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## **PROJECT MANAGEMENT OF ROAD CONTRUCTION IN KOSOVA**

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University for Business and Technology  
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**PROJECT MANAGEMENT OF ROAD CONTRUCTION IN  
KOSOVA**  
Bachelor Degree

Vjollca Aliti

May / 2008  
Prishtinë

University for Business and Technology  
Faculty of Business, Management and Economics

Bachelor Thesis  
Academic Year 2005 – 2008

Student: Vjollca Aliti

**PROJECT MANAGEMENT OF ROAD CONSTRUCTION IN  
KOSOVA**

Supervisor: Prof. Dr. Thomas Hrabal

May / 2008

This thesis is submitted in partial fulfillment of the requirements for a  
Bachelor Degree

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## 1. IMPORTANCE OF RCP IN KOSOVA

In the past, people have encountered many problems managing construction projects due to lack of current technical knowledge and to pressures of time. This fact has been even more difficult when the requirements for a proper managing of road construction were at the peak level [1]. Managing road construction projects should contain steps which will meet the criteria for a successful application of a certain road construction project.

The proper road construction project should examines some of the important issues that will arise during course of the project, with the view of eliminating as much as possible, problems that can occur if the process is not well managed [2].

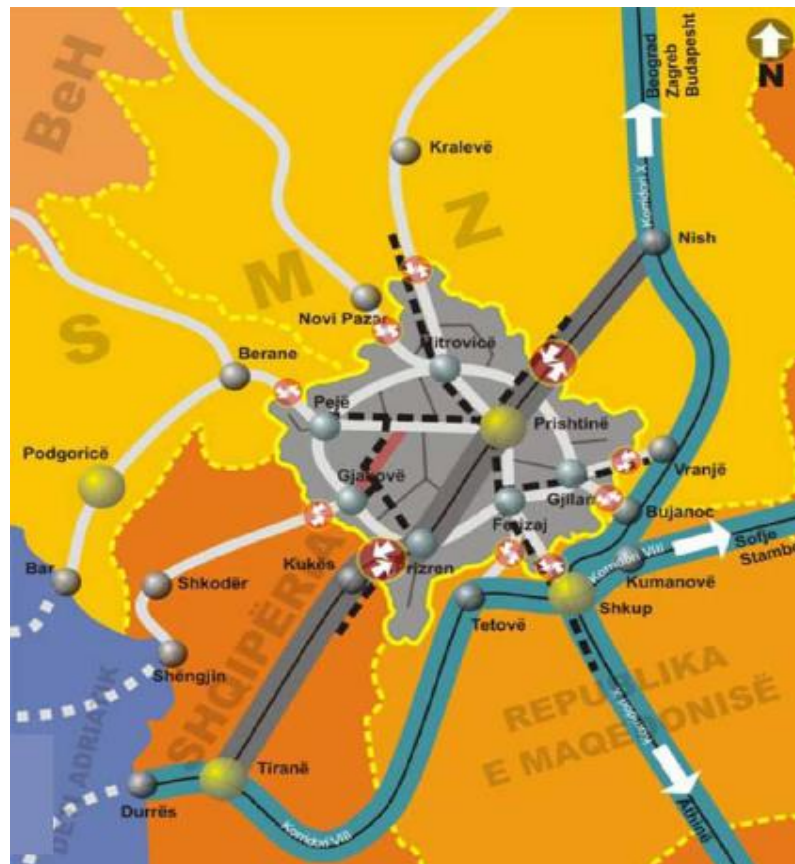


Fig.1 Connection of the corridor X (Nis) and corridor VIII (Durrës) through Republic of Macedonia, and also through Kosova (sources: Ministry of Infrastructure)

If we want to take a look and analyze the importance of road construction projects in Kosova, one of the most realistic ways to take a start, would be considering of number of population per square meter, which means further, the number of vehicles within a very small country. Kosova has one of the largest numbers of population per square meter in the world. This fact claims that the number of vehicles is very high. It also becomes even higher and more problematic, if we take a look to number of asphalted roads and quality of them in Kosova [3].

It is a lack number of asphalted roads, and even those which has been asphalted, today are weak, damaged, and in a huge need for repairing. Some of them are almost useless, and people continue to pass through them (even that they are danger in most of the cases) because they sometime don't have the other choice. Most of them have been surrounded by big holes and a lot of them have lost their stability and shape, and became danger for passing vehicles [4].

The need for RCP (Road Construction Projects) seems to be clearer by now. Since after the war (1999), economy changed together with the status, and the visits from international companies has been increased. During war, the pass of heavy weight army vehicles and also NATO bombing through roads in Kosova, has been the big attack for the roads of Kosova.

After the war, the need for RCP was very high, and is still today. Road Construction Projects has been influenced mostly by internationals. Since Kosova has been occupied by Serbia with decades, the population of Kosova didn't have the right to study and increase them professional skills. So coming to a position to create a road construction project by Kosova people, was something new to deal with, and something they didn't have a chance to do.

The construction projects made by Kosova people were controlled and verified from United Nations Mission in Kosova (UNMIK). Most of them have been ended up only in paper [5]. Many RCP's were created by people who didn't have experience even that their profession was in engineering of construction.

By the facts above, it is clear now how much important was RCP in Kosova and is still today. People from Kosova had and have a huge need for different trainings especially in the field of construction. After the war, many road construction projects done by internationals have been implemented. These projects were a lesson for Kosova citizens in order to make a RCP's in future by themselves.

UNMIK gave a chance to bring different RCP's from Kosova citizens, in a discussion. But very few of them had a chance to start, and arrive till the end. The problem seems to be very less qualified personnel, and sometimes no power in aspect of applying the project further. The importance of RCP's in Kosova has been increased while the economy started to improve. More budgets bring to more demands and more realizations on basic needs. The trade within Kosova has been increased very fast, because of the transportation centre in the middle of the Balkan. Kosova has an increased importing level from foreign countries, and quite little exportation.

The fact that it exists in the middle of Albania, Macedonia and Montenegro area, shows how much there is a need to have a healthy roads where a lot of transport vehicles needs to exchange without having a problem during those roads. This demand could be achieved with a very sophisticated RCP's made for Kosova roads. But since Kosova is a new state, it will achieve bigger results through the time when they will take everything in their hands.

The distance from villages to the centre cities can be considered high. This is one of typical arguments raise by the need of road construction projects in Kosova. This increased distance (between village and city) can be a real issue especially in countries where roads are underdeveloped and the public transportation system is not very good and also when in rural areas where access to private cars may be limited.

There are a several solutions of solving this problem. The main solution is by starting to create the best RCP's which are acceptable and realizable for Kosova situation. Another line of thinking is that national priorities should be considered more for its

Importance: The national government is interested in investments in infrastructure that have regional and national benefits, in this case, national roads construction [6].

Kosova is in the middle of Balkan, which links Balkan with the central Europe. Even that is has been problems during wars today Kosova roads are still very frequented by a lot of transport vehicles, which have a need to pass through the comfort roads and highways. But highways are not yet developed in Kosova. They started out in year 2005, and they are now running in construction. The most important discussion today can be considered the construction of highway from Pristine to Durres (Albania), which will link Kosova to the Adriatic Sea.

This project has been created many years before, and is has been discussed many times, and finally it started running before two years. It is still running very slow, and remains the problem of poor and very slow work which is happening today. It is considered a big problem, because the need for a highway which links the different stated between each other is very high.

