INTERNATIONAL CONFERENCE ON MULTI-NATIONAL CONSTRUCTION PROJECTS
"Securing high Performance through Cultural awareness and Dispute Avoidance"
SHANGHAI, CHINA
November 21-23, 2008

ADDIS ABABA RING ROAD PROJECT:

A Case Study of a Chinese Construction Project in Ethiopia

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ABSTRACT

The Federal Democratic Republic of Ethiopia is becoming a prosperous construction market generally. Addis Ababa Ring Road Project used to be the first important project by which Chinese contractor open huge potential market in Ethiopian. This case study offers a window into the working conditions, staffing arrangements, project organization, claims processes, and political dynamics associated with the Ring Road project, a Chinese constructed project in Ethiopia. The case study also highlights how Chinese contractors perceive their strengths, weaknesses, opportunities and threats relative to both domestic firms and western competitors.

Keywords: Chinese Contractor, Addis Ababa Ring Road Project, SWOT, Western Contractor

1. INTRODUCTION OF PROJECT BACKGROUND

1.1 Ethiopia and its Road Infrastructure

The Federal Democratic Republic of Ethiopia, a landlocked African country, covers a territory of 1.133 million square km, has a population of 77.4 million composed of 80 ethnic groups, and has a GDP per head of $100 per person. Alongside Congo and Myanmar, Ethiopia possesses the lowest GDP per head of all countries worldwide (Pocket World in Figures, 2006). To revivify the domestic market and move toward a market economy, the Ethiopian government launched an economic reform program in 1992 (Investment and Innovation Policy Review-Ethiopia, 2002). In order to restore Ethiopia's road network and develop institutional capacity within the road agencies, the Federal Democratic Republic of Ethiopia passed policies, regulations and legislation in 1997 under the auspices of the Road Sector Development Program (RSDP). The RSDP was formed to provide a coordinating guideline for planning and supervising road projects around the country.

By 2002, the total road network had grown to 33 297 km, of which 4 053 km (12%) were paved and the remaining 29 244 km (88%) were gravel. However, large parts of the country still have no access to road transport resulting in difficult access to social services and markets for agriculture outputs and goods inputs.

1.2 Chinese Road Constructor in Ethiopia

Chinese contractors are attracted to Ethiopia for its political stability, consistent growth, and relatively wholesome legal system as compared to many other African states. The majority of the Chinese companies work in some form of infrastructure construction; a significant proportion engages specifically in road construction. Road projects tend to be funded via three dominant sources:

- Projects funded by loans from the World Bank, African Development Bank and other such institutions. The projects are awarded through some form of competitive international bidding;
- Projects funded through Chinese government loans or financial aid to developing countries, and
- Projects won through international bidding, financed by the Government of Ethiopia.

Strengths	**Opportunities**
• Construction experience in developing countries • Low-cost Chinese work force as compared to Western countries • Fiscal stability and low inflation • Support from democratic national government • Friendly relationship between China and Ethiopia	• RSDP and dramatic increase of Road Construction Projects compared to the rest of Africa • Infrastructure development, including telecommunications • Increased and stable funding • Mining and resource development • Access to other national markets e.g. Sudan and Uganda
Weaknesses	**Threats**
• Lack of skilled, semi-skilled labour • Weak communications / infrastructure • Low standards of health and safety and occupational hazards on jobsites • Most construction materials imported from abroad e.g. fuel, bitumen, and cement • Internal managerial problems	• Most funding from abroad • Increased competition from other nations such as Korea, Pakistan and JVs • Failure to resolve some compensation claims • Continuing war between Ethiopia and neighbouring countries Somali and Eritrea • Riots

Figure 1 SWOT analysis for Chinese Road Contractors

Many Chinese construction companies perceive a serious disadvantage compared to western firms due to a relative lack of skilled labour, management training, and communications infrastructure. Despite the perceived shortcomings, Chinese construction companies have proven their ability to stay cost-competitive with Western firms. In the scramble for market share, low cost continues to be important in maintaining a competitive advantage. The SWOT chart in Figure 1 illustrates the strengths, weaknesses, opportunities, and threats generally expressed by Chinese contractors that work in Ethiopia.

