

**EXTERNAL STAKEHOLDER INFLUENCE LEADING  
TO CONFLICTS IN IRRIGATION PROJECTS:  
A NARRATIVE ANALYSIS**

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## **DECLARATION**

I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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Dr. (Mrs.) Chandanie Hadiwattage  
Dissertation Supervisor

.....  
Date

## **DEDICATION**

**This research dissertation is  
Dedicated to  
My Late Farther**

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This research may not be a success without the help and support of others.

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## **ABSTRACT**

### **External Stakeholder Influence Leading to Conflicts in Irrigation Projects: A Narrative Analysis**

Irrigation construction contracts are unique and outstand from building and civil engineering constructions mainly due to the large extent of landmass occupied after completion and an excessive amount of environmental impact. The negative influences from external stakeholders to an irrigation project can severely obstruct its implementation. Such obstruction will cause cost overruns and exceeded time schedules due to conflicts and controversies concerning project performance. A case study based narrative analyses referring to four projects have been undertaken to investigate the social, financial, and environmental causes leading to conflicts between the project entities of the irrigation projects and external stakeholders in Sri Lanka in the actual irrigation project context. Therefore, a qualitative research approach was adopted and narrative analysis was carried out to identify stakeholders and their influence on the projects studied. The public protests, Department of Forest Conservation objection to release forest land and Government policy changes were the critical conflicts that made major influence to the Contract due to poor stakeholder management between government agencies mainly between Central Environment Agency, Geological Survey and Mines Bureau, Department of Forest Conservation and the public. The case studies show that an evaluation of stakeholder demands and influence should be considered as a necessary and important step in the planning, implementation, and completion of irrigation projects.

**Keywords:** *Irrigation projects, Conflicts, External stakeholders, Government policy changes Sri Lanka, Land acquisition, Public Protest*

## TABLE OF CONTENTS

DECLARATION .....	i
DEDICATION .....	ii
ACKNOWLEDGEMENT .....	iii
ABSTRACT .....	iv
TABLE OF CONTENTS .....	v
LIST OF TABLES .....	vii
LIST OF FIGURES .....	viii
ABBREVIATION .....	ix
CHAPTER 1 .....	1
1. INTRODUCTION .....	1
1.1. Background .....	1
1.2. Problem Statement .....	5
1.3. Aim .....	6
1.4. Objectives .....	6
1.5. Methodology .....	6
1.6. Scope of Study and Limitation .....	7
1.7. Dissertation outline .....	8
Chapter 02 .....	10
2. literature review .....	10
2.1. Introduction .....	10
2.2. Constructions' influences in the recent demography .....	10
2.3. Construction industry in the legal context .....	15
2.4. 'Irrigation' as a sector of construction industry .....	16
2.5. Stakeholder's influence on irrigation contracts .....	21
2.6. The types of contracts used in forming irrigation construction projects .....	24
2.7. Barriers for irrigation construction .....	26
2.8. Summary .....	29

CHAPTER 3 .....	30
3. RESEARCH METHODOLOGY .....	30
3.1. Introduction.....	30
3.2. Research Design.....	30
3.3. Research Approach .....	30
3.3.1. Selection of the suitable research approach .....	31
3.4. Case Study design .....	31
3.4.1. Case boundary and units of analysis .....	32
3.4.2. Number of cases and criteria for selections .....	33
3.4.3. Data collection .....	33
3.4.4. Data Analysis Techniques – Narrative analysis.....	34
3.4.5. Validity and Reliability in Research Study .....	34
3.4.6. Research Process.....	35
3.4.7. Chapter Summary .....	36
 CHAPTER 4 .....	 37
4. Analysis of Research Findings .....	37
4.1. Introduction.....	37
4.2. Case study Analysis .....	37
4.2.1. Introduction to the cases selected.....	37
4.2.2. Narrative analysis.....	41
4.2.3. Summary of Main External parties involved in Conflicts.....	71
4.2.4. The conflict-prone areas external parties and project entities collide .....	74
4.2.5. Summary of the most recurrent conflicts with external parties and the influence of the conflicts .....	77
4.2.6. Chapter Summary .....	81
 CHAPTER 5 .....	 83
5. Conclusions and recommendations .....	83
5.1. Introduction.....	83
5.2. Conclusions under the research objectives .....	83
5.3. Limitations .....	85
5.4. Further recommended research areas.....	86
REFERENCES.....	87
Appendix A: Interview Guideline.....	98

## **LIST OF TABLES**

Table 2-1: Quantity and Value of Imports of Rice (Major Commodity) 2010-2018 19

Table 2-2: Stakeholder classification in construction projects

Table 2-3: Project risks considered by standard forms of contracts...

Table 4-1: Details of the selected projects

Table 4-2: Details of the selected interviewees

Table 4-3: Case A - Summarisation of the patterns and facts from the narrative

Table 4-4: Case B - Summarisation of the patterns and facts from the narrative

Table 4-5: Case C - Summarisation of the patterns and facts from the narrative

Table 4-6: Case D - Summarisation of the patterns and facts from the narrative

Table 4-7: Stakeholders and type

Table 4-8: Major external stakeholders, category and influence

Table 4-9: Conflict and Stakeholder involved

Table 4-10: Most frequent conflicts

Table 4-11: Contractual influence



## **LIST OF FIGURES**

Figure 2-1: Resource allocation 2018-MIWRM.....	20
Figure 2-2: Resource allocation 2018-MMDE (Rs. Mn).....	21
Figure 4-1: Longitudinal basic timeline for unsolicited project proposal.....	38

## **ABBREVIATION**

CEA	Central Environment Agency
COPA	Committee on Public Accounts
DFC	Department of Forest Conservation
EIA	Environment Impact Assessment
EPC	Engineering, Procurement and Construction
EPL	Environment Protection License
FIDIC	International Federation of Consulting Engineers
GDP	Gross Domestic Production
GSMB	Geological Survey and Mines Bureau
GoSL	Government of Sri Lanka
LDO	Land Development Ordinance
MIWRM	Ministry of Irrigation and Water Resources Management
MMDE	Ministry of Mahaweli Development and Environment
MOU	Memorandum of Understanding
NBRO	National Building Research Organization
TEC	Technical Evaluations Committee
UNESCO	United Nations Educational, Scientific and Cultural Organization
USD	United States Dollar

## **CHAPTER 1**

### **1. INTRODUCTION**

#### **1.1. Background**

With the aftermath of World War II, the colonisation came to an end bringing a new world order under the monarch of the United States of America forcing war-torn Europe to abandon their imperial colonies as rebuilding infrastructure was prioritised (The Institute for Economics and Peace, 2011). Together with the obsolescence of colonisation more human-centred development benchmarks such as baselining the poverty line between the developing and developed nations on account of allocations made on basic human needs of food, clothes, shelter, education, and transport from a country's Gross Domestic Production (GDP) were established (Jolly et al., 2009).

Djaimin (2012) points out renowned regulatory financial institutions such as the World Bank, Asian Development Bank, International Monetary Fund adopted human-centred development benchmarks to determine a countries development which determines reasonable interest and payback periods as stressed by United nation (2017) and therefore these economies attract the direct foreign investments providing more options to a countries development. Under the given criteria Sri Lanka has been considered as a mid-income country which is considered as the driver of world economic growth providing highly efficient investment opportunities (IBRD, n.d.).

In emerging economies such as Sri Lanka, the construction industry plays a key role in the countries total GDP with 892 construction establishment contributing Rs.281,128.7 million to the GDP (Department of Census and Statistics, 2017) from a significant workforce of 7.8% from total employment of the country (Central Bank of Sri Lanka, 2018).

The strong correlation between a country's economy and the construction industry has been described as a bell-shaped graph against the development by Bon (1992)

further explained by Djaimin (2012) the contribution of construction will increase whilst the economy is developing, and then decline as the economy reaches its maturity. Hence the infrastructure development in any country is vital for the country's financial development as it enhances trade and business activities (Sahoo & Dash, 2012).

With high interdependence between a country's economy and construction, the legal context governing construction-related activities is a key factor to be considered as it involves a large number of stakeholder interference. As Rathnasinghe et al. (2020) point out not only the construction law that regulates the built environment but also for physical planning and aspects concerning the environment are main concerns (National Resources Energy and Science Authority of Sri Lanka [NARESA], 1991) and land use and acquisition are the main cause of conflicts with external stakeholders.

The government contribution to the irrigation infrastructure development as the main stakeholder, it is critical to reviving under both social and economic aspects of the country. As recognised by Shand (2002) the country has held an excessively rich agro-economic system supported by irrigation facilities from small village tanks with single-channel systems to advanced irrigation technology. As the political power identified agriculture as the economic root of the country, priority was given to develop agro and irrigation infrastructures.

After the economic liberalisation in 1977, Kelegama (2000) also highlights the improvements in the irrigation infrastructures in the post-liberalisation was directed to uphold the agriculture industry and hydropower demand of the country such as the Accelerated Mahaweli Development Programme.

With recent changes in the agriculture policy, the main focus is on how to achieve self-sufficiency in the food mainly in rice. Several large scale investments were made in the reconstruction and rehabilitation of existing irrigation schemes, some of which were abandoned during the war conflict period (Weddikkara & Devapriya, 2000).

Together with reconstructions and new proposed projects from 2011 to 2020 an investment of Rupees, 277.50 billion has been estimated (Barnabas, 2011).

The irrigation construction schemes differ from construction projects mainly because of the massive land area occupied by the schemes. When Accelerated Mahaweli Development Programme alone is considered, the command area covered 39% of the country's total land extent (Sivaramanan, 2015). Also, the time for construction of medium to large scale irrigation infrastructures with heads works and distribution canal networks and other auxiliary structures will take a minimum of five (05) years to complete depending on the complexity and scale it will be increased as per the irrigation department statistics (Shand, 2002). Deduru Oya irrigation scheme commenced its work in 2006 and to complete head works it took eight (08) years (MIWRM, 2014). During such an extended period governments changes are predictable and with such changes, the policies for agriculture, irrigation, and environment may change drastically. For example, the ministry portfolio of the irrigation department has undergone four (04) ministry changes during the last twelve (12) years. Also, the river valley development board was dissolved and the Mahaweli Development Board was established in 1970 and it was again dissolved and Mahaweli Authority was formed in 1983.

Still in the current Sri Lankan water resource sector, there are no significant issues for water consumption apart from conflicts in the agriculture sector or farming, which is covered under the Irrigation Ordinance (No. 32), which was first enacted in 1856 by the British colonial administration (Samad, 2005). Yet the condition in the India, Pakistan and Bangladesh is different and there are a significant number of cases for construction of dams in one (01) country restricting the access of water to an adjacent country (Dharmadhikary, 2006), this may vary with time in Sri Lanka if the provincial governments are federalised (Nanayakkara, 2010).

When the above factors are critically analysed the number of direct and indirect stakeholders is very high, mainly due to the vast extent of land area. Moreover, the project areas, larger it gets the number of affected and influenced increase

proportionately. When a dam construction is involved in the local population, wildlife in the upstream is affected due to inundation and the downstream is affected by the obstruction of water supply. With such catastrophic changes, the food security and income of people are seriously damaged resulting in severe livelihood changes such as relocation. Therefore, during such large scale projects, attention should be given to the social impact assessment as well as the Environmental Impact Assessment (EIA)s (Samarakoon et al., 2017).

In Sri Lanka the majority of the land belongs to the department of forest conservation, this contains the gazetted forests. In recent large scale projects initiated by the irrigation department, the majority of the land has been owned by the department of forest conservation. As per Samarakoon, Dayawansa, and Gunawardena (2017), these different government bodies have different areas of expertise and jurisdictions of their own when different stakeholders with differed interests collide the probability of a conflict is at stake and may further be escalated into disputes. As there is no contract between the conflicted stakeholders, where no predefined dispute resolution is available the legislative process is the only solution to dissolve the conflict unless it is resolved through general regulatory provisions.

For public purposes, the state-owned land can be acquired under the land acquisition Act 1950 and the private-owned land and servitudes also can be acquired as the same if it the purpose for acquiring satisfy the requirements in the act through section II. the public purpose has been defined as “*purpose which promotes the common good, ‘general interest of the community’*” (Trust & Programme, n.d.).

There are major differences between acquiring privately owned land and state-owned land, as the people of the country are protected by their fundamental rights by the Constitution. Therefore, the people can challenge the land acquisition in several parts of the process under the violation of their fundamental rights and also under the land acquisition act 1950 itself (Law & Society Trust, 2012). On the other hand, the state-owned land such as forest land will not be released until the Environment Impact Assessment (EIA) is completed and approved (Law & Society Trust, 2015).

These two (02) problematic attributes alone can bring a project to a suspension under the current judiciary of the Sri Lankan governing law. When such disturbance occurs in a project it is highly likely to influence the construction contract between the Employer and the Contractor of an Irrigation project. For example, Uma Oya multipurpose development project was temporarily suspended due to the fundamental right violation case brought against by the Centre for Environmental Justice in the Supreme Court of Sri Lanka due to the water shortage and disturbance to the victim's livelihood by the development (Centre for Environmental Justice, 2017).

Hence, concerning literature, there is an obvious lacuna regarding the influence on the irrigation construction contracts from conflicts between external stakeholders and the project entities.

## **1.2. Problem Statement**

When Sri Lanka's economy was revived in the construction context, the irrigation construction projects under the Mahaweli and Irrigation department play a key role as the Employer of the works. Large scale irrigation projects bring a large number of private and public stakeholders into the table. All the parties have a different scope of works and jurisdictions in their area of expertise. Therefore, different parties with a different scope of views and interests collide to maintain their regulatory and fundamental rights, disputes arise between the external stakeholders and the Employers of the project. In most cases there is no binding contract between the external stakeholders and project entities, the conflicts raised are most likely to end as court cases in litigation. As been discussed litigation is a time and money consuming process and the aftermath is highly unlikely to achieve a win-win situation. Under this circumstance, it is a mecca for contractual conflicts to arise between the Employer and the Contractors mainly due to the influence of the litigation process and by the judgment at the end. As there were a limited number of researches carried out in this particular subject area, while a large number of

conflicts arising, this study will facilitate the irrigation construction project in forth to address the matters in advance related to the influence of litigation with external stakeholders on the contracts in irrigation projects.

Thus, comprehensive research has to be carried out thoroughly to "investigate the phenomena behind such conflictive situations between stakeholders and how it can be avoided, mitigate or terminate in the future endeavours in the context of irrigation projects in Sri Lanka", which is the research problem studies in this research.

### **1.3. Aim**

This study aims to investigate the social, financial, and environmental causes leading to conflicts between the project entities of the irrigation projects and external stakeholders in Sri Lanka.

### **1.4. Objectives**

To obtain the targeted aim of the research, achieving the following five (05) objectives are mandatory. The objectives are;

- Critically review conflicts in the irrigation project scenario
- Evaluate the regular scenarios in irrigation projects entities collide with external stakeholders leading to conflicts
- Explain the reasons behind conflict-prone scenarios
- Appraise influences conflicts on the irrigation project performance

### **1.5. Methodology**

Initially, a comprehensive literature review was carried out in respect of understanding the importance of irrigation construction and how it is illustrated in the national and international socio-economy indicators. What has been the conflict areas between the project entities and the external stakeholders in the past and what



has been done to evaluate the reasons for causing conflicts were scrutinised using reviewing the books, journals, articles, conference proceedings, previous dissertations, and websites internationally and locally.