Through roads of Kosova, passes a lot of transport trucks from Serbia, Macedonia, Albania, Slovenia, Montenegro, and other countries. They would like to have transportation in the easiest ways, and not having problems while running on highway passes. These situations can be solved only from a well designed RCP's. The proper RCP will help out in this matter, and if done well, it will contribute and have benefits in the other sides, from economical benefit from internationals, to a benefit or region as well.



## 1.1. ROADS IN KOSOVA RAPIDLY LOSE THEIR USEFULNESS IN THREE MONTHS

Roads in Kosova were designed during the Serbia occupation. They were created and structured in the previous decades, when Serbia had a leading capacity within Kosova.

The designers were mostly Serbians and the budget was taken from Kosova employees. The flush of road construction in Kosova started from 1955 (after the WWII) until 1990 [7]. This period was very active in road constructions, but it doesn't mean that it has stopped after the year 1990.

The quality of roads which has been constructed before the Kosova war ended (1999), could be considered well designed and middle quality [8]. They have been created once, but weren't well maintained. During the years they got damaged by transport vehicles, especially during the Kosova war (1996-1999). Another factor of damaging roads in Kosova was NATO bombing.

After the war, the new projects were come along, and new construction ideas and indicatives started out. Most of them were designed by foreign companies at the beginning right after the war, but later on, they were carried out by vendors [9].

Kosova roads were at a very poor condition during last eight years. A lot of investment were started to improve roads but very few of them were finished successfully. The way to arrive to a road construction has gone by a legitimate and legal way.

The projects and ideas were collected by the Ministry of Transport, and then the tender were announced for the constructing company who will be on charge for the construction of road. When the vendors started to be on charge for the construction projects, it has been understood that those projects and initiatives has to deal with un-professional people, the ones that took responsibilities for the first time in construction business.

A lot of discussions were made about road constructions in Kosova, because it was a very big deal and we have to mention that since it started to run, it seem to take another aspect!, a business and profit one. So when we have to deal with the huge amount of money, we have to expect the problems which may come from people who don't have integrity and are not loyal to a society or an organization.

Problems with the corruption have been always present, which means that Kosova even that is a new state, could not avoid it completely yet. But a lot of steps are making toward this problem.



Fig.2 Kosova Road Map done by UN-DPI [sources: 37]

Since road construction projects are very expensive, valuable and a lot of labor needs to be included in realizing it, it has took a kind of a ‘wrong and dangerous side’ when they were about to made by vendors [10]. At first vendors were un-experienced in taking responsibilities in major projects, because they were led from Serbia government before the war, and second, can be considered very sensitive economical situation.



Fig.3 UNMIK map, United Nations cartographic section [sources: 38]

Economical situation was horrible in Kosova, especially after the war, when most of objects and wealth, were damaged and lost. So these facts bring to some conclusions. People who had a chance to take the tender and a project in their hand, have done a lot of illegal stuff includes not well-managed project (this fact happens also from un-professional and un-experiential people).



Fig.4 some pictures of highways in Albania (sources: Ministry of Transport of Albania)

Another reason was that since the RCP's started to realize, there were a lack of observation from projectors, from managers and from people who were in charge of the RCP's [11]. People seem to be more individualistic, and when they take a project, they care more about their individual benefits, rather than social wellbeing. The problems of projects for road construction that were made were considered of different natures.

At the beginning RCP's were made and led by internationals who worked for 4th column of AKM (Agency of Kosova Confidence – which was responsible for every major project also for privatization monitoring). During road construction, it has been noticed a lot of budget misapplication from the project design, during construction phases. The work was going slow, and the quality was poor. Sometimes a long distance of road has been finished in a very fast period of time, but it was done in a very low responsibility, which led the road to be useless within two to three months.

This problem has been discussed a lot by media, and a lot of reasons were mentioned, but at the end, the problem was not solved. The main fault was left to the responsible persons of the RCP's, and a little percentage to a constructing company.

## 1.2. PROBLEM: POOR MANAGEMENT

The reasons for failure of road construction projects in Kosova seem to be clear. We mentioned low professional vendor personnel, as well as less responsible people. Kosova has a central geographical location in Balkan, and have a impressive need to have a healthy and functional roads, and aims to have a improving movement toward integration of Kosova in its region where it can play a role in the economic and commercial development of the region, and have its benefits [12].

At present the main road network (totaling 1200 km) is heavily congested. Kosova current traffic is very heavy, including a huge number of cars, transport vehicles (trucks and vans), military vehicles, all these just contributes on its damaging capacity level. The railway network which was supposed to help a lot of transport quantity is not maintained in a years, and factually today it is around 20% completely out of operation [13].

A lack of appropriate support, inadequate tools, poor safety measures and weak managerial capacities has contributed to the railways problems. There are military vehicles and tractors per day in only one direction are a huge contribution which consists to useless road in a very short matter of time [14]. Overloading is another reason which 'spent' the quality of roads in Kosova. The loading of 17 tons were observed, while the maximum of 13 tons were allowed, and with no doubt this contributed in fast deterioration of the road network.

Road safety is one of the general concerns both in terms of the increased volume of traffic and the poor enforcement for traffic regulations. The railway which includes totally 330 km, which was designed to partially relieve the congestion in roads, is in poor condition. This is mainly poor track maintenance and a heavy damage during conflict (1999), which brings to result, that today nearly 100 km needs to have a serious repair.

The analysis for road construction projects, were carried out in particular way, when they started to get incorporated by Kosova citizens in last four years because

before five years and ahead, they were carried out by Serbians, and after the conflict from International organizations. New projects have started after years 2003-2004, which were led by local people and construction companies.

After the realized RCP's, it was noticed a big problems with repaired roads, as well as with new constructed ones. They started to get damage in a very first three to four months. A lot of problems and realistic reasons were mentioned above, but it seems that another aspect was included, and it was named "**corruption**" through some journalists of today newspapers. Corruption considered to start from the tender was announce, and followed by a construction company which won the tender and started out to construct or develop a certain road.

In the RCP's were mentioned to build or repair of asphalt layer of 11 centimeters asphalt, while those figures were different when the job was done. Because of very fast damaging of new roads, it has been wide discussion, and the inspectors have inspected while the results were embarrassing, because the tests shown that the layer were nearly half of what it was expected to be. Most of layers were found around five to seven centimeters asphalt, some very important roads where need to be repaired and well maintained, because they have a connection with "Europeans Road Corridor 10". Another two bridges are included, which were damaged fully during NATO bombing (1999). It took nearly four years for them to repair, and this is another fact of how responsibilities, processes, initiatives and supervision are developed in a construction aspect in Kosova.

The number of thousands vehicles passing through the roads is in abnormal level, including civilian cars, civilian trucks, KFOR trucks, around 900 buses, also other heavy and a very less gravel.

The investigation started by the 4<sup>th</sup> UNMIK column, AKM which were responsible that every major project goes in right and legal steps, but the fault were spread out from Ministry of Transport, tender announcers, winners of the construction companies and people who were in charge of the projects and also projectors. It has also been declared that people who were in charge of the project, were not responsible for their job, and there were very less supervise from

managers of the constructing companies, as well as from managers who run the project out [15].

One of the important aspects at the end to mention is left professionalism. There are less professional people to run RCP's, and as well as less professional geodesy people who can measure, forecast, and design a sophisticated road construction projects.