The government of Ethiopia has officially welcomed Chinese construction companies as a relatively inexpensive alternative to Western companies. The Chinese construction companies may not achieve large profits, but they are gradually taking up more corners in the Ethiopian construction market. Chinese contractors have done particularly well in sectors such as road infrastructure, where projects are awarded on a competitive basis and low cost is a key differentiator.

1.3 Addis Ababa Ring Road Project

Addis Ababa, which means *new flower*, is currently Ethiopia's largest metropolis, an official diplomatic capital of Africa, and the fourth largest diplomatic center in the world. The city rises from 1 800 to 3 200 meters above sea level. As the national economic center, Addis Ababa receives approximately 54% of Ethiopian investment.

The Addis Ababa Ring Road Project was initiated as part of the city's commitment towards implementing the city plan and enhancing circumjacent development. In 1998 China Road and Bridge Corporation (CRBC) signed a contract agreement with Addis Ababa City Roads Authority (AACRA) for the project. The contract price to complete the Ring Road project was US$ 86.02 million, US$ 67.25 million in the main contract for the road construction and US$ 18.77 million in a supplemental contract.

The contract with the AACRA included the construction and upgrading of 33.4 km of highway, which included the upgrading of 14.2km of bituminous asphalt concrete surfacing and the construction of 19.2km of new road, 41 new structures, 6 flyover bridges, 23 pedestrian bridges, and 12 culverts.

The Ring Road was completed in 2004, six years after commencement. Local residents were content with the project for several reasons, The project allowed heavy vehicles entering the city of Addis Ababa from the main radial routes to bypass portions of the city; mainly, it became possible to avoid the city center. The project reduced traffic congestion in the area and linked neighborhoods with market places, schools, churches and clinics. The diminishing traffic congestion in turn reduced the risk of traffic accidents. Following completion, the project received accolades in the local press and was officially dubbed the 'Ethiopian First Road' and the 'Milestone Road'. The positive recognition for the project helped CRBC establish their reputation in the local construction market. Since the completion of the project, CRBC has expanded its business in Ethiopia significantly.

2. CASE STUDY OF THE PROJECT

2.1 Project Organization

Project entities are those individuals or groups who will be affected by the project. Project entities include senior managers directly or indirectly involved, end users, suppliers and strategic partners. In the Ring Road project, the key project entities are illustrated in Figure 2

Project Sponsor: Primary funding for the Ring Road project came from the Government of Ethiopia, which had the following responsibilities:

- Setting the project objectives, including the environmental impact study;

- Allocating funds and monitoring expenditures;
- Supporting the project politically;
- Starting up the project, and
- Shepherding the project through contentious political debates.