But with the available literature, a complete identification of problematic areas in Irrigation construction projects in Sri Lankan construction industry has not been fully addressed due to the limited availability of publications and research reports.

Subsequently, an empirical study was conducted by adopting a qualitative research approach. The case study approach has been selected as the most suitable research approach due to the necessity of in-depth investigation requirements within the problem's area's actual working context. Several appropriate case studies were selected for this study depending on the scale and the importance of the projects.

Semi-structured open-end interviews as per findings from the literature review were carried out with thirteen experts from the irrigation development sector as primary data collection. Narrative analysis was used to analyse the primary data integrating the incidental causes, parties, and results of each event of selected projects, and the incidental base summarisation for each project were tabulated and developed to generalise the causal links between all variables of each four projects.

## **1.6. Scope of Study and Limitation**

This research is limited to evaluate and analyse and formulate resolutions to the concurrent conflicts in the Irrigation construction projects in the Sri Lankan construction industry. However, due to the limited number of large-scale irrigation projects in Sri Lanka, the sample projects with similar project attributes have been considered to increase the sample size.

Due to the limited number of court cases published, conflict areas that are common to building and road projects such as resettlement issues have been referred to extract

a substantive amount of literature. Similarly, international Irrigation projects illustrating similar characteristics to the Sri Lankan Irrigation sector and legal context such as South Africa have been utilised to gather information.

The interviews and questionnaires' will only be limited to professionals who are involved in Irrigation construction-related agencies.

### **1.7. Dissertation Outline**

The structure of the research proceeding is as follows;

Chapter One – Introduction – This chapter contains includes the background of the research, problem statement, Aim and Objective of the research, Research methodology, Scope of Study and Limitations, and Dissertation outline.

Chapter Two – Literature review – This chapter provides an overview of the Irrigation project conflicts between the project entities and external stakeholders in Sri Lanka and selected countries. Further, discuss how the contracts been affected by external conflicts.

Chapter Three – Research methodology- This chapter discusses how to achieve research aims and objectives through research philosophy, methodology and methods adopted as well as modes of data analysis methodologically.

Chapter Four – Analysis of Research Findings - Under this chapter, research findings were analysed to identify the conflict-prone external stakeholders, reasons behind conflicts between Project entities and external stakeholders in Sri Lankan irrigation projects, and also to identify how the effect of external conflicts reflect on the construction contract. During this process, the most critical problematic issues were pointed out.

Chapter Five – Conclusion – The final chapter provides the conclusion and the recommendation of the research based on the findings of the research methodology analysis together with proposals to improve the current context of the Irrigation projects in Sri Lanka related to Influence arising out of the Project entities conflict with external stakeholders.

## **CHAPTER 02**

### **2. LITERATURE REVIEW**

#### **2.1. Introduction**

This chapter discusses the entitative influence of the construction industry as the socio-economic development markers globally and locally. Thereafter the irrigation construction's contribution to the financial and physical development of Sri Lanka is appraised together with the unique characteristics that differentiate it from the other constructions. Also, the role and responsibilities of the central and local governments administration when an irrigation construction is implemented together with external stakeholder interference. The construction and planning related legal context and the standard conditions of contracts adopted and the impact of recently increased unsolicited financing and construction contracts under the governing law frame of Sri Lanka and subsidise institutions are concerned areas.

#### **2.2. Constructions' influences in the recent demography**

As per Engerman and Sokoloff (2006) at the beginning of the 19th Century where the colonisation was highly accepted and popular in Europe, persistently seeking to acquire profit via colonialism and slavery was later diverted into wealth gained by war. From World War I to World War II the winning parties administrated the cost of war and the loss as war reparations from the lost as contended by Engerman and Sokoloff (2006). With the end of World War II, the financial hegemony of Europe slowly went in to collapse as the United States of America (USA) raised his way to the top. The rebuilding period of infrastructure in the aftermath of the war was critical for all nations. This consumed a large amount of money, labour and time granting a large number of countries independence from imperialism as for their rulers, colonial maintenance was uneconomical. Since then to the 70's where the 1976 International Labour Organisation's world employment programme accredited the minimum cost on basic needs of food, clothes, shelter, education and transport and baselined a poverty line between the developing and developed nations (Jolly et al., 2009) deprived attention was paid towards human-centred development.

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By establishing such a baseline, a country's allocation from its GDP to the basic needs criteria determines the level of development of the country. This has been identified as the most significant change in the recent history of demography (Turner & Townsend, 2018). It has further emphasised how spending on basic needs elevates a nation's social development.

The most accepted financial institutions which classify the level of countries' economic development as per the main literature are World Bank and International Monetary Fund (IMF). The World Bank classifies countries as low, middle and high income while the IMF classifies countries as developed or advanced economies and developing or undeveloped countries. The criterion of this determination is based upon the GDP and gross national income. But the United Nations, however, which is more of a regulatory body use the human development index to determine a country's development (Djaimin, 2012).

In the middle-income countries, specifically in Sri Lanka context, projects such as the recent resettlement scheme of Colombo urban regeneration project under the Asian Infrastructure Investment Bank for the objective of improving housing conditions of low-income communities and increase land-use efficiency in Colombo through investments in the construction of affordable housing and redevelopment of land, with associated policy and system enhancements (Asian Infrastructure Investment Bank, 2009). When such investments start to illustrate the economy, boosting the country's effort to promote into the level of economies in transition and have gained a place as a middle-income country (United Nations Secretariat (UN/DESA, 2014). These potential economies regularly attract direct foreign investments (Andreica & Maricescu, 2011) and in terms of international funding programmes provide reasonable interest and payback periods depending on the magnitude of their economies (United Nations, 2017).

On the other hand, the major economies and other developed countries contribute to the global construction industry is making new horizons in technologically and buildability wise, absorbing human and artificial intelligence (Khalfan, Azhar, &

Maqsood, 2015) in such a way to construct monuments rather than structures such as state of the art residential facilities such as Burj Kahlifa in places such as reclaimed land in the middle of oceans such as palm islands able to sustain by its own and skyscrapers reaching heights more than 1000 meters with abilities to rotate 360 degrees around its core creating dynamic architecture in desert cities (Generalova et al., 2016).

The link between human civilisation and its development is critical to observe the general influence of construction industry in a countries economy as a development measuring tool as per the literature discussed due to its core relationship with the economy.

As per the research limitation and to construct the objectives the appraisal of the construction industries influence the Sri Lankan economic context is pivotal as per Djaimin (2012). Hence a detailed discussion of the Sri Lankan construction industry in the country's economic growth is carried out.

As per the Central Bank of Sri Lanka ( 2018) at the end of 2017, the total construction labour force represents 7.8% of the total labour force of the industry category, while construction alone achieves 1,040,891 Rs. Million out of the total national income of 3,642,478 Rs. Million by Industrial origin, industry category. This provides substantial evidence of the vital influence of the small construction workforce on the Sri Lankan economy excluding the number of experts who are working abroad and financing the country with foreign exchange. This could be extrapolated into other countries in the South Asian region mainly in Bangladesh and Pakistan (Asian Development Bank, 2019).

As per the Department of Census and Statistics (2017) of Sri Lanka by the 3<sup>rd</sup> quarter of 2017, a workforce of 712,201 has been recorded in employments related to construction-related activities, which is about 10% of the total industrial employment. Also in a survey carried out by the Department of Census and Statistics of Sri Lanka for 2013/2014 it is been stated, 892 construction establishments are

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formally registered with the Department of Registrar of Companies and Rs.281,128.7 million output has been recorded at the period when the GDP was comparatively low to the financial status quo (Department of Census and Statistics, 2017).

Sri Lankan construction industry has suffered in terms of the insufficient number of skilled and unskilled workers, which has been identified, discussed and confirmed by Silva, Warnakulasuriya, and Arachchige (2018). It has further been stressed by the Technical and Vocational Education Commission Tertiary and Vocational Education Commission (TVEC) (2017) stating that a total increase in employment of 800,583 is projected in the construction sector during the period 2016-2020.

When the research carried out in the developed and developing countries for the correlation of construction and economy are analysed the results can be interpolated to a country like Sri Lanka to determine the magnitude and direction of the economical influence imposed by its construction industry. As per Turin (1978) the relationship of construction and economics findings derived from economic and construction statistics of 87 countries from 1960 – 1978, the main relationship was withing a range of GDP per capita, construction accounts for an approximately fixed portion of the national product. The recent research on the correlation between economic development and construction states the construction follows a bell-shaped graph against economic development. The share of construction in GNP starts at a minimum and then progresses to a maximum at the mid of the economic development and starts to deteriorate with the economic progress on and reach maturity (Bon, 1992).

Considering the economically developed and developing countries such as the United Kingdom and South Africa respectively, Djaimin (2012) supports Bon (1992) and derives the correlation coefficient between the construction sector output and the economic growth. The contribution of construction will increase whilst the economy is developing, and then decline as the economy reaches its maturity. Djaimin (2012) emphasised, developing economies such as South Africa is to be expected in the annual change in construction output should go up. On the other hand, developed economies such as in the United Kingdom, the annual change in construction output

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is declining or inconsiderable. As a result of economic status, Djaimin (2012) argues the capital formation in construction can be utilised as a measure of the gross output of the construction sector. This has been further supported by Sahoo and Dash (2012) stating infrastructure construction constitutes the backbone of economic development in most developing economies and South Asia is no exception. The importance of infrastructure for overall economic development, enhancement of trade, and business activities in South Asia need to be emphasised (Sahoo & Dash, 2012).

Also, Djaimin (2012) demonstrates booms and busts in the economy have a significant impact in long-term construction output and economic growth in the developing countries with a strong relationship reflected between construction output and GDP conforming the construction sector is envisaged to play a powerful role in economic growth.

Sri Lanka being a mid-income country attract the interest of institutions such as world bank, Asian Development Bank (ADB) and Asian Infrastructure Investment Bank who provide concessional financing arrangements as mid-income countries are considered the major drivers of global growth and provide a vast number of investments opportunities in the major infrastructure development (IBRD, n.d.). This has been further reflected by Scwab (2018) making Sri Lanka 85<sup>th</sup> place as per the global competitiveness index 2017-2018 edition while confirming the same place in the infrastructure segment of the analysis carried out by the world economic forum (World Bank, 2019).

When Sri Lanka's economy been revived for the growth it has been grown by 4% in the 2<sup>nd</sup> quarter of 2017 and the 3<sup>rd</sup> quarter has been 3.3% growth relative to the year 2016, totalling Rs. 2,351,384 million (Lanka Business Online, 2018). Out of this, the industrial activities which have the highest contribution to the GDP has been 27.8% and from construction activities alone have been recorded as 7.4%, ranked as the second-highest contributor next to the 56.3% contribution of service activities which also contains a significant number of construction-related services as per Lanka business online (2018).



With such a major contribution to the country's economy, the government tends to influence and control the construction trends in a country for its benefits (Ramachandra et al., 2013). This has been further agreed upon and explained by Rathnasinghe, Rathnasinghe, and Abeynayake in 2020.

### **2.3. Construction industry in the legal context**

As the contracts are under the governing law a country or a state legal framework is implied upon the contract itself. As per the Construction contract where the construction law is subsequently applied in the areas that regulate the built environment concerning construction activities (Rathnasinghe et al., 2020). As been addressed by Roland (2017) the legal framework covers the construction, payments and dispute resolutions, design and management and health and safety sectors of the industry under the legislation. As far as the global construction industry experts concern the most critical aspect is the health and safety under the legislation. Apart from the legislations of the legal framework, Contract law, Law of tort, breach of statutory duty, criminal law also apply as per the occasion arise in the industry as per the legal system of the Country (DLA Piper, 2020).

In the Sri Lankan legal system where a civil and common law system operates with indigenous customary laws, where the most suitable law principals being applied to cover ambiguity in other law principals in cases (Tambimuttu, 2009). As for the Sri Lankan legal system, concerning the construction and built environment, Rathnasinghe et al. (2020) discuss in detail statutes and ordinances as for physical planning chronologically Town and Country Planning Ordinance No. 16 of 1946, Municipal Council Ordinance and Urban Council Ordinance of 1947 and Pradeshiya Sabhas Act of 1987. In terms of specific engineering fields such as irrigation, the Irrigation Ordinance 32 of 1946 and subsequent laws and acts amendment prevails. Also, the ordinance and acts such as Land Development Ordinance No 19 of 1935, State Lands Ordinance No 8 of 1947, Land Grants (Special Provisions) Act No 43 of 1979 and Land Acquisition Act No 9 of 1950 which administer the state land also has a part in the Sri Lankan construction sector (Law & Society Trust, 2015).

Regarding the environment, the Stockholm conference on environmental and development in 1972 is a turning point making particular reference in the Declaration to the protection of the interests of developing countries (Sohn, 1973). Sri Lanka also adheres the environmental impact statement in the national legal systems by the National Environmental Act of 1980 establishment and amended by cooperating the Environment impact assessment and licenses for industries potentially producing air, water, and land pollution (National Resources Energy and Science Authority of Sri Lanka [NARESA], 1991; Sohn, 1973) where the Construction is considered to be a critical contributor has been affirmed by Li, Zhu, and Zhang (2010).

#### **2.4. 'Irrigation' as a sector of construction industry**

Ofori (1990) demonstrates out of all the sectors of global construction irrigation and highway development directly induces the economical welfare of a country. Ali (2012) further discuss the importance of large scale irrigation sector developments in Asia and consider as the only most reasonable solutions to meet the increasing food demand in Asia while natural resources decreasing rapidly. When natural water sources are shrinking, reservoirs with large storage capacities are required to meet the increasing domestic water demands. With proper engineering designs, these reservoirs can be utilised for hydropower generation which is an added benefit to developing Asian continent (Ali, 2012). Sahoo & Dash (2012) also point out irrigation sector development plays a key role in poverty alleviation of Asian countries highly depending on agro-economy. As per the research carried out in China and Indonesia, irrigation development is the main contributor to lift social standards of their citizens (Sahoo & Dash, 2012).

Shand (2002) identify Sri Lankan as an agro-economic country with a high proportion (80%) of people living in rural areas and a large number of the people dependent on agriculture for their livelihoods support the aforementioned definition of the country agro-economy (Abayawardana et al., 2006).

As justified by Turin (1978), Bon (1992) and Djaimin (2012) the connection between construction output and economic growth of developing countries can be divided into small segments and analysed accordingly. In terms of broadened construction segments is fragmented into the sector by sector based on the characteristic of the construction the main sectors are building and infrastructure in Sri Lanka (Planning Commission, 2013).

By considering the previously discussed magnitude of influence from construction to Sri Lanka's economy and country's agro-economic dependency, direct precedence can be hypothesised in between them. This has been confirmed by Sahoo and Dash (2012) ascertaining infrastructure development contributes to investment and growth through an increase in productivity and efficiency as it links between resources to factories, people to jobs and products to markets.

