reliability of the project plan. Each work package can now be analyzed separately, to estimate duration, cost, risk and resource demand (PMBOK 5th edition). Furthermore, through the implementation of the WBS to be easier to identify the required competences for relatively small work packages compared to unspecified work tasks.

2.2.2 Acquire Human resources

Sundar & Sivakumaran (2018) define this as it is the process of obtaining the right team members required to complete the project. The key benefit of this process is that it outlines and guides the selection of resources and assign them to their respective activities. Internal resources can be acquired from functional or resource managers. External resources are acquired through the hiring process. Dinsmore & Cabanis-Brew (2011) explained it the process as the roles and responsibilities are identified, the people needed to carry them out must be acquired. This step is categorized as an execution process because it is primarily concerned with executing the plans developed in human resource planning. PMBOK 5th edition define acquire resource, as it is Acquire Resources is the process of obtaining team members, facilities, equipment, materials, supplies, and other resources necessary to complete project work. The key benefit of this process is that it outlines and guides the selection of resources and assigns them to their respective activities. This process is performed periodically throughout the project as needed.

The process of acquiring project team is an activity that allows selecting and approving human resource availability according to the list of required skills and criteria for choosing human resource for the purpose of obtaining the team necessary to accomplish project work.

Acquire Resources process include but are not limited to multicriteria decision analysis. Selection criteria are often used to select physical project resources, or the project team. Using a multicriteria decision analysis tool, criteria are developed and used to rate or score potential resources. The criteria are weighted according to their relative importance and values can be changed for different types of resources. The followings are among the major selection criteria to be considered while acquiring project resources.

- Availability: Verify that the resource is available to work on the project within the time period needed.
- Cost: Verify if the cost of adding the resource is within the prescribed budget.
- Ability: Verify that the team member provides the capability needed by the project.

Some selection criteria that are unique for team resources are:

Experience: Verify that the team member has the relevant experience that contribute to the project success.

Knowledge: Consider if the team member has relevant knowledge of the customer, similar implemented projects, and nuances of the project environment.

Skills: Determine if the team member has the relevant skills to use a project tool.

Attitude: Determine if the team member has the ability to work with others as a cohesive team.

International factors. Consider team member location, time zone, and communication capabilities.

2.2.3 Develop Team

According to PMBOK 5th edition, develop team is the process of improving competencies, team member interaction, and the overall team environment to enhance project performance. The key benefit of this process is that it results in improved teamwork, enhanced interpersonal skills and competencies, motivated employees, reduced attrition, and improved overall project performance. This process is performed throughout the project. Team development includes two important components: Developing individual abilities and increasing the ability of people to work together

as a group. Team development includes two important components, one of developing individual abilities and the other increasing the ability of people to work as a group.

Sundar & Sivakumaran (2018), It is the process of improving competencies, team member interaction and the overall team environment to enhance project performance. The key benefit of this process is that it results in improved team work, enhanced interpersonal skills and competencies, motivated employees, reduced attrition and improved overall project performance. This process is an ongoing process throughout the project. During the project progress, each member performance and behaviors are monitored and based on that development plans to be derived and actions to be initiated to impart those skills. Project managers also requires skills to identify, build, maintain, motivate, lead and inspire project teams to achieve high team performance and to meet the project objectives. Team work is one of the critical factor for project success and developing effective project teams is one of the primary responsibilities of the project manager. Project managers should create an environment that facilitates team work and continue to motivate the team by providing challenging opportunities, providing timely feedback and support needed.

The process of developing project team is an activity that allows improving internal and external interactions of team members, developing their competencies and skills, and optimizing the overall team environment for the purpose of enhancing project performance. The process of developing project team is associated with teamwork management considering all team building factors such as cultural diversity, team climate, and global environment. Teamwork management and team building should be organized and implemented in the context of clearly and timely stated communication between team members throughout the whole project life-cycle.

The process pursues the following major project team development objectives:

- Improve skills and technical competencies of team members to increase the probability of achieving project deliverables in the context of decreasing costs, improving quality and reducing schedules.
- Improve internal agreement and personal recognition among team members to enhance morale, reduce number of conflicts, and improve productivity.

- Establish a dynamic team culture to improve team spirit and cooperation between team members to contribute to better knowledge and expertise sharing.

2.2.4 Manage team

According to PMBOK 5th edition Manage Team is a process that of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimize project performance. The key benefit of this process is that it influences team behavior, manages conflict, and resolves issues (Sundar & Sivakumaran 2018). This process is performed throughout the project. Dinsmore & Cabanis-Brew (2011) defined it as a process that involves monitoring performance, giving feedback, resolving issues, and coordinating changes. Managing the project team requires variety of management and leadership skills for fostering teamwork and integrating the efforts of team members to create high performance teams. Team management involves various skills such as communication, conflict management, negotiation and leadership.

The process of managing project team addresses specific team management challenges associated with communication, recognition and assessment of team objectives. The project manager takes responsibility of managing project team and ensuring success of team management activities. The project manager should have and use the following interpersonal skills for managing project team.

- Leadership is a critical skill for teambuilding and teamwork management. A high level of leadership allows the project manager to communicate the project vision and organize the project team to achieve high performance.
- Influencing is critical for bearing influence on project stakeholders and their decisions. The project manager needs to develop this interpersonal skill to reach mutual agreements with project team members and address critical issues.
- Effective decision making is an ability to undertake the decision-making process which entails conducting negotiations with stakeholders and project team for the purpose of studying environment factors, developing personal quality of team members, stimulating team creativity, and managing risks and opportunities.

2.2.5 Control Resources

PMBOK 5th edition, Control Resources is the process of ensuring that the physical resources assigned and assigned to the project are available as planned, as well as monitoring the planned versus actual utilization of resources and taking corrective action as necessary. The key benefit of this process is ensuring that the assigned resources are available to the project at the right time and in the right place and are released when no longer needed. This process is performed throughout the project.

It is the process of ensuring that the physical resources assigned and assigned to the project are available as planned, as well as monitoring the planned with actual utilization of resources and taking corrective action as needed. Among major benefits of this process, one is ensuring the assigned resources are available to the project at the right time and at right place and are released when no longer needed. This process is an ongoing and conducted throughout the project. There are various tools and techniques available to carry out each of the above processes to ensure its effectiveness (Sundar & Sivakumaran (2018).

This process ensures the availability of planned physical resources, monitoring them against the plan, and taking corrective actions when required. By doing this, the right resources are available to the project at the right time and place and released when no longer required. Physical resources include materials, equipment, infrastructure and facilities. Usage of resources is tracked along with their expenditures, shortages, surpluses, their use and release. Factors influencing their utilization and change management are also addressed. This is achieved using a variety of techniques like cost-benefit analysis, performance reviews, alternatives, trend analysis, problem-solving, negotiation and influencing, PMBOK 5th edition.

2.3 Human Resource Assignment Selection Criteria in Project Management

Failure to secure the necessary human resources can affect project schedules, budgets, customer satisfaction and quality, as within budget. The impact of any un-availability of required human resources skills needs to be considered in the planning stages of the project (Newton, 2015).

2.3.1 Problem Solving and Analysis Skills

Problem solving means finding the solutions for identified problems. The situation needed to be well identified and understood before we start the analysis in order to identify the most suited solution for the problem. Without understanding the situation, the problem won't be solve properly. Rational problem-solving skills helps to identify the problems occur and solve it accordingly for better outcomes. Problem solving and analysis skills are very important in order to minimize the problem occurred in the project and make the project successful built.

2.3.2 Decision Making Skills

Decision making is a process of identifying the situation and make the best alternative selection from the feasible set of available options. Fast decision-making help to reduce unnecessary delay time and save costs. Effective decision making helps to achieve intended outcomes. However, bad decision making could lead to unsuccessful outcomes (Kevin & Glen 2005).

2.3.3 Organization and Time Management Skills

Time management mean planning the time needed to achieve the goal. Organization management and time management is not easy to achieve (Kerzner 2009). Depending on the culture and over all working environment of the organization the time management trend could be different. Good organization management and time management can increase company efficiency and project scheduling.

2.3.4 Communication Ability Skills

Communication is a medium which sending and receiving message through different way of communication methods including oral or written.it could be speech, written pictures, videos, sign and others. To successful achieve good communication, both sender and receiver have a common medium to convert and translate the message.

2.3.5 Interpersonal Skills

Interpersonal is a skill which the communication is made between the people (Jeffrey 2013). Leader need to give directives and discipline to the project team. Without guideline the project team feels confused, unappreciated, unmotivated, and frustrated (Jeffrey 2013).

There are four key components of interpersonal communication (Jeffrey 2013),

- Listening
- Body language
- Verbal language
- Conduct

Positive interpersonal skills help to increase the social skill that in return minimize unwanted communication.

2.3.6 Leadership Skills

Leadership means a person encourages and direct team member towards the goal and objectives. Team leader is important because if the team without a team leader, the team is bleak.

Leadership requirements skills listed below (Troy et al. 2007; Sonia 2011 cited on cheong 2013):

- Interpersonal skills
- Strategic skills
- Technical skills
- Conceptual skills
- Emotional Intelligence
- Social Intelligence

Leadership skills have an impact on the effectiveness and efficiency of the team member (Sonia 2011 cited on Cheng, 2013). This is because a poor leader to have poor persuades and guides. This cause unhealthy to the team member.