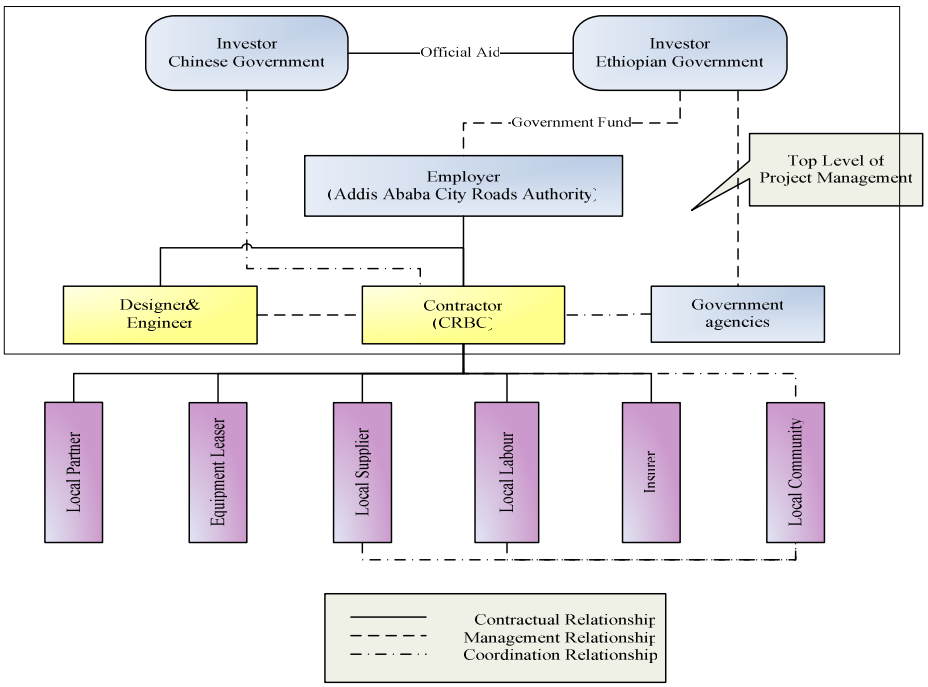


Figure 2 Project Entities Structure in the Ring Road Project

Owner: Addis Ababa City Roads Authority (AACRA), one of the key government agencies involved in the project, was responsible for defining the broad outcomes sought by the Government for the management, use, and maintenance of the Ring Road. Over the life cycle of the project, the role of AACRA evolved from direct supervision of CRBC's performance to contracting and supervising operators in the maintenance of the road after construction. During the construction period, the functions of AACRA focused on:

- reviewing and following up issues presented in consultant's progress reports;
- reviewing and processing of contractors' and consultants' certificates of payment;
- assisting contractors in obtaining relevant government clearances for importation of equipment and materials and work permits for foreign personnel;
- facilitating actions of other government agencies regarding land acquisitions, and removal of obstacles that affect the works;
- undertaking inspections to works sites;
- meetings with affected communities, and
- assessing the environmental impact.

Designer and Engineer: The complexity of the Ring Road project necessitated that a large volume of work be completed by consultants; thus, a heavy load was placed on supervising engineering design and works. During the course of the project, the owner retained the design consultant, Parkman Limited, a UK based firm, to act as a quality control engineer, to supervise the many consultants involved in the project and to ensure the road and

infrastructure was constructed in accordance with the design objectives and specifications. AACRA believed that one consultant playing the dual roles of designer and engineer could better make the approved design understood and implemented. Due to the incompleteness of the original design specification and work conditions on site, the Engineer issued around 200 design variations in the 6 years. Inadequate specifications and the resulting variations led to substantial schedule-growth in the completion of the project.

Contractor: The construction contract between AACRA and CRBC was based on the FIDIC form of contract, an internationally accepted form that was developed by a UK based organization of professional engineers. CRBC was required to perform the construction activities in accordance with the approved project plans and specifications. These documents contained detailed requirements to achieve acceptable overall quality on the Ring Road project. CRBC set up a main office and four sub-site offices to carry out the construction.

Government Agencies: The Ring Road project could not have been undertaken without the support of government agencies in providing permits, temporary traffic control, and resolving emergent issues related to the project. The government was supportive as the Ring Road project represents the most important road project in Addis Ababa.

Contracting Organizations: Insurers, equipment leasers, local suppliers and local partners were all involved in the Ring Road project through contractual relationships. The language executed in these contracts was English.

- Insurance companies which provided all-risk construction insurance and car insurance for the Ring Road project. All insurance companies were local Ethiopian firms;

- The Equipment leaser rented out construction equipment to CRBC when needs could not be met by CRBC, and supplied spare parts to counter the three month delay observed when importing parts from China;

- Local suppliers supplied fuel, cement, reinforcement, bitumen, and other consumables. CRBC built positive relationships with suppliers, many of which evolved into long-term collaboration with CRBC beyond the Ring Road project, and

- Local partners included security firms, a customs clearance agency, and bank.

Community Organizations The community did not have direct influence on the Ring Road project, but the degree of acceptance by the community had an indirect impact on the attitude of some of the contractual partners. In Ethiopia, any individual, community or organization can 'potentially' protest or oppose a project through legal action. There was some dissatisfaction with the project, but the claims were always too weak to affect a government decision.