## 2. PROJECT MANAGEMENT TOOLS – CONSTRUCTION ROADS IN KOSOVA

The growth of commercial world has been matched by the demand and growth of software which can be used to coordinate and manage projects, people and activities. In the last years the list of packages and products has exploded together with different features and functions. People have noticed that there is always a huge space between gaping holes in enterprise class systems which needs to be filled. Those gaps exists in different fields as pre-sales, sales and post-sales support systems, and in optimization and scheduling systems, that's why people always try to close those gaps, and have more optimized job/project [16].

One of the basic ideas of Project Management Tools (PMT) is the knowledge base to automate customer support by organizing product support information to an easy way to find, and much easiest access to data. Project Management Systems distinguish themselves from other systems. They have the inner tasks which provide the mechanism for scheduling and reserving resources, as well as automatic minimization of time-lines and costs by the option of re-arranging schedules. They are designed with complex algorithms which have been discovered to try to efficiently solve this problem [17]. These systems are usually used to manage construction and large engineering projects while improving the schedules which can save thousands of dollars or more.



Project management tools helps to plan quickly and easily, in a way to have a more efficient and more successful project, which have less possible gap left, and less space to filled out, which means a project which is more precise and more ready to adopt and realize. PM offers the best theoretical way of easiest and fast projects, easy managing while having one or multiple projects. Create and easily update project schedules, assign resources, activities and budgets, keep better monitoring on costs and items completed and publish to various formats including web HTML, Word, Excel, Power Point and Microsoft Project.

For anyone who spends time scheduling work, project management tools are affordable to make the best and easiest projects in an easy and more precise way where you can monitor and control the way of where your project is taking tilt. As for Project Managers, the more projects and the bigger ones, the more complicated and more requirements it will have. PM tools works, and have to be in coordination with the skills you will need to plan and run for these projects successfully.

Most of project management tools contain elements which if can be used correctly, can save you time and effort delivering projects. Hundreds of charts, tables and real examples are included, helping you to complete each document easy and more precisely [18].

### **Construction road in Kosova**

Roads in Kosova after the conflict (1999) were in a tremendous poor condition which needed a very fast intervention. People saw this fact, and there were international organizations that took care for a lot of a lot of difficulties and helped Kosova. In aspect of road constructions, it was an organization named “USAID” which started taking care for road construction projects.

The purpose of them was to upgrade asphalt production industry, to a level of European asphalt quality. After analysis of existing roads, it was understood how much it was needed to work and improve roads in Kosova. USAID started out with the Hot Mix Asphalt (HMA) processing, and a quality production was based on EN and AASHTO standards.



In picture number 5, is shown one of the main rings within Kosova roads, which links the capital city, with other of the two largest municipalities (Prizren and Peja). The capital city of Kosova has a very busy traffic, having in consideration a large number of inhabitants (around 600.000) in comparison with its size. Traveling through Prizren is important because it has an exit to Albania, and also traveling through Peja has an exit to Montenegro.

Fig.5 one of the main Rings within Kosova which has been rebuild after the war (sources: Prishtina Municipality)

The goal was that the projects should include all necessary procedures and policies in order to upgrade asphalt plants in Kosova, in order to have a successful road build where vehicles would not have problems, especially for foreigners to know that it will be safe to have an import to Kosova when it comes to transportation aspect. The private sector of Kosova industry for road constructions is very young. The first activity they took in their hands, started out in 2001-2002 [19].

A lot of other companies for road construction industry have followed and constructed some parts of the roads, because they saw such an activity very profitable and long-term work to be done. However, since Kosova is a new state, and is still building and creating everything new, with the new regulations, until now, there were no proper regulations for road construction industries, which led to a lot of companies and organizations have and are operating these road (asphalt) constructions, without any professional staff.

Inventors of road construction found out that they are dealing with a very poor quality of asphalt, which often doesn't last more than a few months up to one or two years. The industry is employing 60 – to 100 employees, this number increases/decreases depending on what season they are working a project, but there is so much more potential, which needs to increase this number [20].

The asphalt production (andesine and limestone) material in Kosova is locally produced, but bitumen is imported from neighbor countries, and the worst thing is that is it imported in Kosova without any quality control or testing. Another fact about road construction quality in Kosova is that there is no plan for recycling of asphalt.

In other hand there are a lot of legal and obligated procedures to check raw material and final product quality if it's high or low. Some companies are running at 100% of their capacity, and come at less than 25%, and other companies are willing to enter the RCP field.

Main raw material used are from Kosova (aggregates), and bitumen from Greece and Albania. If we compare the road (asphalt) quality before the conflict (1999) and after, seem that after the conflict a lot of miss managed projects has come, and poor quality of roads have been made.

Interviews, plant tours and construction practice and inspections were performed from USAID, members of RCAF and from UP (University of Prishtina). Since there was not a proper regulation for road constructions in Kosova and since a lot of companies and organizations have moved in and tried to win the tender for road construction, it has been a lot of difficulties selecting a certain company who can manage the RCP. Even if a company was selected, most of them didn't do a good job.

Most of the times the raw material was missing during the transportation, it has been paid for more, but arrived less, and this has become a discussed problem in media, because a lot of money was spending after the RCP's, and n fact only few of them were finished, neither one of them in a complete and legal regulations. Major road construction projects for Kosova were sponsored by EU (European Union).

There are also a lot of other organizations and companies who invested in many RCP's of Kosova, but we have to mention also Kosova citizens who have collected funds for construction of roads in a high prices.

## 2.1. HOW THE PROJECT MANAGER WILL ORGANISE THE ACTIVITIES

The manager of the project should take care for project activities including technical aspects, structural aspects and most important followed scheduling. Manager in collaboration with PMB (Project Management Board) will be on charge of dissemination and exploitation activities, of course that all partners should contribute in the process of managing the certain project.

PM (Project Manager) should coordinate the activities with PMB and will develop a coordinated plan for full successful results of the project. They will have an actively supervise and audit project procedures, and also make recommendations during implying of the project.

A project manager should have a fast communication with other partners in a way in which it won't be a lost time, and the costs will be at the minimum. Communication should be important to have a fast access with the other partners in a way to get last information of the process [21].

The manager and managers in general, should obtain the reports of the progress. These reports can be used as a kind of monitoring of how the project is going through each procedure, and when something is going wrong, the manager can intervene to a certain part of process to improve.

Manager should organize meetings in a period that he/she sees valuable and important to discuss about the project which has a green light and is happening, where they (staff) can review the procedures, and improve one is needed. Once the problems of procedures have been noticed, they should be taking under control.