2.3.7 Creativity and Innovation Skills

Creativity defines as generating ideas or solution and produces the new. Innovation is defining as successful implementation of creative ideas to reality. According to Kamylyis and Berki (2014) Creative thinking is defined as the thinking that enables team members to apply their imagination to generating ideas, questions and hypotheses, experimenting with alternatives and to evaluating their own and their peers' ideas, final products and processes. (Kaufman and Beghetto 2009),

developed four categories of creativity which help to reveal the nuances between different levels and types of creativity.

Creativity is an activity and innovation is a team effort (Mona et al. 2012). The differences between creativity and innovation are social interactions and the degree of novelty (Mona et al. 2012). According to Amabile (1988) cited on Ailing et al. (2013) Creativity is divided into three parts.

- Professional knowledge
- Innovative thinking skills
- Motivation

The creativity technique is allowed to generating hypotheses, fast thinking ability and linking ideas (Ailing et al. 2013). With this skill help to enhance the speed of development.

2.3.8 Lifelong Learning Skills

Lifelong learning means self-motivation which keep learning new thing to enhance the person knowledge. It takes place at any stage at any time. Lifelong learning divided into 3 forms:

- 1) Formal learning: The learning occurs in an organized or structured. This learning normally is in the education or during training.
- 2) Non-formal Learning: The learning embedded in activity planning which are not explicitly designated as learning. This type of learning contains the element of vocational skills which available during workplace.
- 3) Informal learning: Informal learning which occur during daily life activities. This learning related to family, work or leisure.

2.4 Human Resource Management in Multiple Project Organization

Multiple project organization, it is an organizational-level environment in which multiple projects are managed concurrently (Patanakul & Milosevic 2008) to achieve organizational goal. Fricke and Shenhar (2000) cited on Jorgensen (2015) define multiple project as a setting in which more than one project is carried out at the same time. Some of the projects in MPM environment are

sufficiently large and strategic in nature to have a full-time project manager (Patanakul & Milosevic 2008). MPM unlike single project management leads by many project manager (Patanakul & Milosevic 2009) to create a competitive advantage for the organization. A major piece of multiple project managers' role on linking multiple concurrent projects does not exist in single-project management. Not only that but also in dealing with multiple project at a time, a multiple project manager leads multiple teams for the projects of different objectives, while a single-project manager leads only one team. A multiple project manager face the challenge of switchover from project to project, at times several times a day.

Traditionally, as soon as the need for a new project is realized, it is routed to the appropriate resource(s) where it joins a queue of other projects that entered the system at earlier times. For the most part, these queues are managed according to the first-come-first-serve rule where the exceptions are those projects that were tagged as important (or urgent) to stay in line with the network's standards of performance. Such projects are expedited through the system, often at the expense of other projects whose tasks are pre-empted (Isakow and Golany 2003).

An organizational unit organized by projects is characterized by (Eskerod, 1994) the following characteristics:

- the tasks are done in projects;
- several projects are performed simultaneously;
- the project owners are internal;
- the projects share a common resource pool (including the human resources);
- the authority lies with the project manager;
- the project team members do not have a superior outside the project but refer to the project manager only;
- the employees can be assigned to several projects at the same time.

The projects in the organization vary in size, importance, required skills, and urgency, are in various stages of completion, and are using the same pool of resources. According to this definition, multiple project exist in almost every organization in which functional divisions undertake a number of duties through a project format. Unlike single project, project manager in multiple project environment is responsible for monitoring multiple concurrent projects, which

mostly with different project objectives and with high probability of switchover several times from one project to another.

The paradigm shift in modern organizations, from the classically managed organization to the project-oriented organization, is now widely recognized and has inspired a string of research focusing on this some-what new way of organizing the firm (Patanakul & Milosevic, 2008). To be competitive, organizations regularly make hard choices about which projects to start, which to continue or modify, and which projects to terminate. This difficulty is made even worse by the fact that management is often unable or unwilling to label one project more or less important than another project (Dinsmore & Cabanis-Brew 2011). As a result of shared resources pool, there is an unrealistic expectation that the sharing of resources brought critical dilemma to decide on the resources management.

PMBOK 5th edition, defined multiple project differently as multiple project may be needed to accomplish a set of goals and objectives for an organization. In those situations, projects may be grouped together into a program. A program is defined as a group of related projects, subsidiary programs, and program activities managed in a coordinated manner to obtain benefits not available from managing them individually.

In the beginning of every project the question of which kind of resources are needed to successfully complete the project depends on mainly on the scope, cost and schedule of a projects (Reiss, 1995 cited on Nadler, 2012). Beside the number of participants, the project plan should furthermore include clearly defined roles, authorities, responsibilities and competencies (PMBOK 2004). Without these clear definitions project team members tend to establish their individual roles and responsibilities (Chin 2003 cited on Nadler 2012). When we say roles, it is directly related with position in the project. It could be assigned as a project manager, an engineer, an assistant or another. The authority clarifies which rights or duties a team member has within the project. The responsibility defines the task or work of an individual member which he or she has to accomplish in order to complete the project. Last but not least are the required skills or competencies a key success driver for each project and therefore need to be considered carefully within the planning phase. To visualize the structure of the project team it is beneficial to plot a project specific organization chart, especially for bigger projects (PMBOK 2004: 207).

Dinsmore & Cabanis-Brew (2011) described importance of all key stakeholders, especially project managers, sponsors, and functional/resource managers, understand their individual roles and responsibilities and are fully committed to corporate, portfolio, and project objectives. If roles and responsibilities are not aligned, each stakeholder could allow personal agendas to interfere with project decisions and negatively impact project success due to potential infighting and competition for scarce resources.

Several studies conducted over the past two decades indicates that a multi-project environment holds serious challenges related to the sharing of resource, specifically resource availability and resource conflicts as well as re-assignment and prioritizing problems (Huemann et al., 2007). Multi-project organizations, as organizations that runs multiple project simultaneously (Payne, 1995) constitutes a range of additional challenges that mere single project-oriented organizations do not have. It is much more complicated to schedule and allocate resources to multiple project than to a single project (Meredith & Mantel, 2012). The environment of the multiple project organization impacts the whole organization, not just the project department, and the rest of the organization.

A multi-project organization carries out many projects simultaneously through creating a need for a system that decide which project should be given priority in situations of resource shortages or resource conflicts (Engwall & Jerbrant, 2003). According to Huemann et al., (2007) multiple project organization need to have human resource management (HRM) policies, practice and processes that is tailored and attuned to the specific characteristics of multiple project environment. The temporality and the uncertainties for the employees, the continuous change in human resource configuration, the issue of a common pool of resources (Payne, 1996) characteristics of multi project organizations are extremely different from regular organizations, and hereby constitutes the need for different HRM approaches.

According to Fricke and Shenhar cited on Patanakul & Milosevic 2008, they said that one of the success factor for MPM is management support that help on in terms of implementing the reasonable amounts of projects, allocating resources appropriately, setting clear goals and project priority and assigning projects manager properly.

Project management literature present several different, very concrete descriptions of how to prioritize amongst projects (Meredith & Mantel, 2012). These priority systems are very normative

in the sense that they go far in saying which actions should be taken and which conditions should be given priority. Project management theory present the different prioritization systems as tools that lead to an appropriate and good result. The priority systems are also presented as suitable for all organizations, with little emphasis on the possibility that some organizations might feel that these priority systems do not fit them or their specific context (Huemann et al.,2007).

2.5 Human Resources Assignment in Multiple Project Organization

The key importance and benefit of human resources management for single project is same for multiple project organization as it is for single project organization. The successful rate and completion time of the projects in a situation of shared resources to be improved when organization able to assign right human resources at the right time with the required knowledge and skill.

The process for resource assignment can be described as a two-step process. First, decision makers obtain information from projects' proposals on the number and types of resources. The number of required resources is a function of the necessary skills and the complexities of projects (Otero et al. 2009). Second, decision makers query employee databases to assign available resources to the tasks. The assignments are straight forward if perfect matches exist between tasks and available resources. However, in most situations available resources do not possess the complete set of skills required for tasks (Otero et al. 2009).

A project is influenced by various factors in the process of implementation and it is quite difficult for the project to be implemented in full accordance with the schedule, so there might be deviations inevitably, especially for research projects with great technical uncertainty. Resources might also satisfy the requirements of the schedule. Therefore, the planning and resource management department should grasp the situations of implementation and resources of multiple project dynamically and accurately. Multiple project managers must collect data on resources consumptions, including the completion rate of task, the types and quantities of resources in shortage, remained resources. It is very important to coordinate and allocate resources reasonably to satisfy the requirements (Li et al.2017).

2.5.1 Commonly used HR assignment methods in Multiple Project Environment

2.5.1.1 Best-Fitted Resource (BFR) Methodology

According to (Nadler 2012), the first role to be assigned in almost every project is the project owner, in most organizations the project manager (from the organization internal perspective). the researchers Patanakul and Milosevic (2008) identified the project assignment to the project leader as one of the most crucial steps in the resource assignment process.

The BFR methodology was form from skill-relationship tables. This method describes how previous knowledge from various related skills help to learn the needed skills (Otero et al. 2009; Acuña et al. 2006). This approach require worker skills, integrates task complexities, and capabilities of resources.