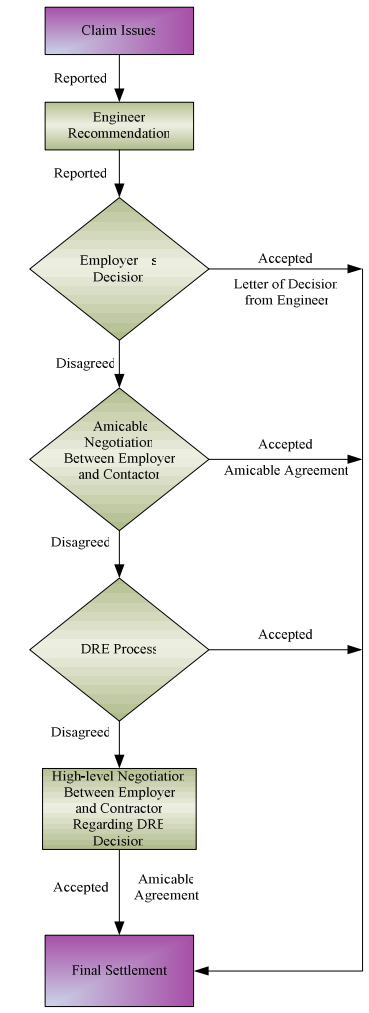
2.2 Legal framework and Disputes Procedure

Ethiopia comes from a civil law tradition and has six legal codes: civil, commercial, civil procedure, penal, criminal procedure, and maritime codes. The drafter of the civil code, René David, borrowed heavily from Code Napoleon and the civil codes of Switzerland, Greece, Egypt, Iran, Portugal, Israel, Turkey, Quebec and the Philippines. In addition, Ethiopian civil code has borrowed principles from the Common Law – mainly the United Kingdom, United States of America (USA), and India. Ethiopian civil code is among the most eclectic codes amongst the civil law countries.

Ethiopian contract law is found mainly in the 1960's civil code. There is legislation issued after the enactment of the civil code that is designed to govern some specific forms of contracts. Construction contracts and employment contracts are influenced by both common law and Napoleonic elements.

Ethiopia is a signatory to the International Convention on the Settlement of Investment Disputes (ICSID)—a World Bank agreement for the arbitration of investment disputes.

According to the Ethiopian Investment Proclamation, disputes arising out of Chinese investment that involve a Chinese investor or the state may be settled by means agreeable to both parties. A dispute that cannot be settled amicably may be submitted to a competent Ethiopian court or to international arbitration. However, there is no guarantee that a decision of an international arbitration body will be fully accepted and implemented by Ethiopian authorities.

Step	Party Involved	Description	Dispute Procedure
1	Contractor	Contractor prepares and submits the claim report	
2	Engineer	Engineer makes decision regarding claim issues	
3	Engineer[1] and Employer	Employer makes decision based on contractor's request and engineer's recommendation	
4	Employer and constructor	Most of claim cases can be closed at this step	
5	Dispute Review Expert	DRE is chosen and agreed by both side, and makes an independent decision.	
6	Employer, Constructor and Sponsor	Top manager of parties attend, influenced by force outside the project.	
7	Employer, Constructor and Sponsor	Final agreement might result in cost compensation and extension of time, sometimes form an amendment to the contract.	

Note:
[1] Engineers are always Design consultant preparing drawings for tender.

Figure 3 General Dispute Procedure on Road Projects in Ethiopia

The construction contract between the client and CRBC on the Ring Road project was a modified FIDIC contract based on Ethiopian Law of Contract. Disputes in the Ring Road project were always settled following the procedure as shown in Figure 4 even though some of the steps were not supported by the contract or by the Ethiopian Law of Contract. The procedure shown in Figure 3 is typically used by all Chinese contractors working on road projects in Ethiopia. As of 2007, only one claim case from CRBC got though the DRE claim

Procedure in step 6. It is believed that GOE compelled CRBC to give up prolongation cost of around US$ 2 million decided by Dispute Review Expert through its ability to influence the Chinese government. Other disputes between CRBC and Ethiopian Clients could reach an amicable settlement before Step 4.

2.3 Financial Support

Generally speaking, Ethiopia is not recognized as a country rich in natural resources. However, Ethiopia has a glorious past and occupies an important geopolitical position. Ethiopia serves as a linchpin to stability in the Horn of Africa and the Global War on Terrorism.