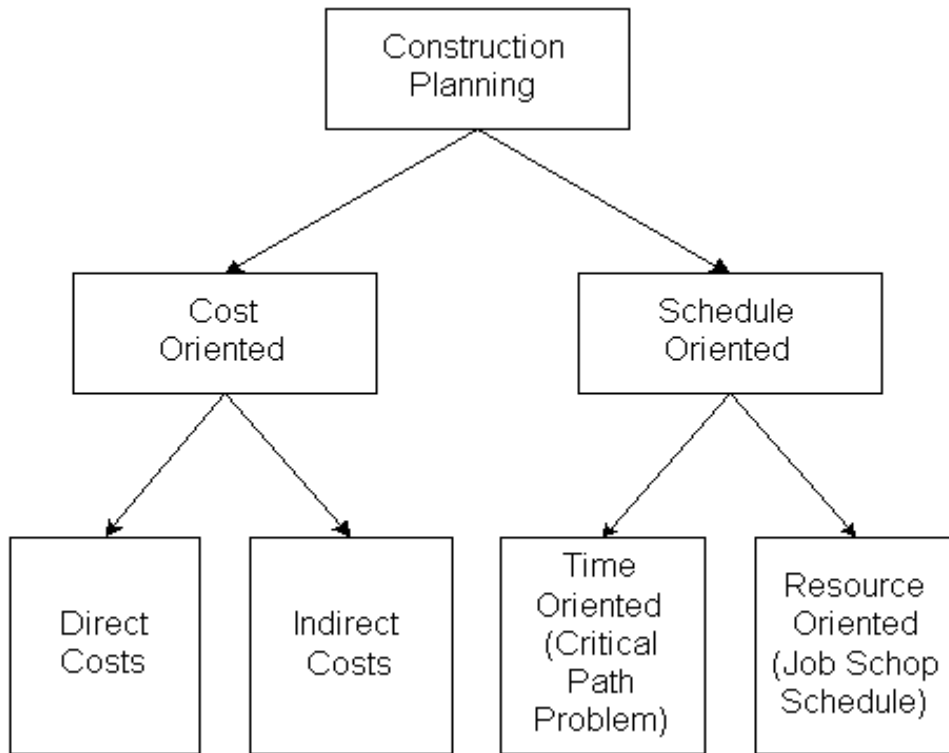


Fig.6 A view of what PM should take care when organizing activities in RCP's

Project manager (PM) should implement decisions which are taken from MB (Management Board), should also be in charge for having a communication with other partners who are all responsible for the different tasks. PM should be in charge of organizing links with other related or relevant projects in order to cooperate for a beneficial aspect.

PM should also have a connection and communication with finance team of the project, where they can see where the spending is moving, and what part of the project is taking more expenses and why, are those expenses reasonable, what are the changes that should be made and why. Also it is very much needed for PM to work with marketing team in order to make everything selected and published in a marketing way.

PM need to have a clear understanding about its decisions made from Management Board, and need to be in a very good knowledge (in details) about the project that he/she is going to run out, in order to start organizing the further activities. Monitoring of activities should be always in optimum [24].

Activities should be organized by PM in a way that he can cooperate with all of the other participants and PM should have also a considerable space where he/she can control and organize such an activities. PM should have teambuilding skills, planning skills, organizing and implementing.

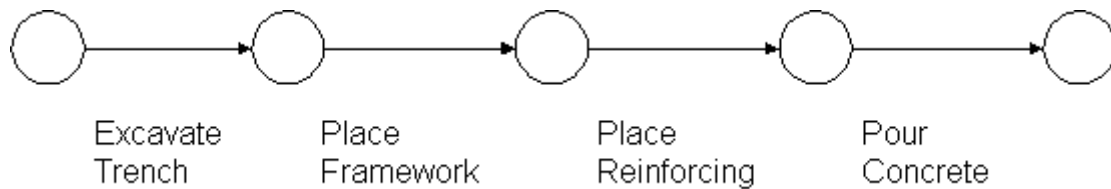


Fig.7 An example four illustrative activities should sort out

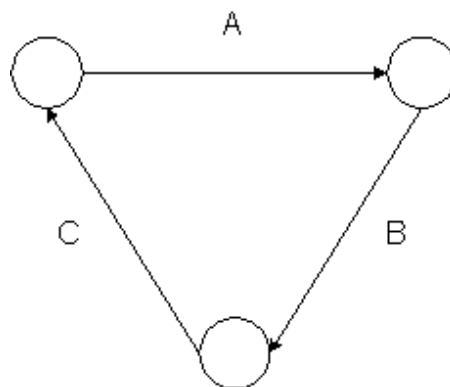


Fig.8 An example of impossible work plan

PM should check the details which were given by the Management board adapt and fit those implementing factors through a project processing. Also excellent interpersonal skills are required. After the check of specifications that PM has to do, it should be a move to the first step. In every procedure PM should check how is going, where, what and why. Then he must consultate with other partners who are responsible for specific parts of the project, such as marketing manager, finance manager, designer manager etc [22].

A project manager must insure that inputs are coordinated effectively to achieve an efficient construction process. The PM coordination involved both strategic decisions

and tactical management. Without coordinating of those processes, the project of construction can run out, be inefficient and is possible to stop. It is very easy to notice how poor managing of activities can lead to failure of the project or become inefficient one [23].

## 2.2. WHAT TOOLS SHOULD BE ENGAGED IN THIS PROJECT

Road Construction Projects has the specific tools which they need to follow that makes those RCP's more effective. Construction processes should engage primary inputs of labor, material and equipment. Construction processes (CP) need to be organized and forecasted by people who have more experience in RCP's. It is highly unlikely to proceed by all respect, everything what is included in a project. But the main target is to meet the project needs.

Two main tools of construction project involved the five steps:

1. Plan
2. Implement
3. Monitoring
4. Report
5. Action

Reporting of information is always important as reports brings the mirror of actual processing, and a PM can see where are the graphs and lines of actual processes, and where is a need to intervene.

Integrated project performance tools, includes the four main elements of construction projects: cost, schedule, quality and safety. Two very important elements to have a great performance are time and cost. Finance department plays a big role in construction projects. It calculates cost figures and actual costs. In every project, scheduling is very important. Describing and forecasting when the project will have to start, what tools should it include, how much it will take for each

process to finish, and when it is predicted to finish, are the key elements/tools for any construction project

Construction projects, activity durations in the performance measures, will be in two to four week range. Another tool which has to be taken care for is Costs. Costing have to be done while scheduling. For an accurate result, estimated schedule is essential for good project performance measure.

Tools that are proposed to be engaged in a construction project are:

Site establishment, temporary works, communication adjustments, gas adjustments, electrical adjustments, services installations, water adjustments, asbestos removal, local roadwork, property works, utilities, earthworks, retaining walls, drainage, relocation services, traffic signals, pavements and barriers, road furniture, street lightening, noise walls, footpath, line marking, testing and commissioning works, bridges and structures, building works, bus stations, layout, and other civil details.

These are some of the tools which should be taken when creating a road construction projects. The more and deeper the analyze is done, about terrain, spending, construction, needs, work force, and other points, the forecast has to take its way, and all those specifications when combined together, it can create a successful construction project. Also progress monitoring and updating are very important.

Quality management (QM) should also be included as a tool when creating a construction project. QM is a vital part of any construction project. QM can have at least two important components, administrative control and product control. These two components can be considered as part of one component. Increasing productivity without considering road quality is not a systematic approach. Enhancing quality in road construction is not an easy task [24].

The future trend in quality control for road construction projects is using a Performance Related Specification tool (PRS). This type of tool relates quality measurements with future road performance.



### 2.3. WHAT DIFFICULTIES YOU ARE GOING TO HAVE

As a project manager you have a lot of different difficulties, depending what kind of project you take. We all know that if a project is done in a proper way, forecasted much precisely, it stands of every chance to be in on time and with money. But some project managers don't give so much attention about statistics and other analysis and barriers that can happen during a project. These may be difficulties during project concept, difficulties in forecasting of the processes which are included during the project, problems of defining such a tool for a specific project, also financing and spending aspects, where the money should be invested first, etc.