There are four steps in the BFR methodology. The objective of each step is to develop tabular information to establish a process for selecting the most qualified resources for tasks. The resulting tables for each of the steps are (Otero et al. 2009): -

- **Task Required Skills (TRS):** The first step of the process is to define levels of skills required for a task. Each skill level is specified in terms of its expected use) and complexity. For simplicity and flexibility, both are defined subjectively by decision makers with discrete values.
- **Skill Relationships (SR):** For proper assessment of the capabilities of resources, it is important to establish a measure to describe how different skills may help decrease the learning time to become proficient in other skills. If resources do not possess experience in required skills, perhaps they are proficient in other skills that are similar to the required skills and can accelerate the learning process.
- **Resources' Skill Set (RSS):** The RSS step is to prepare a table which represents the skills and knowledge available in the organization resources using discrete values.
- **Best-Fitted Resource (BFR):** The fourth step of the process is to set up a BFR table to determine the suitability of available resources with the skills required for a task. The most suitable resource most likely take the least amount of training time. For a required skill, there are two factors considered for each resource. The first factor is the level of knowledge

of resource in the required skill. The second factor is the level of knowledge of resource in all other possible skills and their relationship to the desired skill. The capability of a resource in a required skill, which is an indicator of the expected training time.

2.5.1.2 Team-based Human Resource Planning (THRP) Methodology

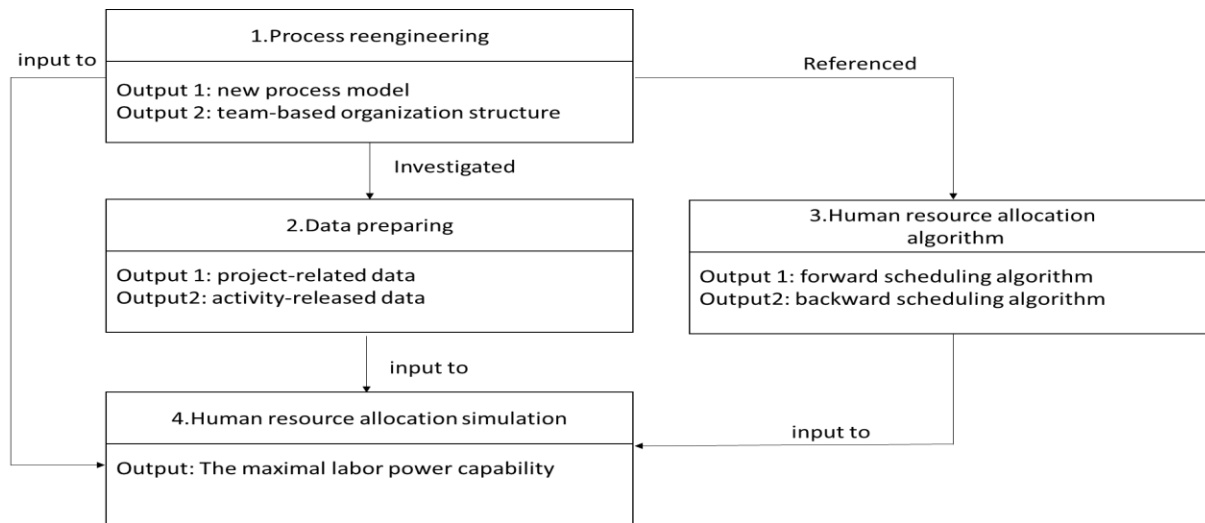
The THRP method is formed using organization processes which simulate the system (Salem et al. 2003; Yan & Levitt 1996 cited on Cheong 2013). Simulation model is a mathematics-oriented, software-enabled technique with growing application in HR assignment decision. It helps the organization in determining the current and future HR requirements of their business. In recent time, exclusive HR planning simulation models are available for HR forecasting. This model simulates the HR requirements and availability to determine the likely gap between the demand and the supply of human resources.

The THRP model consists of four phases to map a company's processes to the simulation system as shown in figure below. Firstly, the new processes model and team-based organization structure are designed in the process reengineering phase. Then, the data preprocessing methods and the simulation algorithms are respectively analyzed and developed. Finally, all results from previous three phases are integrated in the simulation system. By using the simulation system, the maximal capability of the human power, in a work team can be evaluated (Cheng & Tsai 2003).

(Cheng & Tsai 2003 described that in the THRP the bases of human resource planning are the rational processes and organization structure. There are two primary purposes in this phase:

- Create original process model: Using process modeling tools to represent the original management processes. As the existing process model has been done, the assessing and redesigning tasks of BPR can be subsequently executed.
- Redesign a new process model: Identify the hidden problems of the process and to use the findings as the basis for analysis. A new process model can be drafted in accordance with the analysis of the current management problems of construction companies and establishment of the delivery of the management information technology system.

Figure 1. Team-Based Human Resource Planning for Multiple Project Model(THRP)



Source: Cheng & Tsai (2003).

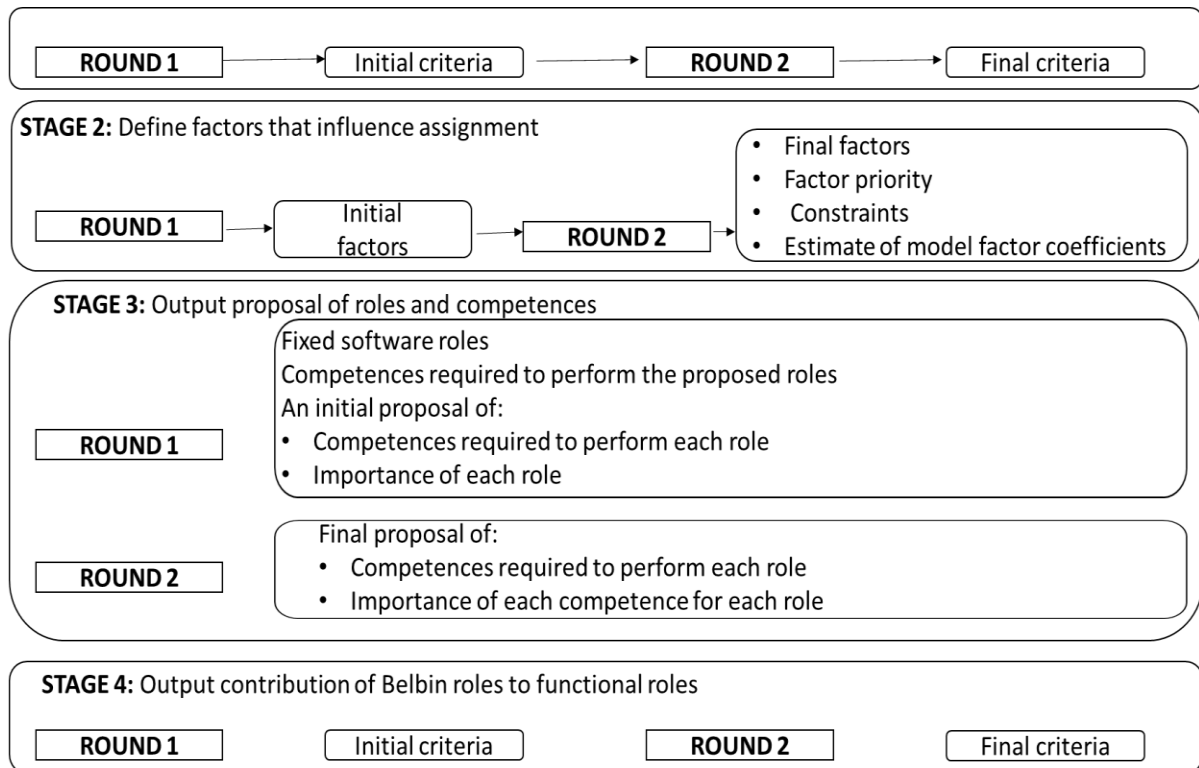
2.5.1.3 Delphi Methodology

The Delphi method is an expert consultation method (André et al. 2011; Okoli & Pawlowski 2004 cited on Cheong 2013). The core of the method is to organize various dialogues throughout each of the experts that have been consulted using questionnaires. The technique is based on the knowledge, opinion and experience of the experts, and thus does not aim to be representative of a population (Okoli & Pawlowski, 2004). Because even experts in a particular topic can be mistaken (Kahneman, 2011 as it is cited on Kozak and Olesia). Delphi attempts to decrease chances of such mistakes by allowing the experts' knowledge to be freely distributed among all the experts in the group.

Delphi is basically a group-based systematic forecasting method technique that does not require any face to face participation by the experts. In fact, the identity of the experts remains anonyms till the end of the whole process. In the first phase of the Delphi techniques, a group of independent experts forecast the HR requirements of the organization on the basis of the input provided by the organization. In the second phase, a summary of the experts forecast is prepared and send back to them for their opinions and suggestions. This action is repeated several times till a consensus is reached by the experts on the minimizing the dysfunctional aspects of group decision making as it eliminates groups dynamics and individual dominance from the process. The Delphi method was used to identify groups of data to form a formula model to assign resource (André et al 2011 cited on Cheong 2013). As shown in figure 2 below, first stage is to determine the criteria needed to

select the experts and the second stage is to determine the factors needed to be considering the model (André et al. 2011& Chan et al. 2004). On third stage is to draft the proposal of competences requirement and the roles to tackle the projects (André et al. 2011). Final stage the method use to try an error to search for rules and check any room for improvement (André et al. 2011).