Road projects in Ethiopia receive support from five primary sources including international finance institutions, bilateral and multilateral sources, the Government of Ethiopia, the Road Fund and the Community. The total value of the Ring Road project was US$ 86.02 Million. Financing came from two primary sources. The Government of Ethiopia provided US$73.02 Million of equity support from the governmental budget. The remainder—US $13 Million, which equates to one sixth of the contract price, was contributed from Chinese sources through an interest-free loan with a 30-year refund period.

2.4 Community Effect

Addis Ababa has a population of 3.5 million people, comprising approximately 60 percent of the total urban population of Ethiopia (2004). Throughout the six year project, the local community perception of CRBC transitioned from a sense of distrust and suspicion to acceptance and support. For example, during the land tenure process, construction delays in the beginning of the project were attributed to AACRA's failure to prepare a feasible plan to repossess land and resettle local residents. Local people forwardly assisted and were satisfied with the compensation for resettlements.

CRBC, in turn, attempted to realize a positive and effective impact on the local community. For example, CRBC donated to a local college and supplied summer internship positions to local students.

Active NGOs in the local community included the Ethiopian Evangelical Church Mekane Yesus, Kale Hiwot, The Weaving Association, The Tesfa Social and Development Association, Mary Joy Aid Through Development, St. Mary Children Aid, and Save the Children (USA). All of the NGOs provided financial assistance and relief to the poor. From the beginning of the project, the expectation was that the NGO involvement would have a positive impact in the region; especially on the local labourers. The labourers expected financial and educational support from the NGO involves.

2.5 Labour

Due to a serious shortage of skilled labour in Ethiopia during the time period of the project, highly skilled Chinese workers were imported for the few technical and managerial positions.

On the jobsite, the Chinese worker possessed outstanding features. The Chinese provided low cost and highly organized workers with an incredibly strong work ethic. In order to complete the project on-time, CRBC operated seven days per week and over 12 hour work days - from 6:30 am to 7:30 pm. Each worker performed nearly 4 380 hours per year of active time. The Chinese workers showed considerably better discipline than many of the local workers.

In Ethiopia, more than 80 percent of the population is living on less than US$1 per day. Local labour was used primarily for low-skilled construction jobs and less so for managerial positions. At the beginning of the project, the unskilled labour wage rate was less than US$ 1 per day. Skilled labour, such as equipment operators, were able to earn more than US $1 000 per month after factoring in overtime remuneration at a rate of 1.5 times the basic rate. CRBC

had a health and safety program for foreign and local workers regarding health, safety and environmental issues such as HIV & AIDS prevention. The full program of internal health and safety standards was rarely followed and never enforced.

During the 6-year construction duration, thousands of local labourers acquired new skills or upgraded their expertise. Even though most of them exited the construction industry after the project was finished, 10-20% chose to stay with CRBC and continue on the next road project.

2.6 Culture Diversity

The Chinese orient is one of the world's greatest ancient civilizations, while Africa is known as the origin of humankind. Both are cultured peoples, descended from the world's oldest known peoples. The Chinese and African cultures bear enormous similarities, but also differ in many aspects, such as languages, religions, traditions, values, and work practices.

From a cultural perspective, one of the most challenging barriers in the Ring Road Project was the language used for communication and instruction. In Addis Ababa, the main local language is Amharic, but English is the most widely spoken foreign language and thus used as the working language on the jobsite. On the jobsite, considering the problem of the language barrier, translators' had to occasionally participate in meetings and jobsite interactions, explaining expectations, task orders and troubleshooting misunderstandings. Also, perception of context through direct eye contact, facial expressions, and hand gestures provided crucial information for successful cross-cultural communication.

Culturally and ethnically diverse, the Ethiopian population is composed of about 80 ethnic groups. The Oromo and the Amhara are dominant, jointly accounting for 61% of the total population. Ethiopian Orthodox Christianity and Islam are the major religions. In contrast, China has over 100 million followers of various kinds of religions; 18 million from 10 ethnic minorities reported to practice Islam. On the project, it was observed that most Chinese staff were antitheists, who respected local religion and belief, but rarely understood and were uninvolved in religious activities.