When we deal with construction projects, especially with RCP's, we have other extra activities, analysis and other points which have to be checked. In RCP's we have to take a deep analysis of the terrain, if the terrain is danger, what should we do to ensure the labor (workforce) who are going to work in the certain part of road construction, how do we take care for them, how we are going to be sure that nothing danger will happen during the construction time, signs and signals in the road.

Another difficulty will be which company to select and made it responsible for realizing of the project, what machineries and workforce to use, how the payment for the company who is going to take the construction will be, when to make pauses, when to take an action, the dates to be set at a maximum precise and not change them frequently, because if process dates will change frequently, it will consist changing of other processes as well.

Before it is needed to take care of workforce and other activities, there should be a very serious analyzing and structuring of project activities and collection of them. So the project manager should first analyze every detail and forecast the most

possible difficulties that might happen before and during the project realizing process.

Another difficulty which should be taken under consideration is weather conditions. It is clear what difficulties and troubles in work can be cause from a worst weather condition, especially when it comes to road construction work.

The managing of all processes would be so much difficult, together with the wellbeing of all workers and other participants who will be in charge of the project process. Supervising would be very difficult including supervise of process, work, schedule, wellbeing of workforce, portions during the pauses, placing of machineries.

Sometimes a small road construction which is close to the city might not need a place to sleep for the work force, but when some construction projects are based and have to be done in any rural part, far away from city, it is needed to ensure a place to stay, sleep, and rest of the work force who are doing the construction.

Report to a board of managers which is very important and obligatory for road construction project managers, might not be easy, because it might be a hurry moment when you need to report to your supervisor, another difficulty consist this one will be when you see that it is needed to change something during the process, and it is late to do such a thing.

Project manager may find another difficulty when the boss of the company is not satisfied with the work which is happening, and wants to change something, but for a PM is a late move, then PM have to deal with the ethic decision making.

If everything is planned, organized and forecasted in a proper way, there will be fewer problems during the construction project and supervise and reporting will be much easier. The main thing is to be everything on time, and supervise as much processed as possible together with other participants who will make PM work easier and who are there to help PM, which needs communication with them and coordination.

Difficulties should be always taken under consideration. Another barrier which could make project go wrong or succeed would be motivation of employee. You have to find different ways to motivate them.

#### 2.4. WHEN THE PROJECT IS PREDICTED TO START

Planning is the key element in projects. If you plan well and analyze possible difficulties you would have during the project, it will be safer and succession. In RCP's it is needed to have a lot of information about the road, about the field and area where it is located and where the work is going to start and finish. When making a RCP, we have to know the climatic possibilities, obstacles etc.

After checking the weather conditions in a few weeks forecasting, it will be one of the important factors clear, which will give us a green light to start with a project. Before starting the project it will needed a lot of analysis for different factors. At first project analysis in detail, another check for processes and scheduling.

Then it will be needed to check with the company who is going to be responsible for the construction, and who owns the workforce. But when we have to deal with RCP's, the best way is to forecast weather details and information, because a bad weather will be much risky, more expenses and less productivity which consists to more problems often. Here in Kosova, most of the projects start at spring, around end of March and beginning of April when the weather is not so cold (which will affect to workforce) and the temperature are at a normal levels.

Another very important check and analysis to make before starting a road construction projects, is the check of the terrain where the road is going to be constructed. If there are houses close to the road, is there are any possible houses which needs to be destroyed during construction process, will this project will be danger for people who live close to it, how much are going to be the costs and where they are going to be spent, how many people will be involved during the

process of construction, what will be the effect in traffic, will the construction phase make any serious problems in traffic safety or traffic circulation etc. When all these factors are checked and are correct, then the project can be considered with a green light to be started.

### 3. RESEARCH OBJECTIVES

The subject in this thesis will give lot information about road construction processes, road construction tools, project management overall in general, what will be the best project management tool, who is needed to be checked before starting the project, when the project is predicted to start etc.

Thesis will also explore a lot of information about road construction projects and processes in Kosova, how they are collected in Kosova, what difficulties they have, why they have such difficulties, any possible reasons why the road construction project have failed in Kosova after it was made.

What difficulties have project managers (PM) during project creation and what possible difficulties will PM have during the process of construction.

### 4. RESEARCH METHOD

My method of research will be based on my experiences with projects and my experiences overall, will be based also in internet information which is a very good source, I will also try to have a consult with more experienced people in road construction projects and processes ,people who work in Ministry of transport and telecommunication.

Another valuable method is by making a questionnaire and interviewing other people who have been in charge of any road projects, but also some information will be based on my way of analyzing projects and based on my personal ideas.

## 5. PROJECT MANAGEMENT IN GENERAL

Project Management (PM) is the discipline of planning, organizing, forecasting, scheduling and managing resources in a way to bring the more specific goals and objectives of the project, to make such a project more successful and more realizable with less problems and difficulties. The primary aim or target of PM is to achieve all project goals and objectives and also to optimize project quality and productivity.

A project is defined as activity which includes people, money, material, time, motivation, communication, space between realizable things and non-realizable things, etc. PM in general includes a lot of activities which contributes in a proper project and plan. It is an application of knowledge, skills, experience tools, techniques and also the possible material and budget you have available.

PM includes also planning, monitoring and control of all aspects of the project and also motivation of those who will be included during the project all those should be connected in order to have a much successful project with more performance and quality which brings to a profit [27]. Project target job is to bring ideas and needs to a reality and realize them. The managing of a project helps in improving those targets and makes them more successful toward higher results.

A carefully planned and organized to accomplish a specific effort, construction of a building or implementing of another system, is managed by PM to make it in a higher possible level of realizing it. What resources are needed, what are the budgets, what are the difficulties, forecasting and a lot of other activities should be included, analyzed and checked many times in the management of a project to make everything as more efficient as possible. PM have shown a great increase in projects which leads out to a proper planning and organizing.

In the past several decades have been noticed by a rapid growth in use of project management and it has been the organizations the ones who showed that PM is helping to bring out a success in realizing of a certain projects. PM provides an organization with powerful tools that improves its ability to plan, implement and control and increased people productivity and made all projects more successful and more efficient in a way to be realized and realistic [28].

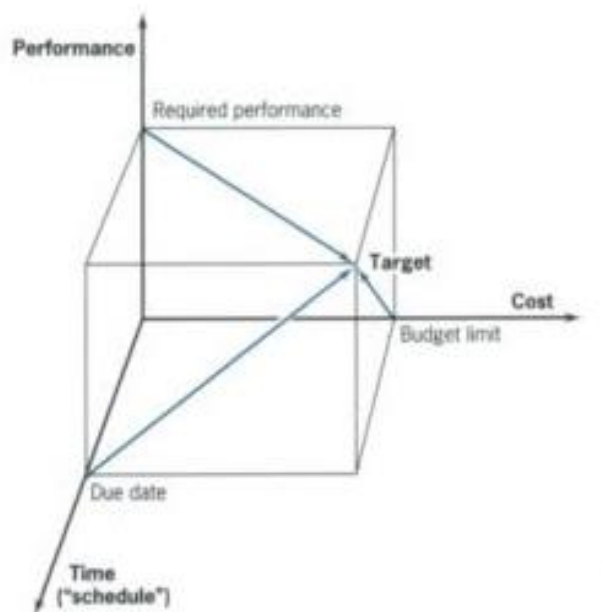


Fig.9 Direct project goal-performance cost and time [sources: 29]

The project and management belongs to a military, when they were in a need of realizing a huge missions to be accomplished in a very precise way, they brought a lot of ways and points to start from, for a proper projects. Project management has emerged because of the characteristics of our contemporary society demand and development of new methods of management. It has been shown many years before, that a proper managing of the projects, leads to more successful and realizing ones, and less ones that should end up only in paper.