Figure 2: Application of the Delphi method



Source; - André et al. 2011 cited on Cheong 2013

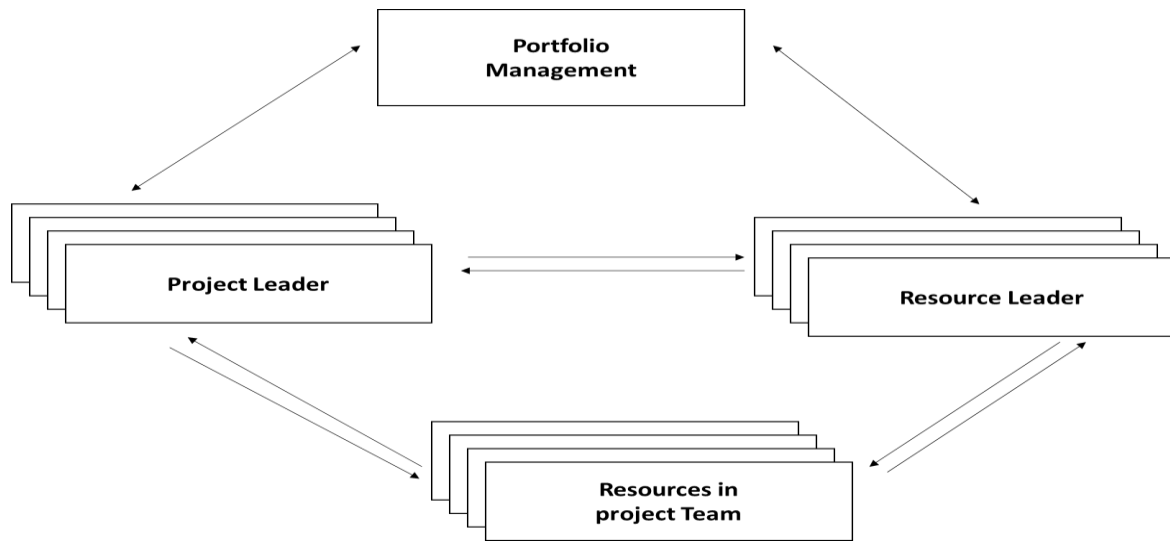
2.5.1.4 Rough-cut-project-and-portfolio-planning Methodology

The core of this method is to plan and control the time cycles for projects (Platje et al. 1994). The assignment method is designed in every quarter base on project portfolio with simple of ‘Resource-Claim’ and ‘Resource-Offer’ in the matrix organization (Hendriks et al. 1999; Zohar 2010). This method gives an overview of the requested project portfolio. The claim and offer be done base on the percentage of workers requested for the next quarter (Hendriks et al. 1999). The group leader have a discussion on the claims from project leader. Management decide on which project to select in the portfolio and management assign the resource to the project.

There are 5 elements which allocate human resource in multi project situations (Hendriks et al. 1999): -

- i. Long-term-resource-assignment (Hendriks et al. 1999):- Seeing a certain project in the organization is understaffed and determine the moment that such a discipline is staffed appropriately takes several months at least. Therefore, a long-term plan of the needed resources is required. A long-term plan is based on the organization plan that specified before.
- ii. Medium-term-resource-assignment (Hendriks et al. 1999):- Although the budgets and project portfolio generates a real portfolio, there is always a possibility of resources overload. To give the project leaders and group leaders a hand in solving these problems, the medium-term resources assignment has to give decision rules. The main goal of these rules is to make clear which task has to be executed first in case of resource conflicts. when the portfolio is determined and the main decision rules are made, rough-cut capacity planning must be set up in which the resources over the projects are assigned roughly. This is important for the short-term resources assignment.
- iii. Short-term-resource-assignment (Hendriks et al. 1999):-using the rough-cut capacity planning and the decisions rules as main inputs, the short-term resource assignment must be the main input for the day to day planning of the individual resources for the coming weeks. Now almost all deviations can be treated by group leaders in close harmony with the project leaders. Interface by management can, in this way be very limited.
- iv. Links (Hendriks et al. 1999):-The long, medium and short-term assignment process have their own goals, but together they must be linked to provide the organization with the results for doing business. These links must give the information needed to make the right decisions.
- v. Feedback (Hendriks et al. 1999):-The links give inputs to make the right decisions. This input can be made better by evaluating the input versus the real effort, when the evaluation must be used for the long-and medium-term resources assignment. The assignment process can be made better by the feedback.

Fig 3: Portfolio planning process in multi-project organization (Hendriks et al. 1999).



Source; - Hendriks et al. 1999

2.5.1.5 Multiple Resources Assignment Algorithm Methodology (Chen & Seyed 2009).

An algorithm based on next time frame (NTF) is used for multiple resource assignment (O. Moselhi, P. Lorterapong cited on Chen & Seyed 2009]. It is a least impact algorithm and only assigns resources to activities that are allowed to start. The assignment is done through some time frames in which resource assignment remains constant (Chen & Seyed 2009). This method differs from other above due to its hybrid character, which targets one priority of projects and the other way priority for activities respectively. The resource assignment is based on time frames. NTF is the time frame between current time and next time. First, resources are assigned to activities which are in progress. Afterwards, the remaining resources are assigned to activities which could start according to their priorities, thus the organization resource assignment remains constant.

The following assumptions are considered for the multiple resource assignment process (Chen & Seyed 2009):

- i. Resources are positive integers.
- ii. Preemption is not allowed. Activities cannot be split.
- iii. Precedence relationships among activities should be identified. Precedence relationships could be obtained using the critical path method (CPM).
- iv. The priority of activities that could start at the same time should be determined.

Any activity is able to enter into a group determine for resource assignation when all the predecessors are completed (Chen & Seyed 2009). The priority of activities is considered when multiple activities that run concurrently are competing for insufficient or limited resources (Chen & Seyed 2009).

2.6 Major Challenges in HR assignment in Multiple Project Organization

Managing multiple sets of projects simultaneously is a challenge organization have to master today in order to implement their strategic objectives (Arto and Dietrich, 2004). Although the project management literature still focuses primarily on single projects, research in the last 5 years has increasingly acknowledged that multi-project issues have become critical for all organizations regardless of delivering projects to external or internal customers.

In a multi-project environment, an organization is managing several projects simultaneously and the setting is unstable and frequently changing (Payne, 1995). It is described as an environment with conflict concerned by an ongoing competition between project priorities, resources, personnel, attention and managers (Engwall & Jerbrant 2003). According to Li et.al resources are always limited and usually insufficient in multiple project. Projects in a multi-project organization mostly characterized by a shorter duration, small-to-medium sized compared to contemporary projects, and are often assigned resources from a common resource pool (Payne, 1995). Consequently, projects with separate goals and issues are being integrated into a management control and reporting system of a shared resource pool owner (Payne, 1995), which leads to challenges related to distributing resources, ensuring suitable control and management systems.

The specific challenges that multiple project organizations face generates the need for a multiple project management approach that take account of these challenges and characteristics. The approach should include systems that enables human and material resources to move to and between projects and operations while considering the challenges caused by the multi-project environments. This means that the resource assignment methods suggested by project- and portfolio management theory does not consider the challenges that are particular to multi-project organizations, or any other type organization for that matter.

According to Turner and Speiser (1992) cited on Dooley et al (2004), The cause of some of the difficulties related to managing multiple project are:

- Projects have interfaces with other projects and day-to-day operations, sharing common deliverables, resources, information or technology across those interfaces.
- Projects must negotiate priority for resources on an almost daily basis with other projects and day-to-day operations.
- Projects deliver related objectives, which contribute to the overall development objectives of the parent organization.

Multi-project organizations put a great deal of pressure on the people working in projects and in the interface between the project and functional department. People working in projects often have too many roles and responsibilities, and these responsibilities differ immensely. Further, resources and time is often not dedicated to each specific task (Payne 1995; Engwall & Jerbrant 2003; Huemann et.al, 2007). Employee's experience and training was highly important for the possibility to move employees between projects and for employees to be able to have different roles and responsibilities in different projects and in the functional department. If human resources are well cross trained on different types of work and are flexible enough, more projects can run smoothly in parallel (rather than sequentially), and total work productivity is higher.

Below are among the major issues and problem arise from human resource management in multiple project environments: -

2.6.1 Projects interdependencies and inter-project processes dependency due to limited resources

Multi-project environment is part of the organizational unit that carries out substantial share of its operations as projects. The resources shared among those concurrently running projects in the organization. There are several resources that are shared among projects, such as human resource, materials, tools and equipment, and organization budget (Engwalla & Jerbrantb 2003). These mean projects are integrated into the management control and common reporting system of resource (Payne 1995). The resources may not distribute equally to each project (Hendriks et al. 1999; Hashime & Chileshe 2012). Thus, each project won't have significant resource to complete the project. When the resources are not available in the project, the project have to be on hold to wait

for the resource to be available. The issue of a sharing pool of resources in return creates high interdependency among projects in the organization. One of the reasons the project failing is due to the resources that needed is unavailable. The resource of the project is waited for too long until the organization unable to bear the losses of the project. Finally, the organization has to call off the project.

2.6.2 Failure to Assign the Correct Human Resource

According to Lari et.al (2010) they described that, in multiple project programs demand for project resources typically exceeds its supply. Normally, employee is assigned into the project team base on experience, availability and skill requirements. Hendriks et al. (1999) are arguing that it is vital for the project to allocate the right human resources. Furthermore, they state that the higher the number of simultaneous projects, which require specific knowledge, the more important but also the more complex the assignment process. This is because the major problem currently having are the demand for specialize individual skills in the workforce is increasing. The fast turnover rates and the fast pace for new technologies and techniques are being developed (Otero et al. 2009).

