

International Construction Employment: Challenges and Opportunities for Construction Graduates

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In the changing world economy, the American construction industry faces new challenges. Eighty percent of global construction dollars are spent outside the U.S. and domestic construction spending has been on a downward trend for 25 years. Foreign contractors are doing a small, but increasing, share of work within this country, as well. Because of these trends, some of today's construction graduates may one day seek work outside the U.S. This paper examines some of the trends in domestic and international construction, the opportunities for work overseas, and some preparations necessary for an international construction career.

Key Words: Career Development, Construction Industry - United States, Construction Management, Developing Nations - Employment, Employment in Foreign Countries.

Introduction

For the past 30 years, the growth rate of the U.S. construction industry has barely kept pace with inflation. Domestic construction spending as a percentage of Gross Domestic Product (GDP) has been decreasing from a high of 11% in 1972 to 7.2% in 1996 (Figure 1). The U.S. Department of Commerce *Construction Review* (1997, Spring) predicts only modest growth in construction for the period 1996-2001, in line with the predicted average growth rate of 2% for the GDP.

The same source reports that 80% of the global construction dollars currently are being spent outside the U.S., with the emerging countries of the Pacific Rim comprising the most booming construction market. In the decade 1986 to 1996, the total volume of international construction (work done outside the home country of the contractor) grew from \$74 billion to \$126.8 billion.

However, to foreign construction firms, the U.S. is an international market. Foreign contractors reported over \$14 billion dollars worth of work in this country in 1996 (ENR, 1997, August 25), up from \$10 billion in 1994. Although this currently represents only about 2% of total spending on new construction, the trend is not encouraging. The total involvement of foreign contractors on U.S. projects is difficult to ascertain because of the many joint-ventures and mergers which have taken place.

In the face of the forecast of tighter domestic construction markets, increased foreign competition within the U.S., and with the promise of more opportunities overseas, many American firms are entering the global arena. In 1994, only two U.S. contractors ranked among the first 20 firms listed in the annual ENR Top 225 International Contractors based on revenues. In that year, Fluor Daniel Inc. ranked 5th and Bechtel Group Inc. ranked 15th. By 1996, four

firms made the top twenty: Fluor Daniel Inc. (3), Bechtel Group Inc. (5), Brown & Root Inc. (15), and Foster Wheeler Corp. (18). A total of forty-eight U.S. firms made the ENR Top 225 list in 1996, and together accounted for \$22.5 billion worth of international construction (ENR, 1997, August 25) or 17.8% of total international construction revenue, up from 16% in 1994.

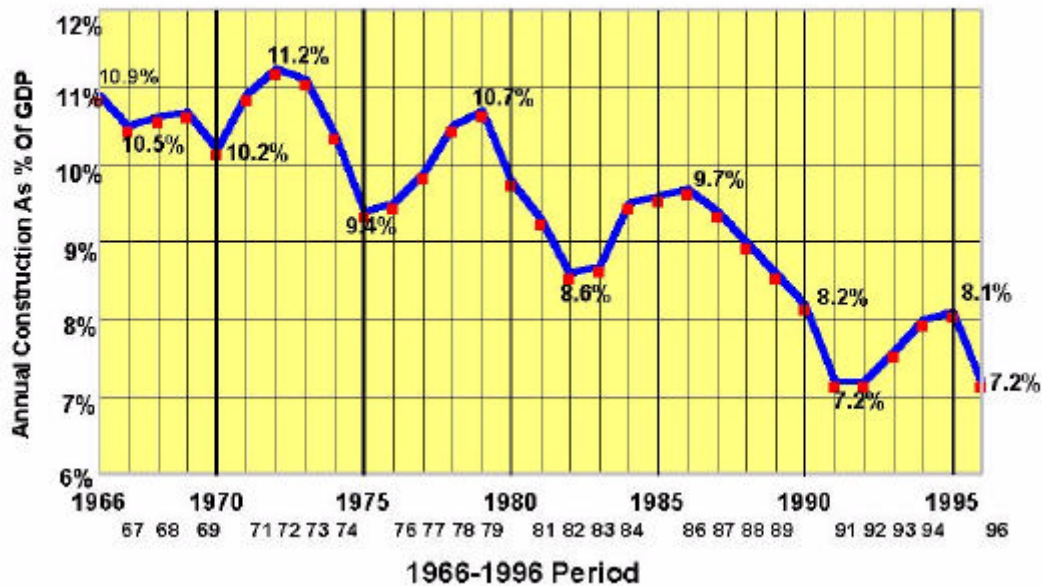


Figure 1. Annual Construction as % of Gross Domestic Product (GDP) (Source: U.S. department of Commerce)

Given the trends of the past decade, there may be more opportunities for graduates of construction programs to work overseas, or for a multi-national company. The personal experiences of the primary author working on international projects in several countries over the last 30 years have shown that overseas work can be very rewarding and challenging. However, international work requires some educational and personal preparation that may be overlooked by students intent on working in the United States. This paper will examine some of the advantages of and opportunities for work in international markets, and describe some of the preparations necessary for a career in international construction work.