Of many forces involved, there are three important ones that should be taking in consideration because of the important role:

1. The exponential expansion of human knowledge
2. The growing demand for a broad range of complex, sophisticated goods and services
3. The evolution of worldwide competitive markets for the production and consumption of goods and services [30].

These three forces combine to increase complexity of goods and services produced, also the complexity of the processes used to produce them. This in turn, leads to a need for more sophisticated systems to control both outcomes and processes [31]. Today people have a millions of needs, requirements and demands, and it is very difficult to achieve all those needs of people without being specific, direct, precise, realistic and logical. Satisfying people needs and continuing with the project is not an easy job, and it rely on your knowledge, abilities and attributes as an PM, experiences and other material opportunities which are a cause whether you can go further or not.

Another fact we have to deal with, is that today worldwide markets forces us to include cultural and environmental in our managerial decisions about what, when, where and how to produce and distribute output. To organize well and have a successful project and well managed one, we need to be more systematic, but it tends to be much slower. Accomplishing organizational change is a natural application of project management, and that's why many firms and companies have set up managing of the projects to implement their ideas and concepts.

A lot of companies and firms tend to change their projects points and structure, when they think that it will contribute to better results further. This change can happen even close to implementation of the project if needed, in the moments when managing of a certain project. Project managers should have detailed information about project management, and being able to consider every aspect that project includes. Project management helps project managers with its tools and effectiveness when they use them in a proper way and check every aspect



which has to be included within a project. It increases success and realization of a project, which leads to a further benefit.

The Project Management Institute (PMI) was established in 1969. In 1990 PMI had 7500 members, in 2004 17.000 members, and today it has exploited to 154.000 members [32]. This is a true fact which shows very clearly how important are project management, and how impressively it is increasing day after day. It has a rapid growth in last 5 years as a science of making projects more successful and more productive. Its target is to increase growth of project management and professionalism in this field.

Clearly the increase of project management and project managers and also PMI, were a result of tremendous growth of overall number of projects.

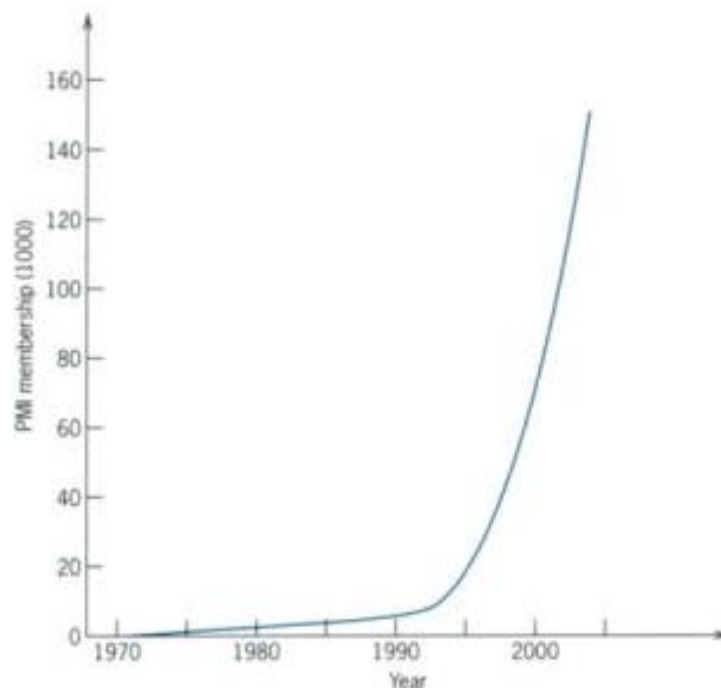


Fig.10 Project Management growth history [sources: 33]

Every day project management is taking its place and importance when it comes how to make projects much successful in different areas. Today people

spend a lot of effort in managing the projects, because they find it helpful, which brings a lot of success in achievement of their goals, needs and requirements. I could be considered as a science or art of managing projects.

### 5.1. WHICH TOOLS DO CONSTRUCTION PROJECTS USE WHEN CONSTRUCTING ROADS AND WHICH ARE MORE USEFUL

Every kind of project use its fitted tools in order to be more precise, efficient and much easier to implement. Some of tools which construction projects use mostly are:

- Financial tools
- Cause and effect charts
- PERT charts
- Gantt charts
- Event chain diagrams
- RACI diagram
- Run charts
- Project Cycle Optimization (PCO)
- List of project management software
- Participatory impact analysis

Financial tools are important in every project, but especially in construction projects which are huge, and needs a lot of investments and capital to implement them. Cause and effect chart will be very helpful in kind of monitoring of effect in every process when happening, how the job is going, and is it needed any changes or interventions. The Program (or project) Evaluation and Review Technique (PERT) is a tool which is designed to analyze and represent the tasks involved and completing project.

Event chain diagram are visualization which shows the relationships between events and tasks and how the event affect each other. It is a technique that is designed and focused on identifying and managing events and events chain that affects schedules of projects. Event chain method is advanced method beyond critical path method and critical chain project management.

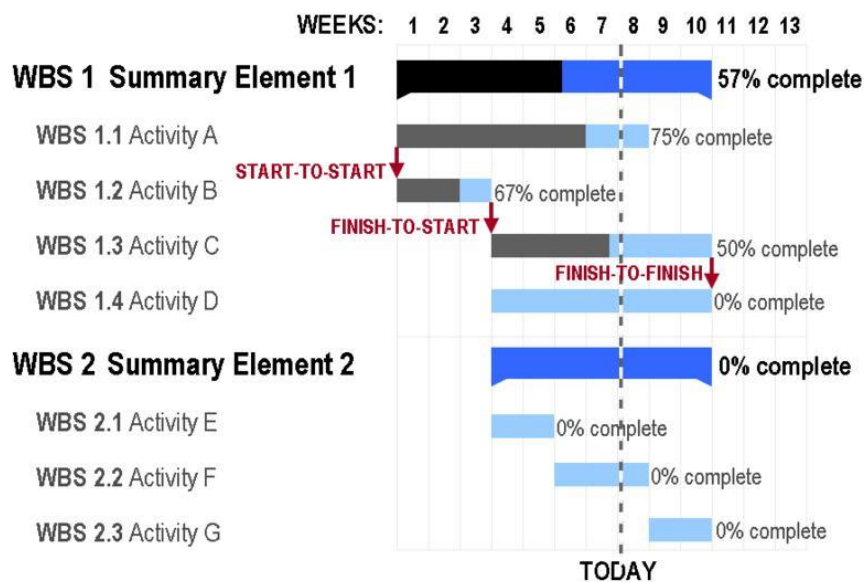


Fig.6 A **grant chart** showing three kinds of schedule dependencies [sources: 34]

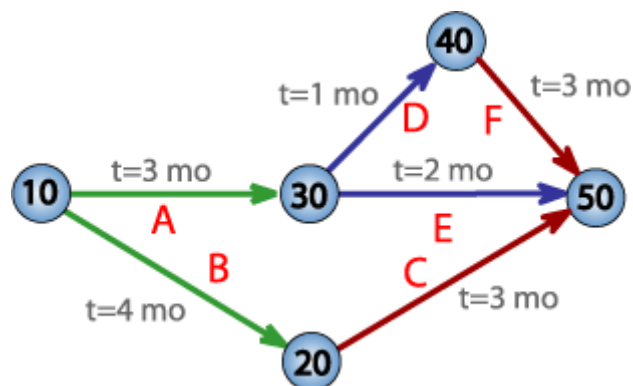


Fig.11 **PERT** network chart of a seven moth project and six activities [sources: 35]

RACI diagrams splits tasks into four parts which shows responsibility types, which then gives information conform different roles in the project of process. These responsibility types make up the acronym RACI, and it is considered very helpful in construction project tools, because it makes much clear about the responsibilities of each participant, with the duties they have to do. It is a very clear chart which gives a lot of information about the process in construction, for example identifying missing or incomplete processes.