Thus, candidates with exact skills and knowledge needed for the tasks are not available. Due to lack of proper knowledge to assess personnel capabilities, the decision makers are forced to assign resources based on subjective measures only (Otero et al. 2009). When organization failure to assign the correct people into the project team, it causes the project failure (Turner 2009). One reason for the increase of complexity is the project interdependency on the resource level. Thus, it is important to select the correct people to handle the project especially in multiple project environments, which have limited resources. This can be done by communicating the project needs to the resource manager of the organization, thereby the management should consider, the required competencies, the individual as well as the organizational development needs (Turner 2008).

2.6.3 Failure to Project Scheduling

The assignment of resources is a difficult challenge in multi-project management. It is mainly due to the interaction of time and resources between the projects included in the same program (Kane & Tissier 2012). According to Dalfard & Ranjibar (2012), scheduling and assignment of resources for multi projects is somehow more difficult than single projects. There is a considerable increase

in time limits for calculations in scheduling of multi projects or when there is a great scheduling problem. Therefore, any benefit from optimizing traditional methods would not be effective. By appropriate multi-project scheduling, employed resources are supposed to move from one project to another as in an efficient machinery (Engwalla & Jerbrantb 2003) since the schedule of activities is important when handling a project (Milan et al. 2004; Kerzner 2009). This is because the project schedule determine the project lead time. The activity of the project is breakdown using the WBS (work breakdown structure). The recourse assignment is concurrently performed with the scheduling of applicable activities where the resources have pre-specified and assign responsibilities towards the activities. The activity requires certain number of resource to perform the task has to be scheduled (Milan et al. 2004 cited on Cheong 2003).

The project schedule handling method is different between single project environment and multiple-project environment (Huemann et al. 2007). This is because in multiple-project environment the resources are limited in the organization. Therefore, the same resource assign with few different activities. The critical thing is each activity has different length of time. Thus, the scheduling of activity in multiple-project is complex and more difficult to be handled (Kerzner 2009).

The failure to schedule the resource cause the project to postpone. When the project is postponed mean the project going toward failure. Therefore, the project scheduling in multiple project environment is critical and needed to be look into it (Milan et al. 2004 cited on Cheong 2003).

Another high influence on the assignment process is the project priority. Naturally projects with high priorities get preferably more, easier and higher skilled team members as compared to projects with a low priority (Engwall et al. 2003). This might lead to a management conflict between project- and resource managers. In some cases, the project managers start to compete against each other in order to get the scarce resources (Payne 1995), in the research of Engwall et al. 2013 they even found cases in which project managers led their projects in deep crises just to get a higher project priority.

2.6.4 Project Conflict and Confusion

In multiple project environment, the employee be handling different projects with different goal, objective, scopes, and timelines (Pennypacker & Dye 2002). Different project timeline can cause

resource conflicts. This is because the same resource required in different project at the same time. Other than that, unsuitable resources often cause additional pressure toward the organization, which leads to poor quality of information and longer timeline of projects (Elonen & Artto 2003).

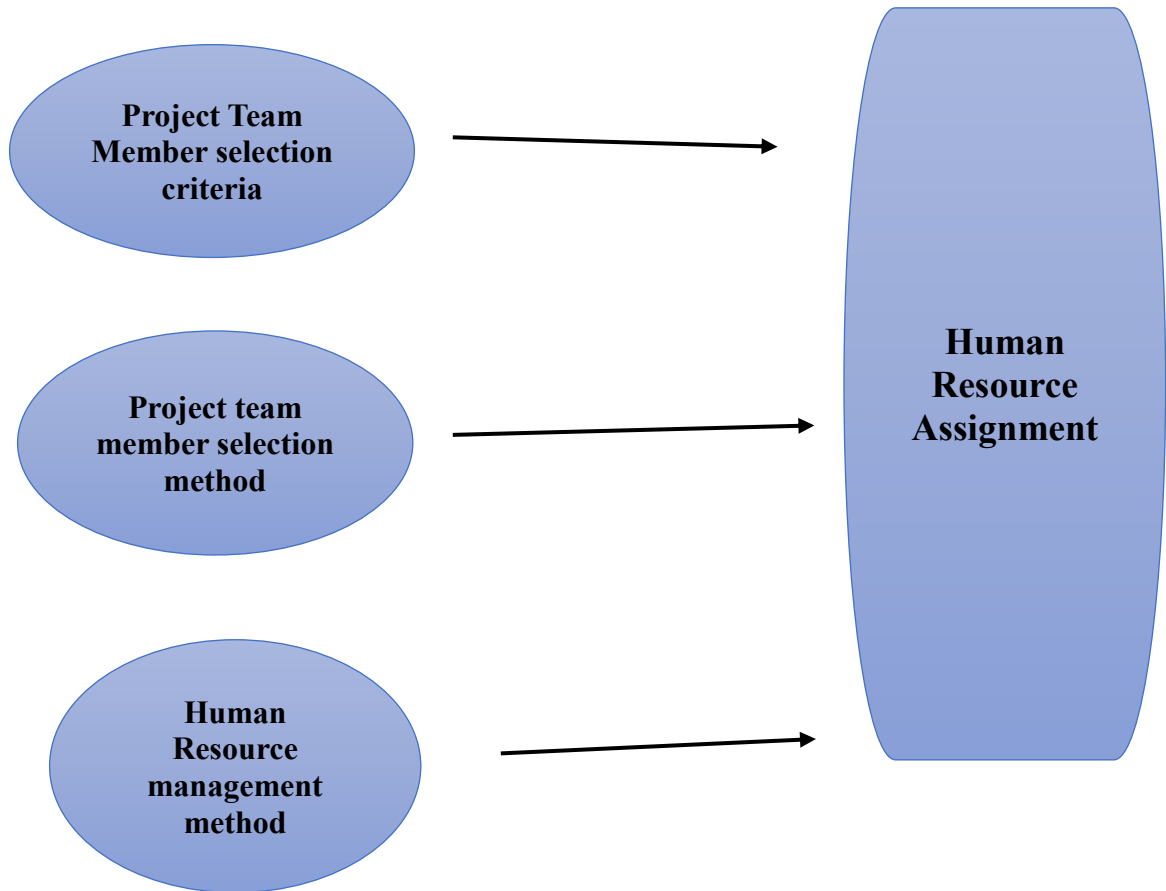
When there is a situation of lack of resources, this interaction can develop into a conflict. There are many ways in which the project manager can go about it to secure the human resources. The actions taken by the project manager is claimed to be influenced by a number of factors, e.g. the project managers' personal experiences and their educational background, the organizational structure and systems, organizational culture and norms, the type of projects and project duration, project prioritization, practitioners power base etc. (Cooper et al., 2004). All of these conditions can be considered as the project's context. Uncertainty, temporality and pressure on people working in multiple project organizations.

In interdependent project, the interaction between projects and independent project information cause overload and give specific challenges to the organization (Engwall & Jerbrant 2003; Zika-Viktorsson et al. 2008; Patanakul & Milosevic 2009). Employee become exhausted and confuse toward the information that is available for decision making. With the large amount of information from different project, that lose sight of relevant and useful information. Inaccurate or poor information quality cause poor decision making (lonen & Artto 2003; Engwall & Jerbrant 2003).

The overload of project information cause confusion with other project (Engwall & Jerbrant 2003; Zika-Viktorsson et al. 2008). This is because different project have different needs and wants. The employee may easily mess-up with other project information. This is because the information indicates the customer needs and wants. When inaccurate information received cause poor decision made. When wrong decision made mess-up the project and leads to project failure.

2.7 Conceptual Framework

The conceptual framework is a combination of the various findings in literature which have been grouped and arranged to a framework to guide the research in an attempt to provide a solution to the research problem. The conceptual framework is illustrated in Fig 4 below.



Source:- researcher

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Methods

The overall main purpose of research is to understand the research topic and issue in the research topic. This research takes an exploratory research form: -

- I. Exploratory research: - It is used to define and identify a problem. This study mainly focuses on fact-finding enquiries of different kinds.

3.2 Research Design

There are two common types of research design (Creswell 2008): qualitative research design and quantitative research design. The design of the research is chosen based on the nature of the research. A research design is an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with time and money in consideration. In fact, a research design is the conceptual structure within which research is conducted; it constitutes the blue print for the collection, measurement and analysis of data.

3.2.1 Qualitative Research

The aim of qualitative research method is to understand human behavior. This method is to ask wide questions, and the data collected in the form of verbal, pictures, and/or video. The flexibility of this research method is the investigation of questions. The question does not need to be quantifiable value or search for potential relationships in the variables.

3.2.2 Quantitative Research

Quantitative method is a systematic approach which gathers data of relationships and the phenomena. Quantitative research methods are using questionnaires to collect data. The questionnaire collecting data is faster compared with interview. This method asks narrow questions to collect numerical data and analyze it for findings. This chapter particularly presents the elements of methodology that were applied in this study. The chapter covers research design, population of the study, sample size, sampling procedure, data collection methods and instruments, procedure for data collection and data analysis.