International Employment Opportunities

According to the *Futurist* magazine (1995, Jan./Feb.), developing countries could represent up to 87% of the world's population by the year 2030. The infrastructure and building programs required to cope with the demands imposed by the current and future populations of the emerging and third world countries will be staggering. Krannich (1992) predicts that there will be demand for rural and urban infrastructure, dams, roads, mass transit, power, water and sewer construction in developing areas such as Africa, South America, Latin America, and Eastern Europe.

U.S. firms compete in all sectors of the international construction market, and rank in the ENR top 10 in industrial/petroleum, hazardous waste, sewer/waste, power, and manufacturing. The Fischer Report, a twice-monthly newsletter on international contract awards, bids, and construction business news, recently listed a total of thirty-three projects. More than half of these projects were located in the Middle East, traditionally a strong area for U.S. contractors. The remaining projects were located in emerging markets such as Asia (9), Latin America (3), the former Soviet Union (2), Africa (1) and India (1) (Fischer Report, 1997, September 15).

Historically closed markets such as India have begun to open to foreign companies for the building of manufacturing facilities, power plants, and other industries. U.S. corporations such as McDonald's, IBM and Coca-Cola are thriving overseas, opening a niche market for construction of their facilities. McDonald's, for example, added 2,023 restaurants outside the U.S. during the year ending June 30, 1997, compared to 497 constructed in this country over the same period. The company expects its international restaurants to contribute fully 70% of McDonald's operating income within the next five years, and sees nothing but growth in international markets (McDonald's MidYear Report to Shareholders, 1997). Coca-Cola is looking to the huge untapped markets of India, China, and East Central Europe for its future growth. Coke recently returned to India after an absence of 16 years, and began distribution in 7 major cities (India Abroad, 1995, July).

Developing nations all across the globe are providing the construction industry with opportunities for growth. The current "hot" regions for construction industry growth include Southeast Asia, China, and the former Soviet Union, especially the oil-producing states. Newly developing countries such as Albania, Latvia, Bosnia-Herzegovina, Bulgaria, Croatia, and the Ukraine are also generating demand for construction in communications, agricultural and water resource development (Krannich, 1992).

Forecasting growth in the volatile political climates of emerging nations is extremely difficult. Experts point to India, Latin America (especially politically stable areas such as Chile, Brazil and Argentina), and Russia as areas to watch. However, the stability of these regions is susceptible to sudden and sometimes dramatic undermining, as illustrated by recent events in Asia. In the early 1990s, Southeast Asia was hailed as a region of opportunity. A free-trade zone joining Thailand, Malaysia, Singapore, Indonesia, Brunei and the Philippines was fueling tremendous growth in the area. U.S. firms saw opportunities to sell heavy equipment for power plants, aircraft, high technology and consumer goods (St. Louis Post-Dispatch, 1994, June 27). Recent financial weakness in Southeast Asian banks, however, has led to doubts concerning the continued growth of that region. The construction industry in Indonesia, a recently booming area, is beginning to shut down as rapidly increasing inflation affects the cost of imported building materials (ENR, 1997, December 22). The Indonesian economy, which has grown at an annual rate of 8% for the past two decades, has been slowed by the worst drought in 50 years. Financial crisis has ensued as businesses struggle to repay dollar-based debts with rupiahs which are losing value to inflation (Wall Street Journal, 1997, October 6). Other countries in the region are struggling under a banking crisis that has limited overseas borrowing by the Thai government and driven interest rates up over 20%.

The potential for development in emerging nations, including those of Southeast Asia, is tremendous, however. Many firms will weigh the reward versus the risk and continue to pursue international work.

Preparation for an International Construction Career

Experience

As the U.S. construction market tightens and American construction companies enter the global marketplace in ever-increasing numbers, the demand for construction professionals willing and equipped to work in an international environment will increase. The number of American construction professionals with the necessary attributes and qualifications to work overseas, however, is limited.