Therefore, the construction sector which is in direct correlation with the countries agro-economy should be the infrastructure development sector. The highly efficient water resource management carried out through a various number of mega irrigation schemes strongly support this hypothesis. Some irrigation schemes have gone the extra mile and been enhanced into hydropower generations and many vice versa. Also as stressed by IWMI (2006) the rapid growth in agricultural productivity is fundamental to reducing poverty in Sri Lanka, as nearly 90% of the poor are dependent on the rural agricultural economy (Aluwihare & Kikuchi, 1991). When there are two (02) interconnected economic growth drivers that are intact it attracts the attention of policymakers to enhance the economic growth by increasing the resource allocation to them, while addressing the concurrent impediments for such economic driving sectors at the same time. During the recent past, the policies and strategies for the irrigation sector's multipurpose irrigation systems, small tank development, and trans-basin diversion of water to link existing rivers and irrigation systems addressed by political agendas reflect the objectives of the administration (Ministry of Environment, 2012). While Shand (2002) discuss after the independence the first river basin development Gal Oya scheme under settlement activities of restored reservoirs starting from 1948 and succeeded by Uda Walawe Scheme was

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started during the latter part of the 1960s and Accelerated Mahaweli Development Project which commissioned recently concluded its final reservoir at Moragahakanda (Mahaweli Authority, n.d.).

Government irrigation invests may be informed of new irrigation construction, major rehabilitation, and water management improvement projects. During the decades of 1970 to 1980, from the total public investments, 20-40% was allocated to new irrigation constructions and at the time Sri Lankan irrigation construction was at its full capacity. With commercial constraints the governments had to shift into the rehabilitation of the existing irrigation schemes, during this time the price of rice in the world market was in the bust and it was the main income to satisfy the feasibility of all the irrigation projects now started being financially unviable as per their high unit cost at the start of 1990 (Aluwihare & Kikuchi, 1991). Also, the introduction of high-value non-rice crops got successful among the internal season of Yala and Maha brought an end to 80's major irrigation construction in Sri Lanka.

After 2010 with the aftermath of 30-year prolonged war the value of imported rice which is the main commodity of Sri Lanka hike drastically as per global market trends and thus created urgent reconciliation in terms of agri-irrigation which can be witnessed in political policies such as "Mahinda Chinathana" and policies after that. Table 01 demonstrates the gradual increase of import rice quantity and its values [Central Bank of Sri Lanka (CBSL), 2010].

Table 2-1: Quantity and Value of Imports of Rice (Major Commodity) 2010-2018

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018*
Qty. ('000 MT)	126	28	36	23	600	286	30	748	249
Value (Rs. Mn.)	6741	2035	3083	2297	36795	17956	1872	45881	16679

Source: (CBSL, 2018)

Another aspect of irrigation infrastructure development requirement due to three-fourths of Sri Lanka is considered to be dry zones and the majority of the cultivation lies within these zones. Moreover, population livelihood is agriculture so thus the agricultural land use (Abeysekara et al., 2015).

As confirmed earlier by Aluwihare and Kikuchi (1991), Abeysekara et al. (2015), Gamage (2015) the challenge of alleviating poverty strategically ascertained by developing irrigation infrastructure while ensuring the food security, improvement to the livelihood of 81.7 of the total populations depending directly and indirectly on irrigation agriculture.

As per the Ministry of Finance (2017), the budgetary allocations of the 2017 fiscal year's initial allocation for the Ministry of Irrigation and Water Resources Management (MIWRM) was Rs. 16,269,850,000.00 and at the year-end a total expenditure of Rs.21,277,041,000.00. While the Ministry of Mahaweli Development and Environment (MMDE) was allocated Rs. 52,446,430,000.00 for year 2017 and awarded Rs. 52,745,741,000.00 from this allocation.

From the Ministry of Irrigation and Water Resources Management (MIWRM) allocation of 2017, 46% has been estimated as expenditure for development projects namely the Talpitigala reservoir, Climate Resilience Improvement Project and Yan Oya project are the main major projects for 2017. Under the MMDE Moragahakanda Kaluganaga Development Project, Uma Oya Development Project, Water Resources Development Investment Programme are major projects for 2017 and an allocation of 71% of total expenditure is dedicated among them (Ministry of Finance, 2017).

In the fiscal year of 2018, Ministry of Irrigation and Water Resources Management (MIWRM) and MMDE are allocated with 21Rs. Billion and 40.146 Rs. Billion respectively as shown in Figure 2-2 and Figure 2-3.

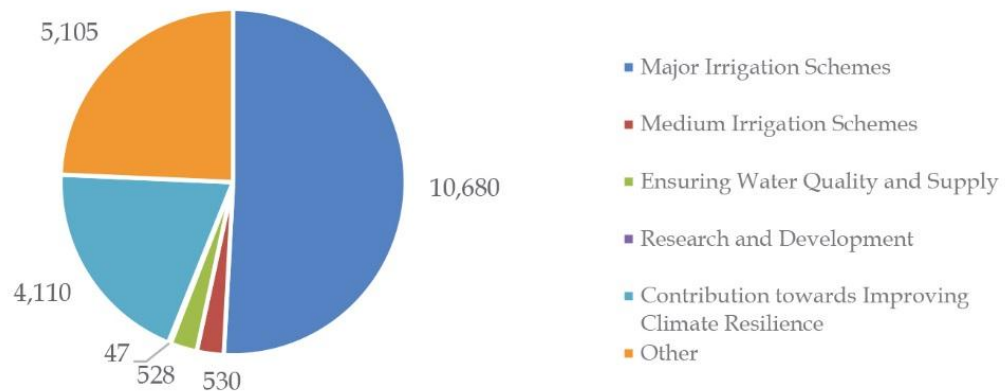


Figure 2-1: Resource allocation 2018-MIWRM

Source : (Ministry of Finance, 2018)

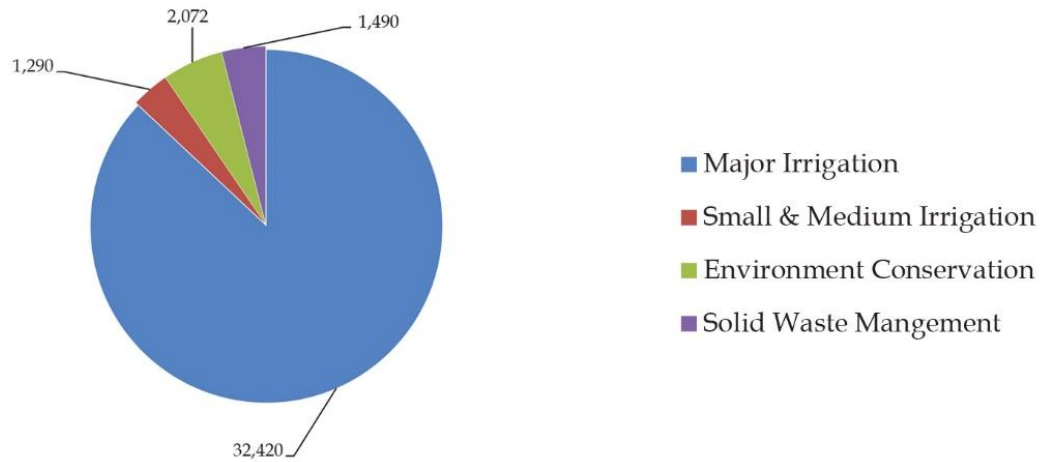


Figure 2-2:Resource allocation 2018-MMDE (Rs. Mn) (*Ministry of Finance, 2018*)

With the estimated allocation of 2,759 Rs. Billion and 9,899 Rs. Billion for the 1<sup>st</sup> quarter of 2019 for MIWRM and MMDE respectively, the government's major attention growth in developing irrigation infrastructure can be witnessed (Ministry of Finance, 2019).

## **2.5. Stakeholder's influence on irrigation contracts**

Opong, Chan, and Dansoh (2018) identify the employers, financiers, consultants, contractors, subcontractors, suppliers, government authorities, social and political organisations, local communities, the general public, environmentalists, trade and industry, and the media as potential stakeholders to construction as well as a construction contract. Furthermore, Morad et al.,(2014) explain the adverse effects of failing to cover interests and expectations which are required to be met during project delivery leading into protests, vandalism, litigation, or even picketing as an indication of the dissatisfaction of the stakeholders. Olander and Landin (2007) emphasise such events will directly influence the contract in physical, financial and legal terms. In the case of stakeholders who are having contractual, official, formal relationships on top of their own jurisdiction and statutory powers are highly likely to influence the key entities of a contract (Morad et al., 2014). In table 2-2 the stakeholders have been classified as per the literature findings.

Table 2-2: Stakeholder classification in construction projects

Types of stakeholders	Internal / Primary	External /Secondary	Liyanage et al., (2016)	Malkat & Kang, (2012)	Olander & Landin, (2007)	Yitmen et al., (2012)
Employers	✓		✓	✓	✓	✓
Consultants	✓		✓	✓	✓	✓
Contractors	✓		✓	✓	✓	✓
Government & authorities	✓	✓	✓	✓	✓	✓
General public		✓	✓	✓	✓	✓
Suppliers	✓			✓	✓	✓
Investors	✓			✓	✓	✓
Financing firms		✓		✓	✓	
Trade associations		✓		✓	✓	
Environment		✓		✓	✓	✓
Future generations		✓			✓	
Social organisations					✓	✓
Political organisations					✓	✓
Media					✓	✓
Interest groups					✓	
Environmentalists					✓	
End users						✓
Customers						✓

The classification illustrated in Table 2-2, derived from the literature will be integrated for the critical review of primary data analysis.



From recent research carried out in Indonesia, concerned on irrigation construction projects are affecting the livelihoods of many individuals and organisations positively and negatively depending on the expectance and the remoteness of the benefits and effects (Rustinsyah & Prasetyo, 2019). During the research, it was identified the most critical type of stakeholders for the performance of the irrigation schemes are the external stakeholders mainly due to since they are not governed by any form of contract and that has also been identified and confirmed by Ninan & Mahalingam (2017). Whereas Furqan (1991) emphasizes the importance of carrying out development plans without infringing the rights of any citizen as they may lead to conflicts in the implementation stage of the development.

In the Sri Lankan context on recent events of Uma Oya multi-purpose development project, which has been on hold due to a breach of a fundamental right of residents in the project vicinity claiming they have been victimised as a result of the project, homes and crops been destroyed and they have lost access to clean drinking water thus making this a fundamental right violation as per the constitution. The secretary, MMDE and three (03) others were accused (Centre for Environmental Justice, 2017). As per environment impact assessment the critical risk areas of resettlement, environment rehabilitation were addressed together with the geotechnical conditions of mega lineaments crossing the proposed construction area and failures in the boreholes dug near tunnel areas were identified (Ministry of Irrigation and Water Management (MIWM), 2010) yet the amount of attention paid for the mitigation methods are at question. The suitable stakeholders qualified enough to initiate such a process were not involved in the policymaking thus resulting in chaos in a national priority project (Chamikara, 2018).

The impacts of the stakeholders are always a risk, unattended uncontrolled risks always result in conflicts, claims and disputes at the end. Which increases the stakeholder's involvement in the project, which counter the support in supplying the needs of stakeholders, decreasing unpredictable risks and also reducing negative actions that can have a bad effect on whole project success (Morad et al., 2014).

Therefore, the final influence from external stakeholders has to be appraised under the contract in the context of the time-disruption, delay and prolongation, cost-penalties/fines, tax and levies, and overruns and legally- legislation changes, breaches, alternative dispute resolutions, suspensions and terminations.

## **2.6. The types of contracts used in forming irrigation construction projects**

When the influence of conflict is appraised it is critical to review the conditions of contract being used and identified the areas vulnerable to affect the most. In terms of international construction contracts, the most adopted standard form of contracts are published by International Federation of Consulting Engineers (FIDIC) and the vast number of versions suitable for each procurement method is an added advantage if FIDIC standard forms of contracts are being used (Klee, 2018).

But as discussed before in irrigation construction contracts the Employer will most of the time be a statutory body such as the MIWRM or MMDE. Hence, the government authorities are to follow the procurement guidelines and manuals set out by the ministry of finance. National Procurement Agency (2006) clearly state the instructions which have to be followed by the project entity. When a foreign funding agency has involved the project, the entity has to come to an agreement for funding and take in to account the International Competitive Bidding (ICB) procedures. The terms and conditions from foreign funding agencies such as ADB, IDM -World bank determine the standard contracts, environmental policies etc (Asian Development Bank, 2016).

Out of FIDIC's and CIDA's multiple standard forms of contract, the capacity of contractual provisions capable to accommodate project risks identified by Schieg (2006) and Zhang, Zhang, and Gao (2016) issues arising out of project risks is examined and tabulated and presented as Table 2-3.

Table 2-3: Project risks considered by standard forms of contracts

Project Risk (Schieg, 2006; Zhang, Zhang, & Gao, 2016)	FIDIC: Conditions of Contract for Construction	FIDIC: Conditions of Contract for EPC Turnkey Projects	FIDIC MDB (Harmonised Edition)	ICTAD SBD2	ICTAD SBD4
Climate conditions	✓	✓	✓	✓	✓
Geological conditions	✓	✓	✓	✓	✓
Natural Catastrophes	✓	✓	✓	✓	✓
War, Hostilities	✓	✓	✓	✓	✓
Riot, Civil disorder	✓	✓	✓	✓	✓
Labour Disputes/ Strike	✓	✓	✓	✓	✓
Theft, vandalism	×	×	×	×	×
Inflation	✓	✓	✓	✓	✓
Shortage of Material, Equipment	✓	✓	✓	✓	✓
Shortage of Labour	✓	✓	✓	✓	✓
Changes in Law	✓	✓	✓	✓	✓
Authorities activities	✓	✓	✓	✓	✓
Employer's activity	✓	✓	✓	✓	✓
Contractor's activity	✓	✓	✓	✓	✓
Subcontractor's activity	✓	✓	✓	✓	✓
Third Parties activity					

From Table 2-3, it is evident all the standard forms of contracts cover most of the identified project risks and even though the specific risk of third-party activities is not mentioned expressly most of the effects may arise out of that has been covered. As per Mills (2018), even theft and vandalism have not been covered in a Contract, yet the insurance and the governing law of any contract have the remedies and necessary action under the penal code of any country.

Department of Public Finance (2011) issued guidelines to be used by line Ministries or Government Agencies about dealing with unsolicited/ stand-alone development proposals and due to lapsed and transparency issues (Department of Public Finance, 2016) issued for dealing with Unsolicited Project Proposals Introduction of “Swiss Challenge” Procedure.

## **2.7. Barriers for irrigation construction**

Ali (2012) brings forth the concerning the issues affecting the large irrigation construction, the most important issue in the occupied land extent of the scheme and with environmental and social constraints the available land is highly being depleted (Ali, 2012). Ali (2012) also point out the scarcity of groundwater sources as another major obstruction for the irrigation sector development as the hydrology engineering should cover all aspects of industrial and domestic water demands and with highly polluted water both requirements are hard to be bourn by same water source in the future. The aforementioned situation has critically affected China and India comprehensively.

As per Schieg (2006) all most every major irrigation construction project is funded and owned by the government or its institution, therefore making it a statutory liability. Construction, in general, is renowned for its extreme risks in the aspect of finance, legal, social, cultural, environmental, technological, health and safety due to a vast number of reasons. Out of those many reasons the involvement of a higher number of direct and indirect stakeholders to construction projects and as a whole to

the industry, touching all of the factors listed above can be considered the main (Abayawardana et al., 2006). As per the involvement of a large number of stakeholders and their interests creating a web of interrelations in between them thus, creating conflicts of interest in between which was identified as the main source for a much wider range of risks in the construction industry (Schieg, 2006).

When considering irrigation construction from the perspective of stakeholders, a stakeholder analysis is a must, as irrigation projects spread over large landmasses and the effect on society and environment has both advantages and disadvantages. In practice, a social impact analysis is carried in before the implementation of construction and is accessed in the feasibility study of the project (Department of National Planning, 2019).