This research has an exploratory nature by describing the existing phenomenon as it exists. Descriptive research includes surveys and fact-finding enquiries of different kinds. The major purpose of descriptive research is description of the state of affairs as it exists at present. In a very real sense, description is fundamental to all research. And hence, to better see the how effective the is the human resource assignment practices within the context of the Federal Democratic Republic of Ethiopia, Ministry of Health(FMOH).

3.3 Sources of Data

Both primary and secondary source of data were used in conducting this research. As a primary source of data, quantitative data collection method used with questionnaire adopted from Cheong K., M., 2013 and modified to case organization context.

The reason questionnaires is been choose because it is convenient way to avoid interviewer bias. This method is a suitable and flexible mean for the respondent to fill up the questionnaires, this help to increase the response rate and convenient for the data analysis.

- The section A is Organization and respondent profile. This section contains ten questions. In this section is asking the respondent company background and respondent position.
- In the section B are project team member selection criteria. There will be ten questions of project team member selection criteria to be rate. A scale of 1-5 to be selected; where 1 stands for very important, 2 stands for important, 3 stands for moderately important, 4 stands for Of little importance, 5 stands for unimportant.
- Section C is about the project team member selection methods. This section contains four questions to be rate. A scale of 1-6 to be selected; where 1 stands for always, 2 stands for usually, 3 stands for often, 4 stands for sometimes, 5 stands for rarely, 6 stands for never.
- The section D is to human resource management methods. There will be five methods to be rate. A scale of 1-5 to be selected; where 1 stands for very useful, 2 stands for useful, 3 stands for moderately useful, 4 stands for little useful and 5 stands for not useful.
- In section E is to rate the current challenges and problems found in assigning resources. There are five common issue and problem to be rate. A scale of 1-2 to be selected; where 1 stands for Yes, and 2 stands for No.

3.3.1 Target Population

The questionnaire mainly targeted Federal Ministry of Health employees those currently working at ministry main office specifically for Maternal and Child health core process programs. The total amount of project team members is 42 and currently 7 of them are abroad for capacity building training. A total of 35 professionals were part of this study. The whole available team were candidates for this researches and questionnaire distributed to all of them. This maternal and child health program core process selected as a target population and sample population due to the team composition that most of the core process are performed under projects and all of the team members are handling a minimum of 2 projects at a time.

3.4 Analysis of the Data

The first stage is to test the reliability or the consistency of the questionnaire. Cronbach's Alpha used to test the reliability of the questionnaire. After the Cronbach's Alpha test, the next test is to rank the data based on the mean of the variables using SPSS. Statistics is a method of collection, analysis, organization, interpretation and presentation of data After the data has collected, the data analyzed by using SPSS software. SPSS software is a software package to analysis statistic. SPSS software is one of the powerful software which can generate the statistic result by saving all the data into the software. SPSS software can accept non-normally distributed data or non-parametric.

3.5 Result Summarization and Discussion

After the data is analyzed, the result discussed and summarized and submitted. The result compiled in to table form and chart as needed. The summarization categorized into three main parts.

- The first result showed the project team members selection criteria in the case organization;
- The second result are project team member selection methods in the case organization;
- The third result is the HR assignment current challenges and problems in the case organization.

CHAPTER FOUR

FINDINGS AND DISCUSSIONS

4.1 Introduction

The questionnaires were distributed to 35 persons including projects team members who currently working on persons, the respond rate is 28 persons (80%) and there was no response from 7 persons (20%).

In the survey questionnaire, the questions were divided into five (5) parts as below:

Section A: Organization and Respondent's Profile

Section B: Project Team Member Selection Criteria

Section C: Project Team Member Selection Methods

Section D: Human Resource Management Methods

Section E: Current Challenges and problem in assigning the Human Resources

The data was tested using Cronbach's Alpha to determine the reliability of the data collected. Next, the result will be analyzed base on the questionnaire section.

4.2 Cronbach's Alpha Test

The data collected from the questionnaire survey are tested with Cronbach's Alpha to measure the reliability of the data.

The Croanbach alpha test result shows in Table below is reliability test of all variables used in the survey. Croanbach Alpha test in Table 4.1 value is 0.779 which shown this study had the acceptance internal consistency

Table 4.1 Reliability Test of all variables

Cronbach's Alpha	N of Items
.779	35

The Croanbach Alpha test result shows in Table below is reliability test of Project Team Member Selection Criteria. Croanbach Alpha test in Table 4.2 value is 0.708 which shown this study had the high internal consistency

Table 4.2 Reliability Test of Project Team Member Selection Criteria

Cronbach's Alpha	N of Items
.708	10

The Croanbach Alpha test result shows in Table below is reliability test of Project Team Member Selection Methods. Croanbach Alpha test in Table 4.3 value is 0.702 which shown this study had internal consistency.

Table 4.3 Reliability Test of Project Team Member Selection Methods

Cronbach's Alpha	N of Items
.702	4

The Croanbach Alpha test result shows in Table below is reliability test of Human Resource Management Methods. Croanbach Alpha test in Table 4.5 value is 0.715 which shown this study had the internal consistency

Table 4.4 Reliability Test of Human Resource Management Methods

Cronbach's Alpha	N of Items
.715	5

The Croanbach Alpha test result shows in Table 4.5 is reliability test of Current Challenges and Problem in assigning human resources. Croanbach Alpha test in Table 4.5 value is 0.731 which shown this study had internal consistency.

Table 4.5 Reliability Test of Current challenges and problems in assigning human resources

Cronbach's Alpha	N of Items
.731	9

4.3 Summary of the Questionnaire Result

This section is to summarize the result for the company and respondent profile. These sections give the overall information of the respondent and the company information.

4.3.1 Organization and Respondent's Profile

This section will divide into seven sections and in includes:

1. Age
2. Gender
3. Education level of Respondent
4. Position
5. Number of years working experience
6. How many projects respondents handling concurrently
7. Who assigned the respondent to the concurrent projects?

1. Age of the Respondent

Table 4.6 Age of Respondent

Age	Frequency	Percentage (%)
From 20 to 30	9	32.1
From 31 to 39	12	42.9
From 40 to 49	7	25

The age distribution fall under the range of 20 to 49. The dominant group is within the range of 31-39(~43%) of the total sample population. The next highest age group is between 20 to 30(32%) of the total sample population. The remaining 25% were between the age of 40 to 49. This shows that majority of employees were in the economically active age group.

2. Gender of Respondent

Table 4.7 Gender of respondent

Gender	Frequency	Percentage (%)
Male	18	64.3
Female	10	35.7

The demographic data for gender shows that out of the 28 respondents there were 18 male and 10 females. Table in above shows that the male respondents formed majority of the target population with a percentage of 64.3%, while female respondents were representing 35.7%. This has resulted in available number of women under the projects.

3. Level of Education

Table 4.8 Level of Education

Level of Education	Frequency	Percentage (%)
Degree	8	28.6
2nd Degree	15	53.6
PHD	5	17.9

The respondents hold a range of educational qualification from degree to PHD level. The majority of the respondent hold their 2nd degree (53.6%). The second highest is degree (28.6%) holds their first degree. There are 5 respondents 17.9% with PHD.

4. Position of respondent

Table 4.9 Position of respondent

Position	Frequency	Percent
Director	4	14.3
Project Manager	4	14.3
Project Team Member	20	71.4

When we see the position of the respondent, four of them (14.3%) are directors and other 4(14.3%) are Project Manager and the remaining 71.4% are project team members.

5. Number of years working experience

Table 4.10 Number of years of working experience

Organization experience	Frequency	Percentage (%)
Less than 2 years	2	7.1
From 2 to 5 years	4	14.3
From 6 to 10 years	9	32.1
Above 10 years	13	46.4

The respondent with above 6 years of experience counts a total of 46.4%. The second highest year of experience is with in the range of 6 to 10years and it counts 32.1% of total respondent, the lower year of experience is only 2 respondents (7.1%). The remaining respondent are within the range of 2-5 years of experiences.

6. How many projects handling concurrently by respondent

Table 4.11 How many project handlings concurrently

Concurrent Projects	Frequency	Percentage (%)
2-5projects	23	82.1
6-9projects	5	17.9
Total	28	100.0

82.1% of respondent are handling 2 to 5 projects concurrently at a time. the reaming 17.9% is handling more than 6 projects.

7. Who assigned the respondent to concurrent projects?

Table 4.12 Who assigned the respondent to concurrent projects?

Who assign	Frequency	Percentage (%)
Project Manager	9	37.5
Director	15	62.5
Total	24	100.0

In the summary of the result, majority of the respondent holding minimum of degree and maximum of PHD holders. Most importantly, 78% of the respondent have more than 6 years and above working experience with in the case organization, this in return will be increases the reliability of the survey result. The other importance thing is among the total sample population, 70% of the sample is project team members that handle more than two projects minimum concurrently. 82% of the total respondent handled minimum of 2 to 5 projects concurrently. When we compare the responsible bodies for assigning project teams to each project is on the hand of the Director than the project manager 60% vs 40% respectively. As per the result, Directors have more decision power over the project manager on project team member assignment.

4.3.2 Project Team Member Selection Criteria

This section is to summarize the result for the project team member selection criteria that the case organization uses while selecting professionals from the human resources pool. These sections give the guideline for project team member selection criteria.