Task Description	Sponsor	Business Owner	Business Program Mgr	Process Manager
Identify missing or incomplete policies		R	A	R
Establish Policies as necessary and ensure adoption globally		A	R	R
Completion of necessary Policies		R	A	R
Document Policies as appropriate		R	R	A
Approve Policies	A	C	I	I
Communicate Policies as required		A	I	I
Ensure Policies are compatible with standards and best practice		R	R	A
Escalate non standard or missing policies	R	R	R	A
BP Sponsor with agreement from BPB colleagues decides on exception or not	A	I	I	I

Fig.12 An example of RACI diagram [sources: 36]

Run charts are so important at displaying observed data in a time sequence. Often the displaying data shows how the processes are going in a specific area. Are they low, are they going faster or slower, is something wrong and needs to be changed sooner, etc. These might be some special tools which will be needed for a proper and successful construction project. As soon as every project has its own valuable tools, construction projects needs the mentioned tools in order to be more efficient and productive. There are also other different tools available, but the mentioned above are predicted to be more useful in construction projects.

It is clear that the managing of the projects depends on a personal experience and personal way of planning, organizing and restructuring, but

these tools can be considered as general tools which brought a profit and helped out a lot of construction projects during late years. We also have to mention, that those charts and tools, could not be always useful and successful in every single construction project. Every project has its unique needs and specifications, so using all different kind of tools and not only few, may be a preventive for worse forecasting and planning, and will help out to gather information and different analysis for your project and not only few information. These could be much useful tools when it comes to construction projects to be more efficient and more successful.

## **5.2. WHY DO CONSTRUCTION MANAGERS FIND CERTAIN CONSTRUCTION MANAGEMENT TOOLS MORE USEFUL THAN OTHERS**

It is clear that construction managers need to be experienced and skilled to have huge and profitable projects. The managers in construction have tried a lot of tools, sometimes having success and sometimes failing during project concept or during project realizing. During the decades of construction projects rapidly have grown, people change their manners and ideas, and they every day look after what comes more useful for them which brings to success.

Every project has its own specifications, and construction projects have also their own tools, which should be included when planning a construction project, but there are also tools available to use during the process of realizing a certain construction project. Construction managers always make analysis what is good for their planning, selecting and controlling also monitoring of their project.

Construction managers have to come with the specific project which is checked and analyzed in a most detailed way, in which there is no space left for

mistakes. They need to check all processes that will happen, organize them and have a clear and stable forecast. Experience has its own effect, which means that the earlier projects which have failed for different reasons, have been taken from today managers and studied why they have failed, and other indications.

So today construction managers and project managers in general, are based in the past experience mostly, and after they have analyzed a lot of different factors of making a successful project and avoiding difficulties which brings to failure of the project at maximum possible way. Today they use a certain tools which they think help them during the project and during the process of realizing the project. They try to operate in the most precise and proper way to achieve best possible result.

## 6. WHAT DO I FOUND OUT ABOUT PROJECT MANAGEMENT TOOLS

During my researches for project management tools (PMT), I found out that a considered of number of tools exists today, and they have been implemented by people who had a need for them. I found out that projects today are very sensitive because of the competitiveness around the world, and they are developing different tools every day, in order to make every project as much efficient as possible.

Project management tools could be considered from books of PM, PM templates, PM articles, etc, where all these will help you implement best practice project management by describing the entire project life cycle. Every phase, activity and task in life cycle if outlined, as well as template needed to complete in.

To give you a feel for the quality of project management you should take a sample of templates. Templates may help out how to manage project risk through careful risk and management. Is it needed for all project managers to follow management articles providing with hints and tips for managing successful projects. In every project or experience which is connected with projects, you can learn how to manage better than before.

The tools which have been created and discovered from people who were dealing with project management, today are taken so useful which makes the planning and organizing more easier than before. There are charts which will be very helpful, like financial tools, cause and effect, chart diagram, process diagram, scheduling diagram, Microsoft project management tools which are very useful and very simple and easy to use.

All these tools can be very important and helpful which leads to a successful project, if used in a proper way. There are a lot of tools, but project management tools, offer a different type of tool, and give a space to people

(project managers) to use only those who will contribute to their project or planning in future.

## **7. PROPOSITIONS: WHAT WILL I TEST AND PROPOSE**

During my researches about construction projects, I have found a lot of projects which has been successful in the first time from a PM, but next time it happen to be failure. What do I mean by this? I mean that there is no a specific theory or tool, which will have a good effect in every single project. Every project has its own needs and specifications which needs to filled out.

I found out, that there are projects which were created perfectly in every aspect, but there were no enough capital (money) to realize them. I also noticed out that in construction projects there are a hundreds of aspects which need to check in the beginning when planning, and if one of them is missed out of check, it will result in failure further on. Now it is clear that construction projects are huge projects which needs and required a lot of effort, workforce, dedication, long time to finish, and huge budget which always might be a problem to solve.

Construction projects (CP) needs a participation of a lot people, which means that a project manager should be very clever with a clear vision of what he is going to do with a project, when, and how. CP's are very responsible since they include a lot of people and participants in realizing it. CP's will have a case to be build up the river, while in that river will pass people with boats or transportation ones, which may be danger for the ones who will pass under the bridge while it is in construction, so the security of the terrain is one of the most important points for construction projects, since it may cause a serious problems during the process.



CP's should have a very correct forecasting and scheduling time. Because by scheduling are linked construction company who will make the construction with its workforce, and also other processes, and people like to have everything clear when and how to do it and they need to be informed about the future processed to make everything ready. So scheduling, is another important factor.

### **7.1. SUMMARIZE ABOUT CONSTRUCTION PROJECTS**

I explored out a lot of construction projects, especially road construction ones, and also building constructions. I can say it is clear that hundreds of factors are included during the construction process, so the planning, organizing, analyzing and monitoring are very important. One of my ideas was to check some projects from Ministry of Transport and the ones who failed during the concept of the project, and the ones that failed also during the construction process.

Some of the reasons of failure were just because of planning which hasn't been structured properly, and a lot of possible factors to be considered, were missed out. This includes the analysis about the overall mission (project), analysis about the possibilities of realizing it, and also analysis around the terrain whether it is comfortable for such a project or construction, are there going to be difficulties during the work, are there going to be any danger part of the terrain where the workforce my have an injury, etc.