Many broad and deeper definitions for stakeholders in a business context are found in the relevant literature, such as Phillips (2004) stating stakeholders as parties contributing to and or being affected by a decision-making process, while a deeper definition by Donaldson and Preston (1995) stating stakeholders are identified by their interests in the corporation, whether the corporation has any corresponding functional interest in them. Malkat and Kang (2012) analysing the stakeholders in construction describe two (02) types of stakeholders primary and secondary stakeholders. The first sector includes employers, consultants, and contractors and second includes government, the general public, and the communities interact with the project. Though Malkat and Kang (2012) identify the employer as the most salient stakeholder and consultant as the second cue to limitations in the research area this can be changed geographically and the type of construction. Yet Yitmen, Akiner, and Marar (2012) provide a broader classification for stakeholders, they are direct, indirect, positive, negative depending on the involvement and then further divided into legitimacy, which is the perceived validity of a stakeholder's claim to importance on the project and power which is the ability to influence the project and the parties involved in some way. Hence a stakeholder management plan is critical for a project to proceed without any destructions and delays. As been also emphasised by the Department of National Planning (2019) and agreed by Liyanage,

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Perera, Sumanarathna, and Seneviratne (2016). Therefore it is critical to identifying the stakeholder and their influence on project priority.

Therefore, as described and supported by Jordans (2001) and Gebre, Getachew, and McCartney (2008) in irrigation construction government is a key stakeholder. As the policy-making authority which is subject to change, every five (05) years in Sri Lanka project carry a severe risk in this category. Particularly projects with prolonged contract durations for more than three (03) years. Therefore, this issue makes a substantial area for further research in primary data collection. As the Sri Lankan construction industry has witnessed this time to time such as the Uma Oya multipurpose development, Colombo port city development, Gin Nilwala river diversion, southern expressway extension and Thalpitigala reservoir during the 2015-2019 period. When the project/construction durations of irrigation construction are taken into account the Deduru Oya irrigation scheme has taken eight (08) years for its completion (MIWRM, 2014) and Uma Oya multipurpose development project is still to be completed from the commencement in 2008 (Rathnayake & Suratissa, 2016).

As per the auditor General's Department (2017) Gin Nilwala river diversion project (GNRDP), Yan Oya reservoir project (YORP) and Lower Malwatu Oya project (LMOP) has been considered as unsolicited contracts and all have been grant approval regarding a memorandum of understanding between the contractor and the employer in 2009 to initiated the feasibility studies. In 2014 GNRDP contract was signed and since the end of 2017, no physical progress has been attended by the contractor of the employer even though a mobilisation advance of 4,011.05 Rs. Million has been paid. The auditor General's Department (2017) also points out several other projects Construction of Dambulla Railway Line via Kurunegala and Habarana which has been delayed due to environment approval obtaining issue, the lotus tower project started in 12<sup>th</sup> November 2012 and supposed to be completed in 912 days has been delayed. After critically analysing the available data it can be assumed most of the popular unsolicited projects are getting affected by external parties to the contract.

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## **2.8. Summary**

The Chapter synthesised the existing literature to collect the key information about the global construction industry and the correlation between the global socio-economy. The area of study was narrowed into establishing correlations between Sri Lanka's construction industry and the Sri Lankan economy. Further data was compiled to derive the critical sector of the local construction industry affecting the agro-economic system in Sri Lanka, due to the particular relationship the governments continuously increasing resource allocation was emphasised. Due to unique characteristics of irrigation infrastructure development such excessive occupancy of the land extent and prolonged contract duration, it was evident a large number of stakeholders get associated with projects in physical and policy planning and also every five (05) year possible regime changes during the contract period is most influential to the project as per the literature review. The trend of awarding approvals for unsolicited proposals has proved to be developed during the last ten (10) years. The most recommended type of standard conditions of contract for an unsolicited proposal has to be studied thoroughly together with proper and reasonable risk allocation for both parties has to be implemented to avoid further dispute. As most of the standards forms of contracts cover the risk by external stakeholders the mostly adopted standard form of contract in the irrigation construction has to be reviewed in depth. As a result of the literature review, it was concluded the recent project delays and disruptions have been occurred due to issues related to external parties to the contract and methodology to appraise the effect on the contract should be studied in a form of avoiding litigation and resolving the issue amicably.

## **CHAPTER 3**

### **3. RESEARCH METHODOLOGY**

#### **3.1. Introduction**

This chapter exemplifies the procedural framework followed to accomplish the research problem. A detailed description of research designs, justifying adopted research approach while discussing the pros and cons of other approaches and methods and in-depth demonstration of the compatibility of the research process with the objectives of the research problem.

O'Leary (2004) methodology as the framework, which is associated with a particular set of paradigmatic assumptions that will use to conduct research which has been acknowledged by researchers such as Brown (2006).

#### **3.2. Research Design**

Vaus (2001) emphasises the research design as the outline of the study and a core issue of the research regardless of the research approach. As per Yin (2014) research design refers to the structure of an inquiry and states it is a logical matter than a logistic one.

This research will consist of an introduction, a comprehensive review of literature, data collection, data analysis, and discussion of research findings and concluded by presenting the conclusions and recommendations adopting an appropriate research approach and research strategy.

#### **3.3. Research Approach**

As per Aaker, Kumar, and George (2000) even though the research design process involves many interrelated decisions the most critical decision in the research design process is the selection regarding the research approach since it determines how relevant information for a study will be acquired.



Yin (2014) explains the research approaches can be mainly divided as qualitative and quantitative approaches and further explains these methods can be mixed to dissolve and overcome the weaknesses in the use of qualitative and quantitative methods. This has been widely accepted by many researchers as Flick (2006) in the work published.

### **3.3.1. Selection of the suitable research approach**

Flick (2006); Yin (2014) further describe quantitative approaches as Surveys and Experiments while qualitative approaches as Case studies, Ethnography, Action Research, and Ground theory.

As per Yin (2014) that case studies are more suited for the studies where qualitative data predominate and further discuss the importance of usage of the case study research approach is unique cases that have qualitative characteristics and frequently used in social science researches.

Also, the use of a case study research approach is suitable for the researches which have research problems based on “how” and “why” types. In the given research of influences of conflicts between external parties and project entities is a qualified area for a case study as it discusses how the conflicts occur between project entities and why the conflicts occur?

As per the finding of the literature review, a limited number of literature addressing the direct research aim was retrieved. Hence the insufficient literature, it makes a case study the most appropriate approach as per Malewana ( 2009). Therefore a case study approach was selected as the research approach for the studies.

### **3.4. Case Study design**

As explained in depth by Yin (2014) generalisability of the study can be increased through the design of the case study and special care should be taken in the case study design focusing on process rather than outcome while maintaining the purpose

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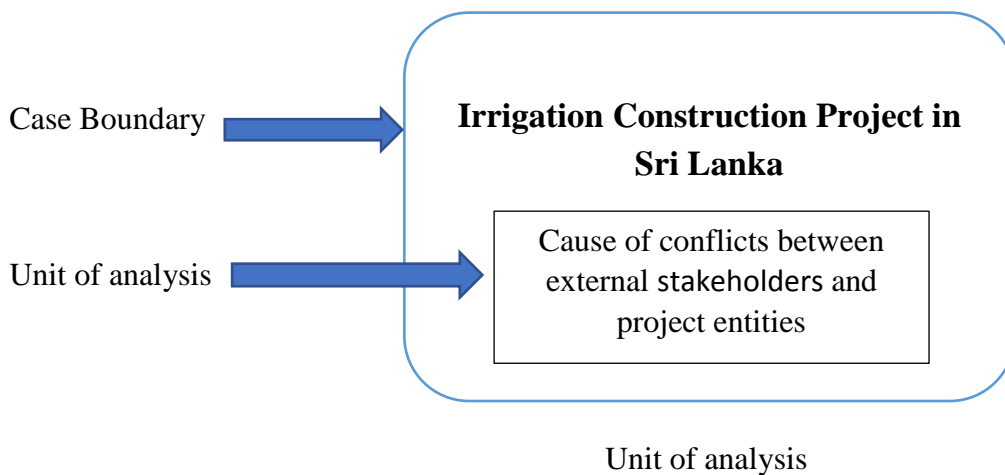
of the case study which is in-depth understanding about the meaning of the subject being studied addressed.

In a case study design there are two (02) main aspects to be considered firstly the identification of the unit of analysis and secondly, the boundary and criteria for selection of cases and this will be addressed in forth.

### 3.4.1. Case boundary and units of analysis

As per Yin (2014) identification of ‘unit of analysis’ or the ‘case’ is of primary standing to any research design which is connected with the mode of research problem created.

Aim of this research is to address and verify the conflicts between external parties and project entities therefore as “how the conflicts have occurred in the irrigation project between external stakeholders and the project entities?” can be considered as the unit of analysis or case in this research is the Conflicts as illustrated in below Figure 3-1.



### **3.4.2. Number of cases and criteria for selections**

As per Yin (2014) for research, the selection of the most suitable cases for the empirical studies is of utter importance as the selected cases will be the foundation of the research outcome and it is important to define the number of cases when the research is designed from the case study approach. The number of cases in the case study could vary from one to eight according to the nature of the research.

When the criteria for selection of cases being addressed Yin (2009) argued that the criteria for selecting cases are a matter of discretion and judgment, convenience, access and to be those which are subjective for the research and the expertise of the researcher. Hence, four (4) cases were selected for this research to achieve data saturation and to get a broad picture of the sources as the time limitations were also a critical factor for selecting the number of cases for this study.

### **3.4.3. Data collection**

Yin (2014) explains the data collection method, interviewing has four types, structured interviews, semi-structured interviews, unstructured interviews, and non-directive interviews. As the interviews provide more flexibility in selecting industry experts who are particularly engaged in specific projects and hence the information gathered was more comprehensive and more reliable (Weinberg 2002).

Hence, the qualitative approach is adopted to this research, semi-structured interviews were selected as the data collection technique since it enabled the researcher to gather specific information that could be compared and at the same time allowed to remain flexible to gather any other important information that arose in the course of data collection.

For the sample selection, snowball sampling of convenience sampling method was adopted as it was difficult to attain samples who are involved in confidential government involved contracts. As of these sampling methods, the initial subject

introduced the next subjects, which was the most appropriate method of gathering information to access specific groups of people (Naderifar et al., 2017).

#### **3.4.4. Data Analysis Techniques – Narrative analysis**

As per Yin (2014) has stated several techniques to analyse qualitative data namely, pattern matching, explanation building, time series analysis, Logic models, narrative analysis and cross-case analysis.

Mahmoud & Tehseen( 2020) describe narrative analysis as an analytical framework constructed by the researcher based on the patterns, summaries, causal links and depending on the relevance to the aim of research and interpret the outcome.

In this particular research, detailed narratives were made by analysing the patterns of cases, summaries, and results. A narrative analysis was used in this research to analyse data and to identify the patterns of cases and relationships with outcomes.

The narratives were mainly constructed using highlighting the causes and results and the influences inside the narrative and they have been identified by different text patterns.

**The cause** or the **reason** is bolder text, **conflict** is bold and underlined, the **external parties** in a conflict is double underlined and bold while the **influence** is underlined for the further summarising of the findings.

#### **3.4.5. Validity and Reliability in Research Study**

Yin (2014) acknowledge regardless of the method of study is insufficient without considering the fundamental issues relating to the review of the validity of any research outcomes. to confirm the validity of a research study can be confirmed by qualifying through specific design tests with regards to diverse levels of research validity, as explained below the measures that were taken to ensure the validity and reliability has been discussed.

Test 1: Construct Validity (Yin,2014).

Semi-structured interviews were conducted while keeping track of operational measures for the concepts being studied.

Test 2: Internal validity (Yin,2014).

A research problem was derived from the comprehensive literature review carried out by making sure

Test 3: External Validity (Yin,2014).

It is being verified in the research design by the selection of cases and criteria followed and the establishment of a domain to which the study's findings can be generalized.

Test 4: Reliability (Yin,2014)

All the interviews carried out with both Employer and the Contractor while using electronic recording devices during interviews and developing transcripts to keep a record of data. Which the operations of a study such as data collection procedures can be repeated with the same results.

#### **3.4.6. Research Process**

The research process consists of a series of closely related activities. It can be described as step by step process in details as mentioned below.

##### Step 1: Background investigation

The research problem was defined and the aim and objectives were constructed depending on the knowledge available in journals, books, institutional websites.

##### Step 2: A literature review

A comprehensive review of literature on the conflicts and causes of conflicts in water supply projects and other construction projects

Step 3: Data collection

Semi-structured open-end interviews were conducted adopting snowball sampling to selected project participants as a qualitative research method was adopted.

Step 4: Data Analysis and Discussion

Narrative analysis based on the interviews was carried out using narrative built up for each selected case and each incident highlighted.

Step 5: Conclusions and recommendations

The conclusions and recommendations were made highly as per the findings of the data analysis.

**3.4.7. Chapter Summary**

The use of findings can be utilised more efficiently depending on the methodology adopted. To achieve the task of selecting the most compatible methodology for the research. Hence the chapter substantially discussed the research design, research approach, research strategy, research methods, data collection techniques, data analysis techniques, Validity and reliability of research study, and research process which were used to achieve the core aim and objectives of this research.

## **CHAPTER 4**

### **4. ANALYSIS OF RESEARCH FINDINGS**

#### **4.1. Introduction**

This chapter illustrates the data analysis and research findings of the primary data collected through the research approach. A basic background introduction to the selected cases and the details of the interviewees have been provided to illuminate the project details. A narrative analysis based on the semi-structured interviews with open-end questions related to the conflicts between external parties in selected cases was carried out. The findings from the narrative analysis are tabulated as per conflicts, external parties, cause, and influence to the contract. Finally, the causal links between findings are generalised and illustrated using cognitive mapping.

#### **4.2. Case study Analysis**

The empirical study was carried out based on four (04) selected projects from irrigation sector development in recent times under the main regulatory body in Sri Lanka. Because by the act of establishment, different regulatory bodies have superior authorities and a comparison between different regulatory bodies with different jurisdictions will not provide reasonable data to analyse major conflicts and conflict-prone areas in irrigation construction due to external party's interference.

##### **4.2.1. Introduction to the cases selected**

Each selected project as cases has been briefed to understand the condition and nature of the project. The following Table 4-1 provides each project contractual characteristics and physical components. Out of the four (04) cases, two (02) projects are in the construction phase of the contract and balance two (02) are in the detail design stage.