Table 4.13 Project Team Member Selection Criteria

A scale of 1-5 to be selected; where 1 stands for very important, 2 stands for important, 3 stands for moderately important, 4 stands for Of little importance, 5 stands for unimportant--- (RII >0.60 --- Important

Variables	Very Important		Important		Moderately Important		Of Little Important		Unimportant	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Lifelong Learning Skill	8	29%	17	61%	3	10.71%		0.00%		0%
Good Communication Skill	6	21%	14	50%	4	14.29%	2	7.14%	2	7%
Good Leadership Skill	6	21%	13	46%	4	14.29%	3	10.71%	2	7%
Good Time Management Skill	4	14%	12	43%	5	17.86%	4	14.29%	3	11%
Good Problem-Solving Skill			6	21%	8	28.57%	8	28.57%	6	21%
Decision Making Skill			3	11%	7	25.00%	10	35.71%	8	29%
Good Interpersonal Skill			3	11%	7	25.00%	10	35.71%	8	29%
Good Innovation Skill			2	7%	6	21.43%	11	39.29%	9	32%
Good Creativity Skill			2	7%	5	17.86%	12	42.86%	9	32%
Good Analytical Skill			1	4%	3	10.71%	11	39.29%	13	46%

From Table 4.13, the highest criteria for selection is lifelong learning skill which is selected as a very important 8(29%) and Important 17(61%) by respondent. Lifelong learning takes self-motivation which keep learning new thing to enhance the person knowledges and skills. Therefore, this research shows a sum of 90% of the respondent agreed that lifelong experience is important skill used as a project team member selection.

Good communication and good leadership skills are the second and the third selected selection criteria by the respondents. 6(21%) of respondent believed that communication skill is very importance and 14(50%) of respondent selected this skill as important. Similar percentage of respondent selected Leadership skill as very important and 13(46%) of respondent selected this skill as important. We see that only most importantly selected selection criteria for project team members selection. Communication is one of the project management knowledge areas (PMBOK 5th edition) and project without a good leader will not succeed and achieves its goals. Good communication skill means a medium which sending and receiving message through oral or written (Threats & Worrall 2004; Kate et al. 2013 cited on Chong 2013). Good communication skill has rank on the second place because effective communication is one of the important key to successfully complete the task (Fakhredin 2011 cited on Chong 2013). Comparing the result with journals, Lifelong skills importance found in this research is same with stated in journals.

When we see other skills selected as important by respondents are time management skills by 12(43%) of the respondent and followed by decision making and interpersonal skill 11% each. Good time management and good problem-solving skills are the first important criterial for project team selection followed by good decisions and interpersonal skills. Journals also approved that time management and problem-solving skills are important for the success of projects.

When we see moderately important skill, the result revealed that 6(28%) of the respondent selected Good Problem-solving skill as a moderately important as selection criteria for project team member selection followed by decision making and good interpersonal skill selected by 7(25%) of total respondents.

Good creativity skill is selected as unimportant skill by 13(46%) of the respondent followed by Good Creativity skill 9(32%) of total respondent as an unimportant selection criterion. Good innovation and good analytical skills are the of little important skills for project team selection. These skills are the least selected due to project characteristics that project team members not

needed to generate novel ideas or solution rather they will work towards improving the project outcomes based on the strategies, polices and targets settled by directors and project manager. This is little bit in contrary to journals that showed importance of good creativity for the success of projects. Comparing the result with Jeffrey 2013 that Interpersonal skill is selected as important, this result shows interpersonal skill is moderately important compared to other skills. Positive interpersonal skills help to increase the social skill that in return minimize unwanted communication. In a situation that project manager and director unable to get the required skills and knowledge needed for specific task from the resource pool, there will be a decision made based on personnel feelings. As a result, due to lack of proper knowledge to assess personnel capabilities, the decision makers are forced to assign resources based on subjective measures only (Otero et al. 2009).

4.3.3 Project Team Member Selection Methods

This section is to summarize the result for the project team member selection methods. These sections give the guideline on when and how to select project team member.

Table 4.14 Project Team Member Selection Methods

Variables	Always		Usually		Often		Sometimes		Never	
	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)	Frequency	Percentage (%)
Takes place before the project start	10	35.71%	15	53.57%	3	10.71%				
Allow employee exchange during the project course of a project	16	57.14%	10	35.71%	2	7.14%				
Takes place after the project started					4	14.29%	9	32.14%	15	53.57%
Allow employee to choose the project that they want to work on	0		0		2	7.14%	5	17.86%	21	75%

Project team member selection takes place before the project starts. Among the total respondent 10(35.71%) responded that the project team assignment takes place before the project started and 15(53.57%) of them responded as it takes place before the project started.

From the total respondents, 16(57.14%) of the respondent agreed that project team member selection always happened before the project start and employees got a notification about their assignment before the project started. From the total respondent, 10(35.71%) of respondents replied that employees usually allowed to be exchanged during courses of project.

21(75%) of respondent said employees are not allowed to choose the project they want to work on. These could be due to many reason related with limited number of human resources available in the organization and also due to project characteristics that require intensive expert involvements.

The result shows that 14.29% of respondent replied that project team selection happened often after the project started and 32.14% of the respondent said project team assigned once the project started. The reason that this assignment happened after the project started are due to two major reasons. One is by the time, a new project starts the required few skilled team members might be occupied with other projects with strict deadline as a result the project started without them than when they complete the other work, they will join the new project team even if it is already started. The other reason for assignment of project team members once the project started is when additional team member required to complete the projects on time or ahead. and/or when unplanned incidence happened on project team members during the project implementation process.

4.3.4 Human Resource Management Methods

This section is to summarize the result for the human resource management methods. These sections give the guideline on how industry selects resources to the project.

Table 4.15 Human Resource Management Methods

A scale of 1-5 to be selected; where 1 stands for very useful, 2 stands for useful, 3 stands for moderately useful, 4 stands for little useful and 5 stands for not useful.

Variable	N	Minimum	Maximum	Mean	Rank
Multiple Resources Assignment Algorithm Method (Assign based on project time/scheduling)	28	1.00	5.00	3.0714	1
Best Fit Resource Method (Assign based on experience, skills or etc.)	28	1.00	5.00	2.9286	2
Team-Based Human Resource Planning Method (Assign based on mapping organization processes)	28	1.00	5.00	2.7143	3
Delphi Method (Assign based on series of discussion from expert)	28	1.00	5.00	2.6429	4
Rough-Cut-Project-And-Portfolio-Planning Method (Assign based on organization portfolio)	28	1.00	5.00	2.4643	5

The highest human resource management method is Multiple Resources Assignment Algorithm Method. The lowest ranking human resources management method is rough-cut-project-and-portfolio-planning (RCPAPP) method.

The multiple resource assignment algorithm method is the top-ranking amount others method because the resource is assigned base on project schedule. Project is a temporary team member which forms to complete the project (Turner 2009). Thus, the management will assign the team member base on the schedule and priority level of the projects.

Best Fit Resource Method is one of the high-ranking method is because the project team member is form based on their experiences, available and required skills that will ensure the learning time is very short and the project process is on time with better performance.

Delphi method is lower rank method. This is because the decision of human resource method is mostly on the hand of the director, project manager and human resources department but not considering the consent of the employee. The rough-cut-project-and-portfolio-planning method has low ranking from other methods. This can be understandable because this method takes more time and not flexible to form a project team. This is because the project team will form every year base on organization portfolio.

4.3.5 Current Challenges and Problem in Assigning Human Resources

This section is to summarize the result for the current challenges and problems found in assigning human resources in the case organization.

Table 4.16 Current Challenges and Problem in Assigning Human Resources

Variable	Frequency of occurrence	Percentage (%) of problem occurrence
Project Interdependency	19	67.86
Project Process Dependency	19	67.86
Insufficient Expertise	19	67.86
Project Team Workload	18	64.29
Fail to Prioritize	17	60.71
Insufficient Budget	17	60.71
Fail to Schedule the Resources	15	53.57
Conflict Over Resources	14	50.00
Project Manager Burnout	13	46.43

From Table 4.8 the highest challenges and problems found in assigning resources are insufficient expertise, project interdependency and project process dependency. The lowest challenges and problems Project Manager Burnout.

The top-ranking current challenges and problems occurring are project interdependency and project process dependency and insufficient expertise. These first two challenges are due to the projects characteristics which majorly the case organization run projects through programs and

each and every project under the organization requires critical experts that causes insufficient expertise and workload on project team members. The insufficient expertise is one of the common problem occur in many multiple project organizations.

Comparing the result with other literature (Hendriks et al. 1999; Hashime & Chileshe 2012). The results showed that due to unequal distribution of resources to each project, each project will not have significant resource to complete the project. This in return make project interdependent in a way that one project will wait or hold till the completion of other project. Not only that but also this unavailability of resource creates stress and workload on teams for splitting their time and their skills for different projects at a time. The issue of a sharing pool of resources in return creates high interdependency among projects as well as project inter process dependency in the organization

Project manager burnout is the lowest ranked challenge and problem that the case organization currently facing. Compare to project team members, the project manager burnout rate is low. This could be the sample size of the project manager is small compared to the project team members (>70% of the total sample population).

Comparing this result with several studies, the findings are very much comparable in showing multiple project environment holds serious challenges related to the sharing of resource, specifically resource availability and resource conflicts as well as re-assignment and prioritizing problems (Huemann et al., 2007). The result on this case organization constitutes a range of additional challenges not faced by single project organization due to project dependency as well as project inter-dependency process. Organizations that runs multiple project simultaneously (Payne, 1995) constitutes a range of additional challenges that mere single project-oriented organizations do not have. It is much more complicated to schedule and allocate resources to multiple project than to a single project (Meredith & Mantel, 2012). The environment of the multiple project organization impacts the whole organization, not just the project department, and the rest of the organization. In alignment with journal results, there are several resources shared among projects and human resources is the among those resource the core process team utilize across the projects at same time for different projects.