Despite a lack of manifest or problematic differences in religious ideology, there were still barriers to be overcome, especially with respect to differences in internalized values. Ethiopian people traditionally value freedom, dynamism and individual creativity. The Ethiopians found their Chinese partners places more emphasis on trust, discipline and team work, as shaped by the thousand-year-long Confucius doctrine. Distinct value to quality of life always produced conflicts. For example, although Chinese staff pushed Ethiopian operators to work long hours, the Ethiopians usually would sneak in time to enjoy a cup of coffee.

3. COMPARISON AND CONCLUSION

Business activity: In the Ethiopian road construction market, there is no direct competition between Chinese companies and Western companies. While Chinese contractors secure a good share of construction contracts, Western companies from the UK, Canada and Holland focus their business on design and engineering consultancy services. In large-scale road projects, the low prices of Chinese contractors make it extremely difficult for Western contractors to compete; thus Western contractors usually do not even submit bids. However, competition among Chinese companies in the Ethiopian construction industry has become fierce. In order to increase market share at the expense of other companies, some Chinese companies reduce their profit margins to less than 3% or even bid for projects below cost. However, it is interesting that no Chinese company has entered the market as a design consultant or engineering consultant.

Project Organization: Chinese organizational structures commonly exhibit greater centralization, greater formalization and more developed hierarchical pyramid structures (Figure 4). Western organizational structures are usually flatter with a less distinctive hierarchy. Furthermore, the Western approach to organizing construction companies usually

consists of a bi-directional matrix with both a functional-skill hierarchy i.e. plumbing, electrical, and paving, and a project hierarchy i.e. tunnels, roads, and stations. Chinese construction companies typically structure their organizations on an individual project basis. Chinese construction companies rarely possess a functional-skill hierarchy that cuts across multiple projects.