Table 4-1:Details of the selected projects

Case	Province	Procurement Method	Project components	Contract Sum (Mn) USD	Duration (Months)
Case A	North Central / Eastern	EPC	Reservoir Headworks	150	48
Case B	North Central	EPC	Main Canals	35.8	30
Case C	Southern	EPC	Reservoirs, Weirs Tunnels and Canals	698	72
Case D	North Central / Northern	EPC	Reservoir, canals and powerhouse	N/A	48

As per the information obtained from the interviewees, the longitudinal project timeline has been developed to determine the status quo of the project is presented in Figure 4-1

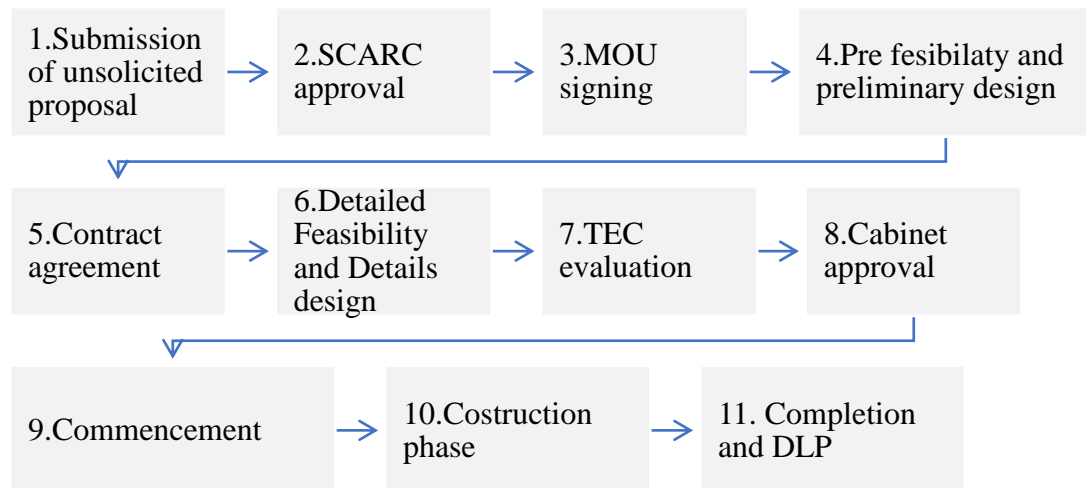


Figure 4-1: Longitudinal basic timeline for unsolicited project proposal



The following Table 4.2 provides the selected interviewee's detail from each project. The Interviewees represent the high-end management of the Employer and the Contractor of the projects. The selection criteria were familiarity with the projects and proficiency in their respective fields of work. As per the project's progress and status, the two (02) projects at the construction phase have four (04) interviewees and from the projects at details design and feasibility stage including three (03) and two (02) interviewees respectively. 45-60 minute interviews were conducted per interviewee among all respondents of thirteen industry experts. Table 4-2 demonstrates a brief about the professional compatibility of the interviewees and their relevant experience. The status of the project can be cross-checked from figure 4-1.

Table 4-2: Details of the selected interviewees

Case	Status of the project	Interviewee	Field of expertise	Experience in Irrigation construction	Relevant project experience
Case A	Construction phase	I1	Chartered Civil Engineer	34 Yrs	8+ Yrs
		I2	Chartered Civil Engineer	34 Yrs	5 Yrs
		I3	Planning Engineer	36 Yrs	5 Yrs
		I4	Chartered Project Manager (Foreign)	20 Yrs	8+ Yrs
Case B	Construction phase	I1	Chartered Civil Engineer	35 Yrs	5 Yrs
		I2	Chartered Civil Engineer	36 Yrs	5 Yrs
		I3	Civil Engineer	20 Yrs	5 Yrs
		I4	Chartered Civil Engineer (Foreign)	14 Yrs	5 Yrs

Case	Status of the project	Interviewee	Field of expertise	Experience in Irrigation construction	Relevant project experience
Case C	Detail	I1	Chartered Civil Engineer	32 Yrs	8 Yrs
	Design and Feasibility stage	I2	Civil Engineer	10 Yrs	4 Yrs
		I3	Chartered Civil Engineer (Foreign)	18 Yrs	5 Yrs
Case D	Detail	I1	Chartered Civil Engineer	30 Yrs	7 Yrs
	Design and Feasibility stage	I2	Chartered Civil Engineer (Foreign)	14 Yrs	4 Yrs

Individual case introduction as given below.

### **Case A**

This project is located in the provincial boundary of the Northcentral and Eastern provinces of Sri Lanka. This project was developed from an unsolicited proposal from a foreign project proponent in 2009. The Employer of the contract was a Government body. The initial contract value of 176 Million USD agreed on 2013 was reduced to 150 Million USD through an amendment in 2015. This is a completely Government of Sri Lanka (GoSL) funded project. The procurement method adopted was EPC and the initial contract was amended two times.

### **Case B**

This project was an unsolicited project proposed by the foreign project proponent to distribute irrigation water downstream by the main canals of two main irrigation schemes in the Mi Oya basin in the North central province of Sri Lanka. The initial feasibility studies, EIA, Social Impact Assessment, and Archaeology Impact Assessment was completed under a newly built major irrigation development scheme

in the year 2012. The contract was an EPC lump sum fixed price contract. The Employer to the contract was a Government authority.

### **Case C**

With the initiative by the Government of Sri Lanka to implement the Greater Hambantota Development Plan, to provide much-needed water for the planned development activities in the area to divert water from upper reaches of major river basins and its tributaries were proposed by a foreign project proponent under unsolicited proposal scheme. The project was under government consideration since the 1960s and 1970's as a high priority project which can satisfy the water demand and control the drought in the Southern eastern dry zones. This project contains two reservoirs and a weir and three tunnels accumulated to a 30 km length approximately.

### **Case D**

This project is in the boundary of the North and Northcentral provincial boundary. This will supply irrigation water to the Mannar basin and control flood damage to Northcentral province. Also, the domestic water demand of both provinces will be attended by this project. The Willpattu forest reserve will also be natured by this mega-development. This project was implemented by a foreign project proponent in the year 2009 under the unsolicited proposal. A reservoir, canal system, and powerhouse are among the project components.

#### **4.2.2. Narrative analysis**

##### **Analysis of Case A**

Four people were interviewed for the analysing purposes of the case. Out of these four interviewees, three represent the Employer, Employers representative, and one interviewee is from the Contactor. All the four of them have been involved in the project since the initial contract signing and have a thorough knowledge of the contract, contract amendments, the conflicts occurred with external parties, the

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influence on the contract due to the conflicts and what were the consequences of such influences.

### **1. Lack of familiarity with EPC contracts**

As per AI1 and AI2 who represent the Employer stated the **lack of familiarity with EPC contracts** of the Employer did not affect the contract technically due to inhouse qualified and conversant personnel to review the designs and work quality. But the legal and contractual risks were at large as this was the **first EPC civil engineering project handled** by the Employer. AI1 brought forth examples of risks that may be imposed by third parties on the project and they may have *“drastic influences on the contract and its entities but in the terms of causality and negligence of these influence could not be determined under the contract”*.

### **2. External regulatory bodies carrying out negotiations unilaterally**

All the interviewees discussed the difficulties faced during obtaining approvals and licenses to commence the construction. But as per AI4 the most critical part of the Contract the financial consideration was established by negotiations made between the foreign funding agency and the Sri Lankan treasury, External Resource Department. At this instance, as there were no engineering nor technical aspects were critically reviewed and only concern was the price reduction. AI4 stated *“it is prudent when a price goes down either the quality or **the scope of work reduces** with it. Hence the project proponent had to come up with a **rescope of work** that was accepted*. And as for the failed funding arrangement between the GoSL and the nominated funding institute. Besides, AI4 stated *“the failure was mainly due to **higher interest rates**. This has been also verified by the Interviewee AI2 in his opinion but argued *as the Country was recovering from a civil war from three decades and a commercial interest rate at that time was an extra burden to the country’s economy*. With this **reduced scope of work**, the Employer and the Technical Evaluations Committee (TEC) strongly objected to the revised technical proposal. All the interviewees affirmed, as a result, there was no lender*

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**for the project** and it led to contractual conflicts such as **delays in advance payment** and **initial interim payments to the contractor**.

3. Public protests for resettlement delays

AI1 further brought forth the main “*issue of public protests against the project construction without resettling locals affected the contract and parties in it more severely than any other issue reported*”. AI1 stated *at the time of entering into the contract the Contractor was aware of the issue people were inside the inundation area of the reservoir and the contractor has to consider it as a risk for as well*, not only due to the **right of access** but also for **safety reasons**. Therefore, the time duration required to resettle the affected people should have been entered into the contract period was AI1’s argument. The same issue was addressed by AI3 by explaining the because of **the large sum of money being allocated for the Contractors for the detail feasibility and investigations** could have been utilised to nurture the damage Contractor faced due to these delays. AI3 further stated the **Contractor is obligated to minimise the effect arising out of contractual or non-contractual risk** or conflicts as the Contractor has had merged into the finance proposal otherwise choosing an EPC contract is irrational.

4. Conflicts arising out of public protests due to delays in resettlement

AI4 discussing the conflicts arising out of public protests due to **delays in resettlement** pointed out a critical point which was also affirmed by the AI2 during his interview. That is the **drastic change in the Social Impact Assessment report** *where the initial number of approximately 200 families getting affected in 2012 was increased to 1900 approximately in 2015 is a risk that cannot be predicted under any circumstances*. As per AI4 this huge addition of families was the main cause of delay in the project as this initiated the conflicts with other regulatory bodies such as the **Department of Forest Conservation** and **Central Environment Agency**.

AI2 and AI3 both pointed out the resident who cultivated during the 1980s 1990s abandoned their farmland and their houses as the war intensified. *So, there were **no regular administration proceedings such as Land kachcheri, district land use committee at all, or did not get the full functioning.*** During the Social Impact Assessment of the project, the affected families number was 219 but at the end of the compensation paying period, the number increased to 1900s as the divisional secretaries accepted the people's claim for land which was a well-grown jungle after years of abandonment but also the same land has been **considered forest land by the Department of Forest Conservation (DFC) because no Land Development Ordinance (LDO) permit has been renewed** stated AI1.

5. A portion of affected public rejecting the allocated resettlement sites

AI1 states in the issue of a portion of displaced people objecting to resettle themselves in the allocated resettlement areas could have been addressed differently if the Department of Forest Conservation informed the Employer, **of the preparatory works being done to declare adjacent forest area into the reserve during the construction period.** As per AI1 the forest reserves the **public wants to resettle was not a forest reserve at the time of EIA was done.** AI2 and AI3 also confirm the AI1's statement and further states *the requested area was under cultivation by the locals but with the thirty-year war in the questioned area and land, administrative proceedings such as the land kachcheri were not attended by the locals who encroached the land and did the development under LDO permits.* Therefore, the Employer had to carry out a supplementary EIA for the newly proposed land and the people willing to relocate to this site **remained inside the project area raising health and safety concerns.** But AI2 points out they proposed a mitigatory action to discourage the number of people from relocating thereby reducing the land extent by one-fourth of the original proposal of one (01) acre. In AI3's view when considered in environmental context and *"DFC they were **losing forest land regardless of the development or encroachment** but also had to allow new forest land elsewhere again for those **doubtful resettlement claimants** making it a double loss".*

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AI3 stated that “*the story behind the supplementary EIA was the displaced resident due to the development wanted new resettlement areas on downstream of the new reservoir thinking as they are **the affected from this they should also be benefited from this development***”.

6. Lapses in coordination external parties and project entities

All the interviewees agreed upon the **lack of coordination between the government authorities and bodies**. AI1 stated the “*personal attitude of the external government officers had a bad influence on the contract mainly not working together towards a common goal but trying to **prove their regulatory superiority instead***”.

7. Sand deposit discovery

All the interviewees agreed the **discovery of sand** in the project area which attracted sand miners from all over the country had adversely affected all the parties to the contract.

AI3 stated as per the contract the Employer has to supply the earth, aggregate, and sand, free of charge to the Contractor and during this time the land was owned by the DFC and land acquisition process for irrigation department was on the way as per Mines and Mineral Act (MMA) the ownership of the mineral was with the Government and the regulatory body was the Geological Survey and Mines Bureau (GSMB) and under GSMB assessment the Contractor excavated the sand in the construction area and paid the required royalties and levies and AI3 further stated at that time in 2015/2016 there was a **sand shortage in the country** and lots of parties made use of the situation and obtained mining license and engaged in the sand mining. They were supported by higher powers at that time to an extent the Contractor had to purchase sand from sand miners for some time. But unfortunately, the government audit department is querying the Contractor for the **used sand in the project and the number of royalties paid without considering**

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**the sand purchased from sand miners** mentioned AI4 during his statement. AI2 also explained the **health and safety concerns** raised in the area due to deep excavations done in the vicinity and the **Contractor had to bear additional cost for maintenance and repairing the temporary roads** made by them for the exclusive use of construction was used by **sand miners for sand transportation**. In Addition to that AI4 explained while the contractor was following the Environment Protection License (EPL) and other conditions by the GSMB and Central Environment Agency (CEA) the sand miners who were mobilised to site **breached all the conditions and harm environment drastically**. Also, AI4 mentioned, *“the temporary roads constructed for the exclusive usage of the contract the sand contractors also started using the same roads and the contractor had to allocate his resources to maintain the roads. As there was not clear supervision on the sand contractors the employer also had minimum control over them as there was no relationship between them”*. Also, AI4 pointed out the design change in the toe filer of the main dam was due to material shortage as a result of excessive sand mining

All AI1, AI2, and AI3 stated the **sand was concerned as a commodity** at the period and the authorities such as GSMB took actions to excavate the sand as there was a sand scarcity in the country.

#### 8. GSMB/ DFC bespoke restrictions

AI3 explained for *“the headworks the estimated earth filling was more than 1.4 Million-meter cubes. The distance from allocated borrow areas is financially very critical for a quantity that big. As the **project progressed there was no land acquired** and all the borrow areas were under the forest, therefore, the contractor had to act as per their requirements and there was a **depth limit imposed both by GSMB, Department of Wildlife Conservation and DFC** which made more land has to be found to fulfil the earth demand”*. The newly proposed **land was very far from the original borrow areas** and had to **prepare temporary access across a forest area**.

AI2 confirmed this and further stated the **Contractor gave notice for additional costs and time**. The situation worsened as the public restricted the transport of earth

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along public roads as its been quiet damaging the road and public safety. Thus, completely new roads were made to overcome this. The Road Development Authority (RDA) and Provincial Road Development Authority had their bit of conflicts with the contractor as this stage as per transport license issued by GSMB there is partial allocation made for the maintenance of roads, but as that is not being given to the Provincial Road Development Authority it affected the Contractor badly. These issues affected the contracts all key performance indicators cost, time, and quality.

9. Committee on Public Accounts (COPA) Summon

AI1 and AI2 were summoned to the COPA to **explain the delays and sudden increase of the compensation budget**.it does not have a direct impact on the contract but on the contrary, the summoning was issued due to all **the delays and mishaps most raised by the external parties**. AI2 stated as a result of the explanation made to the committee the approval granting has been expedited.

10. Environment Protection License (EPL) extension

AI2 and AI3 explained the **EPL for the project were issued only for 3 years**, but at the original EIA stage, the complete project period was mentioned to the CEA as 5 years for the complete reservoir development scheme development including the left bank and right bank canals. In this case, EPL was not extended as **the initial EIA has been amended by a supplementary**, and that one was not approved at that time. Without a valid EPL, it is illegal to carry out construction work, therefore, the **Contractor had to hold suspend the work** while the **Employer had to bear the damage as he was the liable party for the license** and supplementary EIA.

## 11. The compensation

As per AI2, the people were given high hopes by local politicians and NGO's about a **highly benefited compensation package**. But the Employer had to **work under the regulatory constraints** and previous experience therefore when the **final compensation package was informed to the affected people** it was ignored and *they expected the previous proposals. Hence there was a doubt in the people that they will not be compensated at all as said earlier they did not possess the required legal documents to prove their entitlements.* AI1 and AI2 confirmed the cabinet approval obtaining for compensation was affected by the **government change** considerably. The reasonable proposals were taken out comparing with the compensation package awarded to the people affected by civil war and therefore it raised concerns among people who stood their grounds even at the peak time of war and being displaced due to development. Therefore, the nature of the **people was quite aggressive**. AI3 explains that compensation had two main categories housing and income loss. As the farming community was the main party to get affected by this development lots of non government organisations influenced by politicians interfered to comfort them but the Employer had a regulatory constraint to work in.