These are only a few of the factors I propose to check and take under consideration during the project creation. There hundred of other factors which are needed to check during the project, and there another hundreds which are needed to monitor during the construction. I will test the material where the road will use I will check a construction company status, what they have done, any construction results that they have in the past, what is their background as a

company, are they serious, do they broke any law or done any legal construction.

I will make a lot of negotiations with constructing company, to decrease expenses for my project which will be a result to my profit or my organization I'm working for. I will take professional and experienced people from geodesy to check the deep structure of the land and that area where the construction will be.

I found out that a lot of projects have failed just because it was not done a true and quality analysis for the terrain. It is very much valuable to have a check for all characteristics of the land, and where the road construction will take part. It is clear that some projects hasn't been forecasted well, and they failed just because the project manager didn't change the direction or a road for few meters and the road construction line, had to go directly to a lot of houses, which were needed to be destroyed in order to realize that project, according to the manager who has done that project.

These are true facts of tremendous mistakes made during the creation of the project by PM. These are true examples where the checking list has missed at a certain points from a PM. I will select a professional people for every area. It will take some more costs, but it will be way much efficient in every aspect.

The focus has to be in selecting professional and experienced participants with whom you will have to deal during the project. I suggest taking an experienced people from geodesy, and having a deep check of that terrain where the road construction will be. I will also propose to have a precise measurement of where the road is going to be when constructed, and analyze the direction where are the houses of citizens, are they going to have an impact on my project.

Analyzing houses and other objects is a very important thing to do for RCP. Because if needed to destroy only one object it will be another expense for the project or my company where I work for, and this is not the target. Some of the projects failed just because the projector didn't care for objects around

the terrain where the construction will be directed. I propose that a PM should take those as obstacles and have to take a decision for them.

It is very clear that a proper forecast about weather, terrain, budget, will contribute while realizing of the project process. I will give a specific period of test for workforce and also for machineries to check how faster they can do the work, and how is the quality finished during that work. I will change something if needed and always monitor and take care for other participants of the project procedures because they are all one part.

## 8. CONCLUSION

My research has been directed for different specific information. I was concern to gather information about project management in general, project management for road construction project tools, which are more useful than others and why. I have found out that RCP's are very important and valuable when it comes to infrastructure of one country. RCP's brings benefits in a country in transport aspect, because a proper roads and links with other countries are possible by the roads, which are made from road construction projects and from project managers.

Researches have shown to me that a lot of factors should be checked while making RCP's. Terrain where the project will be based, land analysis, budget, forecasting, which construction company is better and why, what is their background in working with RCP's, these are all factors which should be included when making RCP.

Analysis I made, made it clear that a lot of RCP's have failed because of different factors. Some cases have been for small budgets to start a construction project some others have failed because of the weather, or they have been scheduled for next year, then during next year some objects have been constructed during that part where the road was planned to be, and again it causes another problems for that project to be realized.

If we talk about RCP's in Kosova, there have been too many organizations moving into Kosova after the conflict (1999), and it seems that they were interested only in their own profit, and not in performing a good and proper project with the result of high quality road (asphalt). The designs were not good, and the lines and directions were put in places where it was needed to put a lot of gravel and dust, to fill the space, because those terrains has so empty space and this has been because of not well managed project and not proper analysis of the terrain where the road is going to be.

I think that when it comes to RCP's in general, there are a lot of measurements that should be made before deciding to take an action. But if we talk only for Kosova RCP it seems that after the NATO bombing (in year 1999), it has been a lot of damaging from missiles and also from Serbia army vehicles which were heavy weight. All these were factors which damaged Kosova roads to its higher level.

Right after the war, professional and well qualified people for RCP's have missed and it was a very low staff in this aspect. So Kosova had a need for international project construction managers. But it seem that most of the organizations that came in Kosova to make such a project for a road construction, have lost their energy only to have their personal benefit and not performing a quality project.

If we talk about quality of projects and factors that indicated it, we can say for Kosova that RCP's are still in a huge need to perform and have a well qualified staff. Another factor which will help RCP's in general is the tools which people take under consideration in a way to have a proper project and a well managed one which can be monitored by them. There are tools which people use for managing the projects in general, but specific tools are required for better results when it comes to construction projects.

Analysis from financial needs, costs, forecasting, weather, when it is predicted to start, they are all important factors for having a proper RCP. If we use the right tool and right analysis during the project, we will have fewer problems and more chances to make that project successful and realize it in a proper form. We should have a combination of different tools from different projects in order to make it more efficient, and let us not forget that there is no tool which would work 100% in every single project of constructing roads. Every project has its way or realizing and its unique schedule, and it needs to have its fitted and adopted tools.

The more realistic we are during the creation of the project, the much closer we would be in realizing a certain project. Also when making a

construction project, we shouldn't take care only for personal goals and interests, but we have to take care for everything which is included during the project realize, whether we are successful in one

project or not, will have an effect in our career as a project managers. The more successful and profitable projects a PM have made it is more likely to be called and have an offers from different companies to do another successful projects.

We have to be loyal in this job, because in case of Kosova, citizens have lost their confidence about RCP's because it happen to be a lot of cases when government have collect special budget for road constructions, and those budgets were misuse by tender dealers, construction companies, and by other persons who were in charge of the budgets.

The result was in some cases when it was planned to have a road construction of 2.5 km long distance, it was made only 1.8 km and the money for the 2.5 km were spent. In fact those money for 0.7 km (700 meters) were spent and lost, but the road were only asphalted 1.8 km, but it was supposed to be asphalted 2.5 km, and the budget was taken for 2.5 km. This is just one example what a misuse of funds and people who are responsible can do to road construction process.

Another example in Kosova case, will be the fact that some regulations to meet European road construction level, required around 11-12 cm asphalt, and here in Kosova most of the roads have done a layer of 5 to 7 centimeters. This has been publicized few times from media, and it was judged as corruption and mismanagement of assets. This judge was done by economic analysts.

This was defined as a true corruption, because later on the money was missing and the certain road which had a layer of asphalt 5 to 7 cm has been damaged and useless in three to six months after it was constructed. A high quality road and asphalt which meets the European requirements and regulations, doesn't have a chance to be damaged in few months. But this situation captured Kosova after war was over (1999).

Proper RCP needs high qualified people (PM's), well qualified staff who will participate in RCP, and who will make the best out of it. High experienced people for detailed analysis, and a very precise forecasting for every detail. RCP is responsible, and it takes its huge part within the development of one country and its infrastructure.

## 9. APPENDIX – QUESTIONNAIRE

- Importance of road construction projects in Kosova?
- Why roads in Kosova lose their quality in few months?
- What is the problem?
- Poor management?
- What are the reasons for bad RCP's in Kosova
- Why do PM's find such tools more important than others when it comes to doing road construction projects?
- Why do managers think that different project management tools are more helpful than others?
- What class people do we have to find out in order to manage and proper construction project?
- What difficulties have project managers?
- What difficulties have construction planning?

### **Explanation about questionnaire:**

I have made an interview with today worker in Ministry of Transport they were short interviews because of their busy time, and I was supposed to cut-off my questions and made them more directly and clear as possible. I had to write fast to a small paper, and then extract those short answers by people I've interviewed and summarize them in the text during my thesis.

I was also lucky to have a failed project on my hands for a few days. Its name is "Road BEDRI XHINI" Prishtinë, October, 2004 done by Dr. Eng. Sami Isufi. It helped me out to find some reasons why RCP can fail.



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