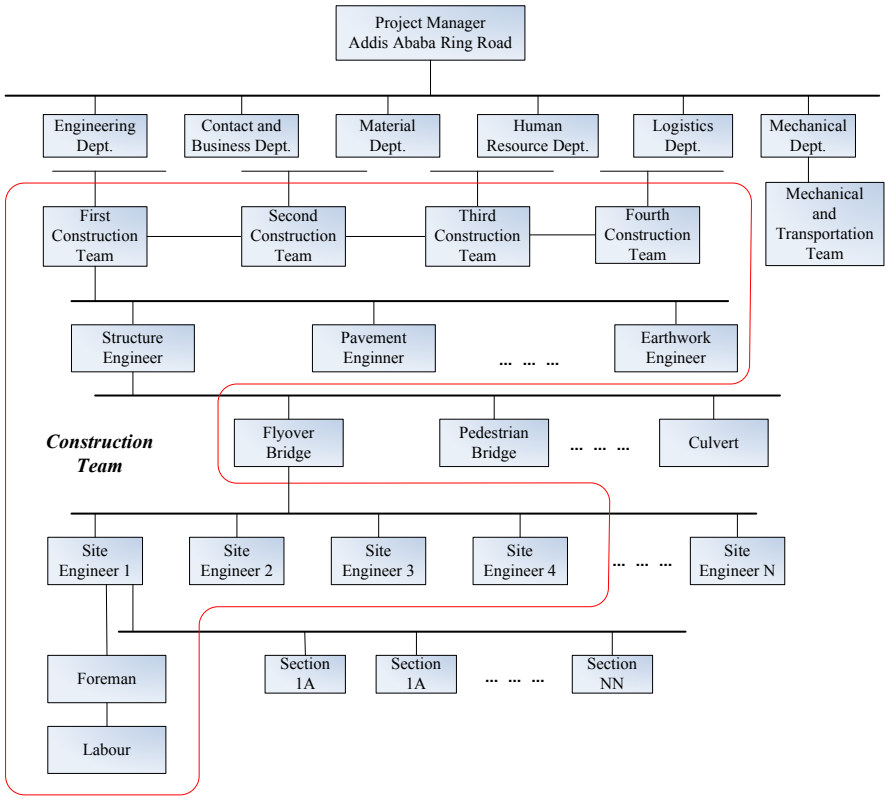


Figure 4 Organization Structure of Project Team in the Ring Road Project

Political: Ethiopia is strategically important to the USA, taken to represent the West, because of its geographic position. The USA was the most important donor of humanitarian assistance, followed by the EU, and has provided modest military assistance. Ethiopia has regularly exchanged visits with European and American officials, with development assistance and security at stake. The diplomatic relations and assistance between the USA and Ethiopia elucidates Ethiopia as a loyal supporter of the US policy. Ethiopia generally finds huge potential benefits with the growth of trade relations with China. In addition to Chinese aide packages and debt forgiveness, Chinese loans to Ethiopia do not have as many 'restrictions' as those of Western countries. In the Ethiopian construction industry, it seems that the political intervention and influence of the Chinese government has been more effective than from the West.

Legal: Being one of the two countries not colonized by the European colonial powers, the principle of Ethiopia Law is not derived from any one overseas law system, but instead is eclectic and independent. Under the same legal framework, the Chinese and western contractors have different approaches to the resolution of disputes with employers and suppliers, and different attitudes to the use of contracts. For the Chinese contractors, negotiation appears to be the first choice. Claims are considered as extreme and a last step that would result in the loss of 'face' of both sides. As a result, good relationships with all involved, especially with employers and engineers was absolutely critical for resolving all conflicts amicably. On the contrary, Western contractors consider claims to clients or contractual penalties as normal construction management practice. Based on author's personal observations, the employer in Ethiopia and engineer much preferred the Chinese

way of dealing with disputes during construction. It should be mentioned that those negotiations are based on the contracts and agreements under the Ethiopian legal system.

Finance: In the twentieth century, governments of Western countries assumed primary responsibility for financing and operating existing and new road projects. In comparison, the lion's shares of funds to Ethiopia were contributed by international donours aimed at helping develop transport infrastructure; thus, public debt was the most popular mode of financing road projects. In recent years private sector participation has emerged as an alternative to public financing and has been viewed as a way to minimize the inefficiencies of public administration and avoids the need for external borrowing.

Community Interface: As discussed, Chinese companies tend to have limited interaction with the local community. Antithetically, Western enterprises care and contribute more to the communities where their employees, customers and external stakeholders live and work, resulting in the concept of 'giving back' and 'doing good by doing well'. Every community is unique, so some Western contractors even have site-specific community relations programs to assist with the individual community's needs. Contributions may be financial, or may be in the form of the time and talent of volunteers, which targets non-profit organizations providing programs for children, youth, families, health, education, arts and civic projects, and seniors. Community protest or opposition to the projects in Western countries affects the construction and may even cause cancellation of the project entirely.

Treatment of Labour: All contractors, Chinese and western, value the management of the labour force and development of good relations with the local laborers as an integral part of project management. Chinese staff and project managers, by working and living together, try to form a good relationship with local workers so that the project team can function like a 'family'. Chinese staff and managers try to develop a supportive and cooperative relationship in the workplace as well as cordial relationships outside of work.

Due to cost constraints, Western contractors prefer hiring more qualified labour by paying a much higher salary. Chinese companies prefer importing numerous foreign site engineers at a lower cost. Instead of supervising the work on site, the Chinese believe the most effective way to work is to identify the problems and issues facing laborers in their work and to help them solve those problems. The cooperative relationship in Chinese companies helps develop a sense of trust in the work environment. On the other hand, Western contractors emphasize the importance of health and safety in the work place resulting from the comparatively strict health and safety legislation in Western countries.

Cultural Closeness: As far as foreign languages are concerned, English, French, Italian, and Arabic are spoken in Ethiopia, which are first or second languages in Western countries. Professionals of Western companies seldom experience language problems when they work in Ethiopia. In terms of religion, similar Christian beliefs make Westerners more acceptable to the local community than Chinese. It is therefore evident that in many ways, Western contractors are culturally closer to the Ethiopians than their Chinese counterparts.

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