## 12. Recent encroachment of forest land

AI2 explained how the locals encroached forest land and went to the politicians to justify their illegal deeds. The FCD, on the other hand, tightened the grip on the Employer due to this issue of forest reserve encroachment. AI3 also confirmed AI2's statement and also added the Employers personal and machinery went into questioned forest area to clear undergrowth without disturbing the larger trees as per recommendation from the DFC head office but were arrested and released and broadcast in the news.

**Case A- Summarisation of the patterns and facts and development of the causal relationship – Incidental base**

Table 4-3: Case A - Summarisation of the patterns and facts from the narrative

Conflict	Cause	External parties	Contractual influence
1. Financial limitations	1. Higher interest rates	1. External Resource Department 2. Foreign funding agency	1. The lender for the contract was lost 2. Inters for delayed payment claimed 3. Rescope of works
1. Public protests for resettlement delays	2. Errors in the initial SIA 3. Non-renewal of LDO permits	3. Affected local residents 4. District/ Divisional Secretaries 5. Department of Forest Conservation 6. Central Environment Agency. 7. Survey Department 8. Valuation Department	4. Contractors right of access to site breached 5. Health and Safety issues. 6. Time overruns due to protests 7. Claims from Contractor for damage

*External stakeholder influence leading to conflicts in irrigation projects: a narrative analysis*

Conflict	Cause	External parties	Contractual influence
2. Public protest for new resettlement area	4. New resettlement area 5. Non-renewal of LDO permits 6. Lapses in coordination between external parties and Project Entities 7. Lapses in coordination between external parties	9. District/ Divisional Secretaries 10. Department of Forest Conservation 11. Central Environment Agency. 12. Local /National politicians 13. Media 14. Police	8. Health and Safety issues. 9. Frequent disruptions to work progress 10. Time overruns due to protests 11. Cost overruns 12. Claims from Contractor for damage
3. Project area occupancy by sand miners	8. Use of temporary roads for by external parties 9. Use of EIA dedicated borrow areas by external parties 10. Sand shortage in the country 11. Safety issues 12. Political influence	15. Sand miners 16. Geological Survey and Mines Bureau 17. District secretaries 18. National politicians 19. Department of Forest Conservation 20. Central Environment Agency. 21. Police 22. Local residents	13. Obstruction for construction works 14. Health and safety issues 15. Cost overruns 16. Unforeseeable material shortage

*External stakeholder influence leading to conflicts in irrigation projects: a narrative analysis*

Conflict	Cause	External parties	Contractual influence
4. GSMB bespoke restriction for borrows	13. A revised maximum depth for borrows issued inside the inundation area	23. Geological Survey and Mines Bureau 24. Department of Wildlife Conservation 25. Road Development Authority 26. Provincial Road Development Authority	17. Time overruns due to the delays 18. Cost overruns
5. DFC objection to release forest land	14. GSMB changed mining parameters 15. For the new borrow areas additional temporary roads 16. Delays in land acquisitions	27. Geological Survey and Mines Bureau 28. Department of Forest Conservation 29. Central Environment Agency.	Time overruns due to the delays in approvals Cost overruns
6. Committee on Public Accounts (COPA) Summon	17. Errors in the initial SIA 18. Delays in land acquisitions	30. Committee on Public Accounts 31. Media	

*External stakeholder influence leading to conflicts in irrigation projects: a narrative analysis*

Conflict	Cause	External parties	Contractual influence
7. Environment Protection License (EPL) extension delay	19. Initial EPL has not covered total contract period 20. EIA amendment by a supplementary 21. Forest department reject to release new land	32. Department of Forest Conservation 33. Central Environment Agency	Time overruns due to approval delays Suspension of construction work
8. Public protest against compensation	22. The employer had to work under the regulatory constraints 23. Government change	34. Local residents 35. Local politicians	Time overruns due to protests Frequent disruptions to construction progress

## **Analysis of Case B**

Four people were interviewed for the analysing purposes of the case. Out of these four interviewees, three represent the Employer, Employers representative, and one interviewee is from the Contactor. All four (04) of them have been involved in this project and as well as the development of the main water source of the project. Hence they hold in and out knowledge of the interference of external parties which made contractual influences. The employer's representatives included a procurement specialist, resident engineer, and a planning engineer while the Contractors representative was the project manager.

### **1. Other contractors / Competitors**

BI1 stated even though the guideline to dealing with the unsolicited proposal was issued at the end of 2016 under "Swiss challenge" after the contract signing. But as the initial cabinet approval was granted to the complete proposed irrigation scheme counteroffers were invited from other interested parties but no counteroffers were submitted till the 2017 deadline. Hence the original project proponent commenced the works. BI2 and BI3 mentioned the period to submit counter proposals were inadequate therefore other contractors did not take part in the swiss challenge. On the other hand, BI4's understanding of the matter was the project proponent was already mobilised adjacent to the project area with another project, the other bidders cannot provide competitive bidding. But as a result, the construction commencement was delayed.

### **2. Design change**

As per BI1 and confirmed by BI4 this project was unsolicited but the initial Feasibility Studies, EIA, Social Impact Assessment (SIA), and Archaeology Impact Assessment was completed under the Main reservoir development in the year 2012. But with the practical and technical formalities which raised due to the **lack of findings during the feasibility stage and post-war developments in the Padaviya, Welioya areas** the initial canal trace was shifted and extended. There also DFC did not release any forest land but issued no objection only to carry out the EIA works.

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*“At a time, the issue with approvals and license was considered as the most difficult part in the project and both the employer and the Contractor believed the construction part is much easier than that” stressed BI2.*

### 3. Abandon tank development under Contact

As per BI3, the ownership of any water body is distributed among the irrigation department, Mahaweli Authority Provincial council, and agrarian development. Out of these four, all the major schemes are under the irrigation department and Mahaweli authority and minor tanks are under the purview of the other two (02) bodies. Once again, the contractor’s credibility for investigation challenged by both BI1 and BI2 for the following reason. Under major irrigation scheme development, this is another issue the conflicts between major development and minor authorities. **One abandon tanks were proposed to be developed under the Main Canal contract** and after the development is done and the tanks are fed from the major scheme the provincial authorities who owned the water body claim their entitlement for it, as there cannot be expenditures from both regulatory bodies and the Employer cannot bear expenses for development doesn’t own by them. BI2 emphasized, *“how can payment be done for something that doesn’t belong to the irrigation department?”*. But BI4 argued as the *preliminary designs and work scope is submitted for the Employers review at that point this matter could have been identified and attended then and there*”. BI2 and BI4 mentioned **due to this reason the contract** has delayed and hydraulic structure has been added to the design. But BI4 stated the relevant **additional payment for the variation work has not been certified** yet by the Employer. BI3 explained this issue is also to do with the **lack of coordination between the government agencies and the department**.

### 4. Restriction for tree removal by DFC

BI2 explained even after all the works are complete the earning of benefits are stopped due to some minor things such as all the newly resettlements Agri land are developed and irrigated and ready to be cultivated but the trees are there in the



middle of paddy lands just because the **forest department is not allowing to take down the trees without the EIA approval**, the project government which already has approved as a national priority project is at a standstill after spending millions of USD due to **regulatory and human delays and faults**. BI3 explained the *“issue will be affected in the future because the paddy land preparation is not as easy as the cultivating”*.

#### 5. Sustainable development

There is no issue in conserving the environment all the interviewees acknowledged, but what should be avoided is the unreasonable objection. for example, BI2 stated when a canal trace is shifted about 50-100 m side a forest reserve after prior approvals are given, the number of trees to be removed will not be considerably different from the original proposal. In those kinds of scenarios when there is a loss there is also a saving in the original location. BI1 further states the **available technology limitation** is another issue when dealing with foreign contractors, BI1 further stated: *“the employer being an expert in engineering field still doesn’t qualify to monitor and supervise all engineering technology new and unfamiliar”*. Such as TBM’s which are quite new to Sri Lankan construction context. But with time the changes to design and construction due to lapses in investigations will overcome by the development of the **technology used for investigations**. As the narrative has constructed the point tried to prove by BI1 was the design changes due to investigation failures will be mitigated in the future and therefore the conflicts with external parties will be reduced.

#### 6. Mining License and Explosive permit approvals obtaining

BI1 stated the **work commenced without an Environmental protection license**, therefore obtaining other licenses such as mining license from the GSMB and explosive permit from the Défense ministry was impossible. Hence a request from the MIWRM was made at the project steering committee and work commenced under a temporary issued Environment license. BI2 acknowledged the shortcoming

but insisted the DFC should be more cooperative with national projects and the **DFC is not stopping the works but delaying**. BI4 mentioned in his statement the **government authorities should be aware of each other's development plans** and be cooperative otherwise implementing development projects will always be problematic and raise lots of conflicts and disputes. All the interviewees acknowledged the construction process has whole got delayed due to this issue.

#### 7. Effect of policy changes

All the 4 interviewees affirmed at the same time the contractor was exempted from all the taxes, levies and royalties as per the Signed EPC contract, but with the policy changes in the department of fiscal policy, the special approval provided to the particular project was lifted and was treated as an ordinary project. BI3 further stated in the case of customs when they are imposing the taxes on the contractor for imported taxes when they are already protected by the contract stating the Employer is liable to pay taxes or otherwise if it is paid by the Contractor the employer has to reimburse it back. It is the same with GSMB royalties and what they do not foresee is if the reimbursement is not done on time there will be an interest charged and thought the authority can show as income but altogether it will be a loss for the country. This was confirmed by BI4 in his interview.

BI3, made a valuable point in his discussion stating with the government change the priorities has shifted therefore the **finance allocations for irrigation development are a bit reluctant to proceed** as a result the outstanding payment due to the Contractor is about 1/4<sup>th</sup> of the contract price and **the Contractor has already submitted his delayed payment interest claim**.

#### 8. Courts point of view & Land acquisition act

All the interviewees agreed that the person objected against LAA and the **divisional secretary office took the issue to courts**, this land plot was at the starting point of the canal and while all the construction was processing in the canal this part

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remained untouched. The divisional secretary had to go to courts to get an eviction order to proceed with the construction works and the case settled in the Magistrate courts after the **Employers processed the land occupants damages for harvest loss and land compensation.** BI2 mentioned In this criteria a limited number of cases were raised as the canal trace was to be shifted when necessary but not in the case of the starting point. But during the canal trace shifting the EIA concern was there but as the place was a private own land the involvement of the forest department was not required.

In regard to BI1 the main point of concern was the **person who has encroached a crown land and developed was refusing to allow the contractor to enter into his land** and start the construction. This was the **start point of the canal and no adjustment to the canal path was possible.** BI4 stated hence, *“the divisional secretary raised a case in the courts to get an eviction order but the resident argues he is losing his way of income and his livelihood which was accepted by the courts and until the district secretary and the divisional secretary explained the real situation”* the court allowed the contractor to move into the land and proceed the works.

## **9. Terror attack and explosive scarcity**

BI2 and BI4 stated with the Easter attack there was a **banned-on issuing explosive to all the projects in the country** until a proper audit is carried out to find where the security lapse was. This was a critical time for both parties as per the **site safety and the delay to the construction.** The employer issued letters to the ministry of defence and the explosive controller to start issuing the explosive for this project as the explosive were under the protection of the police 24 /7 this condition continued for 2 months and there were **mitigatory actions taken to reduce the impact of the delay.** But BI1 says after defence ministry stopped issuing explosives to any contractor or a quarry after the April 21, 2019 attack until a proper audit of the already purchased explosives was carried out. In the canal, there was lots of **construction blasting to**

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**be carried out to reach the required depths in the canal bed.** because of this, the contractor submitted a **letter of disruption for progress due to a shortage of material.** There were other available methods to excavate the rocky grounds other than the blasting therefore the contractor was advised to take mitigatory actions to **control the delays by using other methods such as breakers and track drills.**

#### 10. Third-party damages and Media

BI2 and BI3 mentioned about the construction blasting in the canal excavation there were complaints from the resident **cracks have been developed in their houses and asked for compensation** also with the increased depth of the canal another complaint was the **decrease of water content from the domestic wells.** BI2, BI3, and BI4 confirmed that the residents blocked the roads and some took the keys from operators and that even made **headlines in local media.** BI1 stated, *“the media’s involvement also seems bias as they never paid attention to the development but point out the issues without evaluating the complete scenario”*. BI4 mentioned as a preliminary crack survey was carried out before the construction the honest issues were dealt and finished while the unrealistic claims were disregarded to prevent it from being a practice in the future.

**Case B- Summarisation of the patterns and facts and development of the causal relationship – Incidental base**

Table 4-4: Case B - Summarisation of the patterns and facts from the narrative

Conflict	Cause	External parties	Contractual influence
1. Implementation of the Swiss challenge	1. Department of Public finance introduced Swiss challenge 2. Counteroffers are invited	1. External Contractors 2. Department of Public finance	1. Time overruns due to delayed commencement of construction
2. DFC objection to release forest land	1. Due to design changes from investigation failures	1. Department of Forest Conservation	1. Time overruns due to the delays in approvals
3. Ownership of abandon reservoir	1. Abandon tanks were proposed to be developed under the Main Canal contract 2. Provincial authorities claimed the entitlement	1. Provincial Irrigation Department 2. Provincial irrigation ministry	1. Rescope of works 2. Time overruns due to varied work 3. Delayed payment for varied works
4. Restriction for tree removal by DFC	1. EIA amendment by a supplementary	1. Department of Forest Conservation	1. Time overruns due to the delays in approvals

Conflict	Cause	External parties	Contractual influence
2. Mining License and Explosive permit approvals obtaining	<ol style="list-style-type: none"> <li>1. Expiry of the initial EPL</li> <li>2. EIA amendment by a supplementary</li> </ol>	<ol style="list-style-type: none"> <li>1. Geological Survey and Mines Bureau</li> <li>2. Defence ministry</li> <li>3. CEA</li> </ol>	<ol style="list-style-type: none"> <li>1. Frequent disruptions to construction progress</li> </ol>
3. Effect of GoSL policy changes	<ol style="list-style-type: none"> <li>1. The government change over</li> <li>2. The agreed tax/levy exemptions were not granted by the department of fiscal policy</li> <li>3. The government prioritising different areas of development</li> </ol>	<ol style="list-style-type: none"> <li>1. Department of Fiscal Policy</li> <li>2. Sri Lanka Customs</li> <li>3. Geological Survey and Mines Bureau</li> </ol>	<ol style="list-style-type: none"> <li>1. Claim due to legislation change submitted by the Contractor</li> <li>2. Employer is liable to reimburse the contractor for any agreed tax/levy exemption Contractor is paying</li> <li>3. Inters for delayed payment claimed</li> </ol>
4. Resident objection to hand over the land for development	<ol style="list-style-type: none"> <li>1. The landowner at the initiation of the canal resisted evicting from the land</li> </ol>	<ol style="list-style-type: none"> <li>1. Courts</li> <li>2. Resident</li> <li>3. Divisional secretary</li> </ol>	<ol style="list-style-type: none"> <li>1. Contractors right of access to site breached</li> </ol>

Conflict	Cause	External parties	Contractual influence
5. banned-on issuing explosives	<ol style="list-style-type: none"> <li>1. Terror attack on Sri Lanka</li> <li>2. Banned explosive issuance until auditing</li> </ol>	<ol style="list-style-type: none"> <li>1. Ministry of defence</li> <li>2. Explosive controller</li> <li>3. Police</li> </ol>	<ol style="list-style-type: none"> <li>1. Unforeseeable material shortage</li> </ol>
6. Residents protest demanding damages	<ol style="list-style-type: none"> <li>1. Complain about damage to residents from construction blasting</li> <li>2. complain of water level decreasing due to deep excavation</li> </ol>	<ol style="list-style-type: none"> <li>1. Residents</li> <li>2. media</li> </ol>	<ol style="list-style-type: none"> <li>1. Time overruns due to protests</li> <li>2. Health and Safety issues.</li> </ol>

### **Analysis of the case C**

CI1 and CI2 stated the “*project proponent submitted the preliminary proposal in 2009 with a pre-feasibility report*”. CI1 and CI2 affirmed that after Cabinet Appointed Review Committee approval the MOU signed between the Project Proponent and the Employer, the Project Proponent submitted the detailed Feasibility study in 2012 and based on that the EPC contract was signed in between the parties in 2014 with **changes to the feasibility study and the details design** due to social and environmental issues raised by external parties such as local residents, DFC, CEA, National Building Research Organization (NBRO) and Mahaweli authority. CI2 confirms this was considered as one of the **most complex hydrological engineering projects** as well and Geological and geotechnical wise. CI1 and CI2 acknowledged **hydrologically this contains 4 major river basins** and combines with the Mahaweli authority. In Geological and geotechnical wise this proposal contains **underground deep tunnelling** for length more than 30km, going underneath major mountain ranges where the interested parties are mainly NBRO and GSMB mentioned CI2. But as per CI1 and CI3 “*the most critical point of this project, it is the Sinharaja forest reserve, which is not only a national heritage but an international heritage declared by UNESCO*”. CI2 explained, “*due to the doubts of the residents as they do not hold the absolute title for the land they have developed and because of that they will not get compensation from the project as the main reason for their objection to the project*”.