CHAPTER FIVE

CONCLUSION

5.1 Research Conclusion

The aim of this research is to identify human resource assignment practices in multiple-project environment in Malaysia. The research will help to enhance both industry and academic. With the result of the research will created a guideline for the academic and company which can handle project more effectively and increases the rate of project success.

In this research, there are three objectives. Base on the result gathered on the research, all objectives has achieved. Thus, the aim of the research has achieved too.

The first objective is to identify the human resources practices adopted by the Federal Ministry of Health. This research described the current practices using structured questionnaire to identify the trends and techniques used. The second objective is to determine the criteria for assigning human resource in multiple project environment. The second objective was achieved through studying the project team member selection criteria. Base on the result, the project team member selection criteria in the descending order of importance is: 1) Lifelong Learning Skills, 2) Good Communication Skills, 3) Good Leadership skills, 4) Good Time Management Skills, 5) Good Problem-solving Skills, 6) Decision Making Skills, 7) Good interpersonal skill, 8) Good innovation skill, 9) Good creativity skill and 10) Good analytical skill.

The first objective also achieved through analyzing the project team member selection methods. In the result shows the project team member selection methods is performed in descending order are: 1) Take place before the project start, 2) Allow employee exchange during the project course of a project. 3) Take place after the project started and 4) Allow employee to choose the project that they want to work on. The project team assignment decision mostly decided by a agreement made between project manager, the director and human resource department by. The employee have not a power on deciding which projects they would like to work on.

When we see multiple project human resource management methods, the result of human resource management method in the descending order is: 1) Multiple Resources Assignment Algorithm Method, which relies on the project timing and urgency of the deliverables. 2) Best Fit Resource Method, which is based on required and existed skills and previous year experiences. 3) Team-Based Human Resource Planning Method, this is based on mapping organization processes, 4) Delphi Method which is based on series of discussion with experts and 5) Rough-Cut-Project-And-Portfolio-Planning Method (Assign based on organization portfolio).

Last but not the least objective was identifying the current challenges and problems in the case organization related with the human resource assignment for multiple project. The results show that insufficient experts and project dependency along with project process dependency is the most significantly challenges encountered. Since most multi-project organizations are allocating human resources from the same pool of people, these major challenges are well expected. Not only that but also, project team members have significant workload due to assignment to many projects concurrently with the decision from HR, project manager and/or Director.

Conclusion, the human resource management best practices for project that be adopted with the lifelong learning criteria, and assign team member before project start by using the Multiple Resources Assignment Algorithm Method.

5.2 Recommendation

- The current structure of project management under the directorate might need be restructured by creating Project Management Office(PMO) office than categorize project under core process;
 - This in return will help to ensure better resource assignment practices to all projects with needed skills and knowledges with a minimized conflict and confusion on resource utilization;
- The Project manager role in assigning project team members should be strengthen for the success of the program since there are times that directors sometimes prioritize functional activities over project tasks that will impact the success of the project by hindering getting the exact resources;
- Allowing employees to choose which projects they would like to work on could be one area that case organization can consider adopt. This in return will minimize the project team work load and frustration. Not only that but also when employee gets power to choose, their commitment will be higher, that will minimize the fail to prioritize the projects.
- Delphi techniques human resource management method can be a good tool to use in combination with other methods in order to ensure required skills and knowledge are well defined by experts before starting the project which in return will avoid need of allocating additional human resources once the project started;
- Multiple Resources Assignment Algorithm Method that ensures the assignment of resources based on project time and scheduling need to be further studied, since schedule should not be the only decision factor for quick resource assignment especially short scheduling not necessarily mean the project has high priority and high importance;
- The Directors need to consider facilitating and providing capacity building on job and off job training for project managers and project team members in order to improve their creativity, innovative and analytical skills. Since the importance of these skills is so invaluable for the success of a project.

5.3 Limitation of this research

Research has its own limitation and it is always better to identify and acknowledge the shortcomings of researches. This research also has its own limitation. The major limitation is the sample size itself. The sample size is determined based on the number of available staff at head office and not able to get full number of available project team members at a research time. Not only that but also the research focus on one core process, which is Maternal and Child health projects. This in return has an impact on the representatives of the sample since it only reflected the situation at head office.

5.4 Future Research

Based on this research there are many areas that can be further study. The first area is the multiple project human resources assignment at Regional state health bureaus in order to see full pictures of the practices.

The second areas could be there need to be more investigation to see what human resources assignment practices and challenges that other directorates are facing at head office as well as at regional health bureau level.

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APPENDIX A: Survey Questionnaire

SURVEY: HUMAN RESOURCES ASSIGNMENT PRACTICES IN MULTIPLE PROJECTS ORGANIZATION IN ETHIOPIA. A CASE OF FEDERAL MINISTRY OF HEALTH

This questionnaire consists of Five (5) sections: -

Section A : Organization and Respondent's Profile

Section B : Project Team Member Selection Criteria

Section C : Project Team Member Selection Methods

Section D : Human Resource Management Methods

Section E : Issues and Problems Found In Assigning Resources

Dear Sir/Madam,

You are invited to take part in a research study about Human Resource Management Practices in Multiple Project Organization in Ethiopia, in the case of Federal Ministry of Health(FMOH).

Please be assured that your answers are treated with confidentiality. Your frank and honest opinions in this questionnaire are sought and the information obtained are strictly used for academic purposes and statistical analysis only. The identity of respondents won't be revealed.

I would be grateful if you could take a few minutes of your time to fill in this questionnaire.

Your cooperation is very much appreciated.

Thank you.

SECTION A
ORGANIZATION AND RESPONDENT'S PROFILE

Please tick (X) the correlated answers and fill in the blanks accordingly. You may tick more than one answer if needed. Thank you.

Age

1. Less than 20 _____
2. 20-29 _____
3. 30-39 _____
4. 40-49 _____
5. >50 _____

Gender

1. Male _____
2. Female _____

Education

1. Certificate _____
2. Diploma _____
3. Degree _____
4. 2nd degree/Masters _____
5. PHD _____
6. Other; please specify _____

Position

1. Director _____
2. Project Manager _____
3. Project team member _____
4. Human Resource/HR _____
5. Other; please specify _____

Number of years of working experiences

1. less than 2 years _____
2. 2-5 years _____
3. 6-9 years _____
4. more than 10years _____

How many projects you are handling concurrently

1. 0
2. 1 project
3. 2-5 projects
4. 6-9 projects
5. more than 10 projects

Who assigned you to the concurrent projects

1. Project Manager
2. Director
3. HR
4. Functional manager
5. other, please specify _____

SECTION B

PROJECT/PROGRAM TEAM MEMBER SELECTION CRITERIA

Please rate the criteria for assigning people to work on a project in your organization on a scale of 1 to 5.

(1) = Very Important

(2) = Important

(3) = Moderately Important

(4) = Of Little Importance

(5) = Unimportant

No	Project Team Member Selection Criteria	1	2	3	4	5
1	Good Problem-Solving Skill					
2	Good Analytical Skill					
3	Decision Making Skill					
4	Good Time Management Skill					
5	Good Communication Skill (Oral, Written and Listening)					
6	Good Interpersonal Skill					
7	Good Leadership Skill					
8	Good Creativity Skill					
9	Good Innovation Skill					
10	Lifelong Learning Skill					

SECTION C
PROJECT/PROGRAM TEAM MEMBER SELECTION METHODS

Please indicate how/when project team member are assigned in your organization on a scale of 0 to 5.

- (1) = Always
- (2) = Usually
- (3) = Often
- (4) = Sometimes
- (5) = Rarely
- (6) = Never

No	Project Team Member Selection Methods	1	2	3	4	5	6
1	Take place before the project start						
2	Take place after the project started						
3	Allow employee to choose the project that they want to work on						
4	Allow employee exchange during the project course of a project						

SECTION D

HUMAN RESOURCE MANAGEMENT METHODS

Listed below are human resource management methods. Please choose your answer according to the scale of 1 to 5

(1) = Very Useful

(2) = Useful

(3) = Moderately Useful

(4) = Little Useful

(5) = Not Useful

No	Human Resource Management Methods	1	2	3	4	5
1	Best Fit Resource Method (Assign based on experience, skills or etc.)					
2	Delphi Method (Assign based on series of discussion from expert)					
3	Team-Based Human Resource Planning Method (Assign based on mapping organization processes)					
4	Rough-Cut-Project-And-Portfolio-Planning Method (Assign based on organization portfolio)					
5	Multiple Resources Assignment Algorithm Method (Assign based on project time/scheduling)					

SECTION E
ISSUES AND PROBLEMS FOUND IN ASSIGNING RESOURCES

Listed below issues and problems found in assigning resources. Please choose your answer according to the scale of 1 to 2

Yes = 1

No = 2

No	Issues and Problems Found in Assigning Resources	1	2
1	Project/program interdependency		
2	Project/program process dependency		
3	Project/program team work load		
4	Project/program Manager burnout		
5	Insufficient Expertise		
6	Insufficient Budget		
7	Fail to prioritize		
8	Fail to Schedule the Resource		
9	Conflict Over Resources		