**The proposed land for the displaced locals from the construction** area to be given new land in tea growing areas without changing the administrative areas and this raised concerns among the tea growers and Tea Small Holdings Development Authority. Both CI2 and CI3 affirmed the DFC objection to allowing access for investigations to the Sinharaja forest reserve is unreasonable. CI2 mentioned, “*the approval to enter was obtained only through cabinet ministers discussion*”.



#### External parties and respective interest

All three (03) interviewees confirmed due to the involvement of a diverse range of external parties the outcome is unpredictable. Starting from Local community from three 3 districts, CEA, environmentalists, GSMB, NWSDB, Mahaweli water resources, farmers associations, Forest department, UNESCO, mini-hydro power plant operators, small and medium tea planters, media and politicians were some.

CI1 stated the funding arrangements were 85 /15 % from International loan / GoSL. CI3 further explain with the **government change in 2015** the project made media headlines due to the **release of advance payment** which was undoubtedly had no illegal activities involved. As a result, the FCID of police had a part to play in this project. CI1 and CI3 confirmed the case was later steered after proper documentary explanations.

#### Government change over and Foreign contractors

CI1 and CI3 convened the Cabinet Committee of Economic Affairs revived the contract in 2015 June another MOU signed between the parties **separating the works into 2 stages one contained the Engineering design work and other containing the construction** in 2017. With the lease of the Hambanthota harbour, the project importance was again surfaced and the government again restarted the project and allocated sufficient human and technical resources to the Employer. But with the **ground level political changeover** the project staff faced a lot of obstructions and threats from the residents. CI2 and CI3 witnessed the **failure of the Uma Oya tunnels and the damage** caused by it took a major part in these obstructions apart from the politics. Another issue pointed by CI3 was there “*might be the lack of confidence of the locals on foreign contractors as well as engineers in this construction setup may also have taken part in this*”. With all this issue till 2019, the **engineering analysis has not been allowed to carry out in one of the construction sites** out of the total three (03) site.

### **Environment sensitivity**

The fact of DFC's reluctance to allow investigation teams to enter the forest areas was obtained through a **cabinet paper even for a limited access investigation**. As per CB1 and CB3 that is something has to be dealt with urgency is should be the coordination part between the government agencies itself. But CI3 pointed out there are construction projects carried out in the forest reserve area without any obstruction for the DFC and expressed disappointment for treating the same issue in different methods.

### The hydrology and water management

As per CI1 and CI2, the initial water management plan the water from the main two (02) rivers will be diverted to lower command areas of the Udawalawa scheme which results in changes to Mahaweli water management. CI1 further explained with this **additional water, the water management develops into a complex situation** but this too was addressed by the initial designs by allowing a central control point common for both irrigation department and Mahaweli authority.

### Domestic and industrial water demand accomplishment

The National Water Supply and Drainage Board wanted to fulfill their **increasing domestic and industrial water demands till 2050 from this project**, which was one of the key factors to prove the economic viability of the project. As per CI1, CI3 and Cabinet Committee of Economic Affairs the main objective of the was to supply water to the Greater Hambanthota area but with National Water Supply and Drainage Board demand the **complete operation plan was changed including the water balance study**. CIB3 mentioned currently the operation plan is to supply water to Mahaweli controlled area and the saved water is to be transmitted to Greater Hambanthota. This **operation change caused a major delay as the water balance study is high complex scenario development in engineering hydrology with too many variables**. All the interviewees accepted **adverse influence from the issue affected the timeline**. CI2 and CI3 stated this as one of the main issues for not

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finalising the final feasibility study as the Employer requirements may vary with the water balance study or result in termination of the contract without continuing to stage 2.

#### Coronavirus outbreak in the People's republic of China

CI3 stressed with the **recent COVID-19 outbreak** in the People's republic of China the Contractor has given notice of **non-performance under force majeure to the Employer**. CI1 also mentioned as a result of this outbreak the Chinese investigation team located in Sri Lanka is under isolation and sending them out may risk their security. Also, CI1 stressed the health ministry of Sri Lanka has issued a warning in January 2020 under the department of immigration and emigration to suspend entry visa issuance till further notice.

**Case C- Summarisation of the patterns and facts and development of the causal relationship – Incidental base**

Table 4-5: Case C - Summarisation of the patterns and facts from the narrative

Conflict	Cause	External parties	Contractual influence
1. Public protest due to social problems	1. Non-renewal of LDO permits Proposed 2. failure of the Uma Oya tunnels and the damage	1. Affected residents 2. Tea Small Holdings Development Authority	1. Time overruns due to protests
2. DFC objection to allowing access for investigations	1. Due to Sinharaja forest reserve -national/ international heritage	1. Department of Forest Conservation	1. Time overruns due to the delays in approvals 2. Frequent disruptions to work progress
3. Effect of financial policy changes	1. The government change over	1. Cabinet Committee of Economic Affairs 2. FCID of police 3. Media	1. Contract amendment

*External stakeholder influence leading to conflicts in irrigation projects: a narrative analysis*

Conflict	Cause	External parties	Contractual influence
4. Domestic and industrial water demand increment	<ol style="list-style-type: none"> <li>1. Increasing domestic and industrial water demands till 2050 from this project</li> <li>2. Complete operation plan was changed including the water balance study</li> </ol>	<ol style="list-style-type: none"> <li>1. NWSDB</li> <li>2. Mahaweli authority</li> </ol>	<ol style="list-style-type: none"> <li>1. Rescope of works</li> <li>2. Time overruns due to varied work</li> </ol>
5. Suspend entry visa issuance till further notice	<ol style="list-style-type: none"> <li>1. Coronavirus outbreak in the People's republic of China</li> </ol>	<ol style="list-style-type: none"> <li>1. The health ministry of Sri Lanka</li> <li>2. department of immigration and emigration</li> </ol>	<ol style="list-style-type: none"> <li>1. Non-performance of the Contract under force majeure.</li> </ol>

### **Analysis of the case D**

DI1 mentioned this project is initiated under an unsolicited proposal by the foreign project proponent in 2009 and after the MOU signed to carrying out pre-feasibility and preliminary design works the parties enter into an EPC contract. DI2 stated at the time of entering into the contract both parties came into an agreement to start the construction works after the land acquisition is complete as from previous experience it is selected as the best damage control procedure by both parties.

### **Loan quota for Sri Lanka is complete**

DI1 explained the External Resource Department and the proposed funding agency carried out negotiations for more than 2 years till 2018 but due to commercial attributes such as the interest rate and grace period for payback time has not been concluded successfully. DI2 also agreed with DI1's statement and also added the funding constrains or the quota for Sri Lanka has already been complete there for the funding agency cannot lend the money till 2021. Therefore, the **contract price submitted in 2016 is most likely to get affected by price fluctuation.**

### **The GoSL policy changes and land acquisition**

As the land acquisition has already commenced and 40% has been completed at the end July 2018 stated DI1, further mentioned the EIA has been approved and close coordination of with DFC is processed as a result of the political influence. DI1 also mentioned the government will initiate the works before the end of 2019 as this has been a national priority project. Also, DI1 stressed, "*the public are positive towards this development and there was a protest to expedite the works which are unusual in the Sri Lankan context*". DI1 further stated the number of people getting affected high and the majority of land getting inundated is from "Thanthirimale Raja Maha Viharaya" owned land. Therefore, the temple is considered as a critical external party as a result, the contact may influence by the Buddhist Temporalities ordinance.

DI2 emphasized the initiation of the preliminary and preparatory works are under the Contractors' work scope but as the Government has started the works already is a contractual concern and mentioned the Employer was “*noticed of the reason and mentioned the issue will be taken to ADR*”.

**Case D- Summarisation of the patterns and facts and development of the causal relationship – Incidental base**

Table 4-6: Case D - Summarisation of the patterns and facts from the narrative

Conflict	Reason	External parties	Influence
1. Financial limitations	<ol style="list-style-type: none"> <li>1. Loan quota for Sri Lanka is complete</li> <li>2. Higher interest rate</li> </ol>	<ol style="list-style-type: none"> <li>1. External Resource Department</li> <li>2. Foreign funding agency</li> </ol>	<ol style="list-style-type: none"> <li>1. The contract price will be subjected to fluctuation</li> </ol>
2. Effect of GoSL policy changes	<ol style="list-style-type: none"> <li>1. The government change over</li> <li>2. Government body already commenced work</li> </ol>	<ol style="list-style-type: none"> <li>1. National politicians</li> </ol>	<ol style="list-style-type: none"> <li>1. Rescope of works</li> <li>2. ADR will be implemented</li> </ol>



#### 4.2.3. Summary of Main External parties involved in Conflicts

From the cases accumulated 37 external parties were identified to cause conflicts with the project entities, mainly with the Employer. They have been tabulated depending on the type of their establishment.

Table 4-7: Stakeholders and type

Stakeholder	Type	Stakeholder	Type
External Resource Department	Government	Valuation Department	Government
Divisional Secretaries	Government	Central Environment Agency.	Government
Department of Forest Conservation	Government	Media	External
Central Environment Agency	Government	Sand miners	External
Police	Government	National politicians	External
Geological Survey and Mines Bureau	Government	Residents	Public
District secretaries	Government	Provincial Road Development Authority	Local Government
Department of Wildlife Conservation	Government	Local politicians	Public
Committee on Public Accounts	Government	External Contractors	External
Department of Fiscal Policy	Government	Department of Public finance	Government
Foreign funding agency	Finance Lender	Provincial Irrigation Department	Local Government
Affected residents	Public	Provincial irrigation ministry	Local Government
Survey Department	Government	Defense ministry	Government
		Sri Lanka Customs	Government

Stakeholder	Type
Courts	Legislation
Ministry of defense	Government
Explosive controller	Government
Tea Small Holdings Development Authority	Government
Cabinet Committee of Economic Affairs	Government

Stakeholder	Type
FCID of police	Government
NWSDB	Government
Mahaweli authority	Government
The health ministry of Sri Lanka	Government
Department of immigration and emigration	Government

A vast number of external parties has been identified during the narrative analysis of the cases considered. These identified external parties can be classified as discussed in the literature review and presented in Table 2-2. When scrutinised it is evident the most number of external parties represent the “government authorities”.

The external stakeholders were analysed as per the type and magnitude of influence of stakeholders about subsequent laws, acts, and statutes concerning the rate of recurrence in each of the cases considered.

The following external parties fall under the most critical government authority’s category due to the statutory power vested on them by the acts of establishment they are considered major stakeholders for construction.

Table 4-8: Major external stakeholders, category and influence

<b>Stakeholder</b>	<b>Category</b>	<b>Influence</b>
1. External Resource Department (ERD)	Internal / Primary	Statutory
2. Department of Fiscal Policy	Internal / Primary	Statutory
3. District Secretaries	External /Secondary	Official
4. Divisional Secretaries	External /Secondary	Official
5. Department of Forest Conservation (DFC)	Internal / Primary	Statutory
6. Central Environment Agency (CEA)	Internal / Primary	Statutory
7. Geological Survey and Mines Bureau (GSMB)	External /Secondary	Statutory
8. Department of Wildlife Conservation (DWLC)	Internal / Primary	Statutory
9. Committee on Public Accounts (COPA)	External /Secondary	Statutory
10. Police	External /Secondary	Official

Out of the aforementioned external parties the “Central Environment Agency (CEA)” is the most critical government body established by the National Environmental Act of 1980 as discussed in the literature review. Being the main government body for environmental protection and monitoring CEA is responsible for EIA approvals which is the most critical document for construction as irrigation.

In addition to CEA, the most recurrent name illustrated in the summarisation of the patterns and facts and development of the causal relationship for each conflict incident in all the four selected cases was the “Department of Forest Conservation (DFC)”. As per the literature, this department is the regulatory body entitle for most crown land in the country under the forest ordinance.

As been discussed by the experts in the case study the amount of earth, sand and aggregate mined for construction is carried out under the purview of Geological Survey and Mines Bureau (GSMB) which was established under the Mines and Mineral Act. As the regulatory body responsible for issuance of industrial mining license take part in one of the main incomes for the government by earning royalties for mining and borrowing.

As per Table 2-2, the general public the most protected party under the constitution of the Peoples Republic of Sri Lanka holds the fundamental rights to challenge the government's decision at the supreme courts if the livelihood is affected due to government actions, which was established by the literature review.

Hence, it is critical to examine the reasons the irrigation construction project entities collide with the aforementioned external parties during project periods.

#### **4.2.4. The conflict-prone areas external parties and project entities collide**

From the narratives constructed and tabulated for all the cases the most recurrent terms were resettlement, land acquisition, EIA approval delays, on-renewal of LDO permits, lapses in cooperation of external parties and project entities, lapses in cooperation between regulatory external parties and political influence. When these areas as appraised it can be observed a causal link in between them exists.

The following Table 4.9 demonstrates the accumulated common conflicts involved with particular stakeholders identified.

Table 4-9: Conflict and Stakeholder involved

Conflict	Stakeholder	Conflict	Stakeholder
Financial limitations	Government /Finance Lender	Ownership of abandon reservoir	Government/ Local Government
Public protests for resettlement delays	Public	Restriction for tree removal by DFC	Government
Public protest for new resettlement area	Public	Mining License and Explosive permit approvals obtaining	Government
Project area occupancy by sand miners	External	Effect of GoSL policy changes	Government
GSMB bespoke restriction for borrows	Government	Resident objection to handing over the land for development	Public
DFC objection to release forest land	Government	Banned-on issuing explosives	Government
Committee on Public Accounts (COPA) Summon	Government	Public protest due to social problems	Public
Environnement Protection License (EPL) extension delay	Government	DFC objection to allowing access for investigations	Government
Public protest against compensation	Public	Domestic and industrial water demand increment	Government
Implementation of the Swiss challenge	Government	Suspend entry visa issuance till further notice	Government

The summarised conflicts were analysed as per the type and magnitude of influence of stakeholder category of subsequent laws, acts, and statutes concerning the rate of recurrence in each of the cases considered. Following interpretation was acquired.

The resettlement is a lengthy process but the implementation stage was the issue in all the selected cases except for case D. because case D had the advantage to monitor the conflicts areas in the recent irrigation projects and the project entities took steps to mitigate by early commencement of the resettlement works.

To initiate the resettlement works land has to be identified and acquired for the public purpose. If it is a privately owned land the standard procedure is followed and the land will be acquired by implementation section 38 of the LAA, but in the case of an environmentally sensitive area such as forest, the next recurrent term of EIA approvals come in to play. In the particular case of case A, C, and D the affected land by the development are mainly forest land. During the EIA process as the landowner, the DFC has to grant the consent to handover the land for the particular development as per the national environment act. As for the damage to the environment, a remedial plan is contained into the EIA and it is monitored by the CEA throughout the project period. But during the project implementation period, the DFC is regularly changing the status of the terms of conditions agreed. As been discussed in the literature the construction industry is liable to environmental damage to a large extent, therefore, breaches of the EPL may occur unintentionally such in Case A where the machinery and operators were arrested due to trespassing into forest land. Hence the term lapses of cooperation and coordination between external parties and project entities can be witnessed.

Finally the non-renewal of LDO permits. The permits are issued by the district “land kachcheri” to developed crown land under the Land development ordinance. This is an imperial ordinance established to control the forest cover as well as keeping the livelihood of the rural farming community safe. But in the cases, A and B which are war-torn areas for at least three decades and as pointed out by experts the

administrative procedures were not conducted or the license bearers were not able to make the proceeding. This can be observed as a very reasonable justification, but in Case A where the project entities were summoned to the COPA to explain the excessive amount of change to budget allocations due to drastic increment of affected families should be examined for the transparency.

When summarising it is evident all the recurrent causes of conflicts are mainly due to lapses of coordination between regulatory external parties and project entities and mainly to do with the Employer. Therefore the Employer has the duty of care to avoid such conflict from occurring as failure entitles the Contractor to make claims under the law of delict for negligence.

#### **4.2.5. Summary of the most recurrent conflicts with external parties and the influence of the conflicts**

For the total considered cases accumulatively following contractual influences triggered due to the conflicts occurred with external stakeholders based on the rate of recurrence in all the cases.

Table 4-10: Most frequent conflicts

Conflict	Conflict
DFC objection to release forest land	Project area occupancy by sand miners
Effect of GoSL policy changes	Public protest against compensation
Financial limitations	Public protest for new resettlement area
GSMB bespoke restriction for borrows	Public protests for resettlement delays
Implementation of the Swiss challenge	Resident objection to handing over the land for development
Ownership of abandon reservoir	

Following are contractual influences triggered by the most frequent conflicts

Table 4-11: Contractual influence

Contractual influence	Contractual influence
Unforeseeable material shortage	Delayed payment for varied works
Time overruns due to approval delays	Cost overruns
Suspension of construction work	Claims from Contractor for damage
Claim due to legislation change submitted by the Contractor	Obstruction for construction works
Employer is liable to reimburse the contractor for any agreed tax/levy exemption Contractor is paying	Project area occupancy by sand miners
Interest for delayed payment claimed	Time overruns due to protests
The lender for the contract was lost	Time overruns due to protests
Rescope of works	Frequent disruptions to work progress
Time overruns due to delayed commencement of construction	Contractors right of access to site breached
Time overruns due to varied work	Health and safety issues

The following major conflicts were derived from the analysis based on the rate of recurrence and the magnitude of the contractual influence.

### **Public protests**

From the narrative analysis of primary data, it is evident all four selected cases had the conflict of public protests. As per the primary data collected these protests are extremely regular in irrigation projects. As per an expert, the public has weaponised the protest to achieve their demands even when the base root of public unrest is far remote from the irrigation project.

When the particular even of public protest for deprivation of compensation package is considered, the contractor who is getting affected critically is far remote from the



compensation procedures for the affected public from the development. But the result from obstructing the contractor is very effective. The public protests are mainly responsible for the Employer as been discussed in Table 2-3 in the literature review under main standard forms of contracts used in irrigation projects. The protests and strikes cannot be considered an event of force majeure unlike the event of COVID-19 outbreak in the People's Republic of China due to the fact the public protests for resettlement delays could have been avoided if the resettlement process was expedited by the Employer. Besides, the public protests contain the duress due to the loss of livelihood, dwelling making is a potential fundamental case under the constitution hence extra precautions should be taken never to escalate public unrest to that extent.

### **Obstructions from the Department of forest conservation (DFC)**

The frequent obstructions from the Department of forest conservation (DFC) in almost all the project regardless of the status of the project is construction or feasibility stage is very extensive.

The DFC obstruction can be divided into two sectors;

1. Objection to release the forest land
2. Objection to permit entry to forest land.

As nationally prioritised projects by the Cabinet ministers of Sri Lanka, it is undistinguishable the DFC is reluctant to give away the forest land. It was a concern during the primary data collection whether this is a behavioural issue. As the Employer of all the selected projects is also a government body under a cabinet ministry the degrading treatment is unreasonable. Likewise, when under the Land acquisition act when land is proposed for a critical public sector development with proven feasibility after concerning the ecological and environmental damage and evaluated by an expert group of professionals the DFC must be handover the responsibility to the project proponent and attend the other statutory obligations such as monitoring. As the experts pointed out, the DFC objection and restrictions will not

terminate a contract or stop the works it will only cause delay or disruption in the process. Eventually, it is a risk under Authorities activities in table 2-3 and is considered an employer's risk where their Employer is liable to pay damages to the Contractor for any damage.

The objection to release land for development has a repellent effect in the project timeline as it will affect the EIA and environment approval obtaining which is a crucial part of irrigation construction. It was visible in the table 4-3 case A -6<sup>th</sup> conflict where the effect repels in the GSMB mining license and the renewal of the EPL in the project.

Therefore, the alienation of land from DFC is the most critical conflict-prone area in an irrigation construction project.

### **Effect of GoSL policy changes**

As the regulatory and policymaking authority the government of Sri Lanka is strictly subject to change every five (05) years as per the general parliamentary elections. As explained in the literature review the period of a major irrigation construction period alone will exceed three (03) years simply and extend to more than eight (08) years depending on the complexity. From the projects discussed the minimum 30-month construction period does not cover the tedious feasibility stage of the project. Nevertheless, the project with shorter period got influenced by conflicts raised out of GoSL policy changes after regime changeovers.

As the political influence all the sectors of a country, irrigation construction is no different. Most political policy changes are financial base it is evident in the analysis. Mainly in Case B, implementation of swiss challenge a procedure to the dealt unsolicited proposal brought forth by private parties. The compatibility of such a procedure to the Sri Lankan context was criticised by the experts vaguely. As there are many loops to pass a influenced counted bidder or two for the same contract and either sell or give a commission from the winning bidder without risk as the cost of

the preliminary works can be reimbursed from the Employer under this procedure as per the discussion made in literature review relevant to guideline Reference 237 – Dealing with Unsolicited Project Proposals.

As per the contract agreement of the case B, the contractor was exempted from paying taxes, levies, royalties, and other taxes for the earth resources, imported construction equipment, etc. but the department of fiscal policy never declared the project as a special project, therefore, the tax exemption grant was inapplicable under the governing law. This conflict with the fiscal department influenced the contract drastically. The policy change intended to illustrate the government income by cutting down such favourable to contractors and reducing the national budgetary gap between expenditure and income. But as per the influences summarised it is evident the contractor has had claimed the nonbinding payment under the existing contract and has submitted his claim under legislation changes.

To worsen the condition as the GoSL prioritises shifted from development strategies from previous regimes the budgetary allocation also shift. As a reason, the payment for the contractor gets delayed and for delayed payment, the contractor can claim without prejudice of any notice as his right has been breached and the Employer which is a GoSL body has to not only pay the delayed amount but also pay the interest. The reimbursement claims made by the Contractor for legislation changes which was also delayed now have to bear the burden of interest applied upon it.

#### **4.2.6. Chapter Summary**

Analysis of the literate finding collaborated with the results primary data analysis can be considered the most critical part of any research study. This chapter has covered the analysis of research findings by narratives constructed from four (04) selected cases of recent irrigation construction projects as per the set-out objective of the study.

In the process, the conflicts with external parties, external parties, and regular conflict areas and project entities of the irrigation project, the reasons behind such conflicts were deeply analysed.

Finally, the impact of the conflicts has on the contraction project and the contract was analysed thoroughly to determine to provide sufficient guidance to future irrigation construction endeavours to mitigate such conflicts as much as possible.

## **CHAPTER 5**

### **5. CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1. Introduction**

This chapter mainly delivers conclusions and recommendations on the findings of the narrative analysis of the selected four cases concluded in the analysis of the research findings of the study. The research outcomes of setting out objectives have been formulated under conclusions and further recommended areas to improve mitigatory measures for conflict avoidance or control are also proposed under the further recommended area.

#### **5.2. Conclusions under the research objectives**

The research aimed to “appraise the grounds leading to conflicts between the Project entities of the irrigation projects and external parties in Sri Lanka” To achieve the prescribed aim, the researcher carried narrative analysed on four (04) cases of irrigation construction projects in Sri Lanka under for research objectives.

In core, the major recurrent conflicts with external parties and the contractual influence made due to the major external stakeholders are public protests, Department of Forest Conservation objection to release forest land and Effect of GoSL policy. Due to the aforementioned conflicts following influences were the most recurrent and affected the contract parties. Interest for delayed payment claims, Contractors right of access to site breach, Health and safety issues, Time overruns due to approval delays, Suspension of construction work, Contractor claim due to legislation change and Employer is liable to reimburse the contractor for any agreed tax/levy exemption Contractor is paying. The major stakeholders involved with raised conflict are affected local residents, district/ divisional secretaries, department of forest conservation, central environment agency, geological survey and mines bureau,

Department of forest conservation, central environment agency, department of fiscal policy, geological survey and mines bureau, external resource department

Objective-based conclusions are provided here onwards.

### **Conflicts in the irrigation project scenario**

The major external parties for the conflict occurrence were identified and the areas more frequently subject to conflicts were determined. It was witnessed the regulatory bodies are the most frequent external parties to collide with project entities and mainly the Employer. CEA, DFC and GSMB are the key regulatory external parties and the local public was determined as the secondary level most influential external party to conflicts in irrigation projects.

### **Regular scenarios and causes for irrigation projects entities collide with external stakeholders which are most likely to develop conflicts within the contract parties**

As per the finding, the public protests, DFC objection to release the land and GoSL policy changes are the most regular criteria's give reason to conflict occurrence. The regulatory parties and the public considered as the key stakeholders of these conflicts.

### **The reasons behind the identified conflict-prone scenarios and causes concerning specific drivers and barriers**

The parties identified as liable for most critical conflicts as per the data analysis were analysed deeply to verify the most prone dispute areas related to the parties and it was determined the delays and regulatory procedures in the land acquisition and the DFC variations in the terms of reference to EIA as key aspects. Also, the non-renewal of the LDO license for residents in the thirty-year war in the area is a key

factor for conflicts to arise between the project entities and public subject to Public protests in the project areas.

When considering the drivers of reducing conflict-prone scenarios in irrigation construction contracts the government contribution is vital. As the GoSL has already accepted the importance of irrigation infrastructure development as the main development driver and implemented project steering committees district wise and ministry wise the major stakeholders are getting ad hoc solutions for their concerns all the parties get updated on the status quo of the projects.

### **Impact of external conflict-based disputes on the irrigation project performance**

Almost the main causes of conflict arising reasons can be categorised as Employee liabilities. Therefore, most of the damage occurred to the Contractor can be claimed or compensated by contractual provisions and under the common law of Sri Lanka from the Employer. The key areas of the contract getting critically influenced by the conflicts are mainly delayed payment, interest for delayed payment, health and safety issues, frequent disruptions for works, delays due to approvals. All these influences directly affect the main key performance indicators time and cost constraints of the contact adversely.

### **5.3. Limitations**

Mainly, the scope of this study was limited to the Sri Lankan context of irrigation construction projects. The sample projects selected were of EPC contracts with Foreign contractors under unsolicited project proposals due to the recent trend prevailing in the irrigation sector.

#### **5.4. Further recommended research areas**

As been identified the Irrigation construction contracts are frequently influenced by project entities conflicts with third parties. Following the recommendation for further research emerged from the current study to mitigate such conflicts from occurring;

1. Discuss the mitigatory measures applicable to reduce conflicts between external stakeholders and project entities in irrigation construction
2. Discuss the resolution methods available under the common law to resolve possible non-contractual conflicts amicably in irrigation projects critically comparing the duty of care and negligence of the project entities.
3. Provisions to implement a superior authority to oversee overall development of civil engineering projects with substantial jurisdiction to overrule regulatory bodies prejudice to a particular project



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## **APPENDIX A: INTERVIEW GUIDELINE**

### **INFLUENCES OF CONFLICTS BETWEEN EXTERNAL PARTIES AND PROJECT ENTITIES ON IRRIGATION PROJECTS: A NARRATIVE ANALYSIS**

*Dear Sir/Madam,*

*Request for a convenient time to conduct interview to gather information for the thesis on “External stakeholder influence leading to conflicts in irrigation projects: a narrative analysis”*

*I’m a postgraduate student of the Department of Building Economics, University of Moratuwa following MSc. in Construction Law and Dispute Resolution. As a part of the Masters degree course, I’m conducting a research on the topic of “External stakeholder influence leading to conflicts in irrigation projects: a narrative analysis” under the supervision of Dr. (Mrs) Chandanie Hadiwattage.*

*I would like to thank you for dedicating your valuable time to attend the interview session under primary data collection and the information you can provide related to .....would be greatly appreciated. This interview will only take 30-45 minutes to complete.*

*All the information gathered from this interview will be kept strictly confidential and this research is intended for educational purpose only, and not for any commercial or any other purposes.*

*Thank you  
yours Faithfully  
Researcher*

*N.A. Waruna*

**Section -1**

General Information of the Respondent	
Name	
Organization	
Type of Organization	
Profession / Designation	
Working Experience in the construction Industry	
Working Experience in particular project	

General Information of the Project	
Name	
Location	
Scope of the works	
Employer	
Contractor	
Type of Contract	
Contracted amount	
Original contract period	
Funding institute	
Contracted amount	

## **Section- B**

**Please note the interview will structured as per the following.**

### **Project Name**

1. Please provide a general Description of the Project:
2. The initiation of the project (Employer / Project Proponent)
3. Can a time line be defined for key miles stones of the project from the proposal initiation
4. At each time phase whom were the external parties the project entities cooperated with?
5. Can you explain the conflicts occurred between external parties/ stake holders during the project period including pre-feasibility stages, what were the causes for the conflicts? moreover, how the conflicts influenced the project in contractual terms.
6. Any special notes need to be considered during the research that you may find worth searching references to the research subject?