The National Research Council's (NRC) report *Building for Tomorrow: Global Enterprise and the U.S. Construction Industry* (1988) listed four key areas in which young construction professionals need strength in order to compete globally: this list remains pertinent today.

- A strong technical base
- A clear understanding of design
- An understanding of the intimate connection between technology and culture
- An understanding of foreign languages and regional studies

The NRC report acknowledged that such strengths could not be an expected outcome of four years of undergraduate education alone. The skills and attributes necessary to manage construction projects overseas are developed over a period of time, perhaps decades. The undergraduate educational experience should provide students with a firm base in the skills, understanding, and intellectual outlook necessary to pursue a long-term career goal of managing projects overseas. In most instances, bachelor's and master's degrees in engineering or construction, coupled with ten or more years of appropriate experience in domestic construction management would constitute proper preparation for becoming an international construction manager.

Working in an international environment is not for everyone. Special skills and attributes are required for Americans seeking to manage construction projects overseas. Kangari and Lucas (1997), for example, state that an international project manager should be competent, able to prioritize and plan, be aware of details, have good communication skills (in more than one language), have professional curiosity, leadership skills, and a respect for other cultures. The demands of working away from one's "home turf" require an extraordinarily adaptable and flexible personality. This list implies that international construction management requires a good deal of personal and professional maturity and experience in domestic project management as prerequisites.

Based on the foregoing, for construction graduates contemplating an eventual international career, planning should begin early. If eventual international work is desired, the construction

graduate would be well-served to gain domestic experience working for a company which is currently in the international market. This may be either a U.S. firm currently involved in international work, or a foreign firm working within the U.S. Such “insider” status would provide insight and information on work opportunities in various regions of the world.

Attitude

Americans who work in overseas construction are traditionally an iconoclastic group. The *Fischer Report* subscribers cheerfully refer to themselves and each other as hobos, reflecting a personality type that delights in travel and rootlessness. However, even relatively staid individuals may seek overseas work for its many benefits, including cross-cultural exposure, personal and professional challenge, opportunity for accelerated professional advancement, travel, and financial rewards. Indeed, the tax advantages of overseas work may draw some to consider going global. Under the current tax law, the first \$70,000 of foreign earned income is exempt from U.S. income taxes. The new budget reconciliation and tax bill increases that figure to \$80,000 over the next 5 years (Fischer Report, October 14, 1997). Benefits of foreign work often include moving expenses, housing, home leave, per diem allowances for food and incidental expenses. Some remote job sites offer little opportunity to spend paychecks, giving workers a chance to save a large percentage of the salaries earned while working overseas. This combination of tax-free earnings and savings could be a tremendous boost to a young construction professional. However, there can be tax liabilities related to working overseas, and one should consult IRS Publication 54 (Tax Guide for U.S. Citizens and Resident Aliens Abroad), or a tax adviser for information concerning specific situations.

Education

Language

One of the most important educational requirements for the prospective international worker is the exposure to a foreign language (Krannich, 1992). Fluency or even facility in a foreign language would place a candidate for an overseas career in an elite group. In the U.S., only about 7% of elementary schools offer foreign language instruction in which students are likely to gain fluency. Only 4% of secondary schools offer conversation classes in a foreign language, an indication that most high school students are not attaining a high level of proficiency in the languages studied (Center for Applied Linguistics, 1997). In 1995, 4% of all students enrolled in two-year colleges and 10% of all students enrolled in four-year institutions registered for a foreign language (Brod and Huber, 1997). Traditionally, there has been little emphasis on the need for foreign language skills in construction or engineering education. The NRC report previously cited also emphasized the need not only for foreign language study, but an exposure to world geography, business and culture. The report suggested that the study of language be in conjunction with the study of the technology and culture of a particular country.

Before undertaking the study of a particular country or region, it is necessary to narrow the focus, based on the individual's interest in an area, prospects for employment, and background, perhaps including knowledge of a foreign language. The most popular languages studied by American high school and college students, German, French and Spanish, are together spoken by

only 11% of the world's population. Far greater numbers speak Mandarin Chinese but that language is only now becoming available to American foreign language students. Other important world languages, such as Arabic, Hindi, Japanese, Russian, and Bengali, have far fewer students than the European languages, although they are spoken by relatively large proportions of the world's population (Figure 2). While English is an international language, and most foreign professionals in the design, engineering and construction fields may use English, it would not be practical to supervise foreign construction workers in a country for an extended period without learning the rudiments of its language.

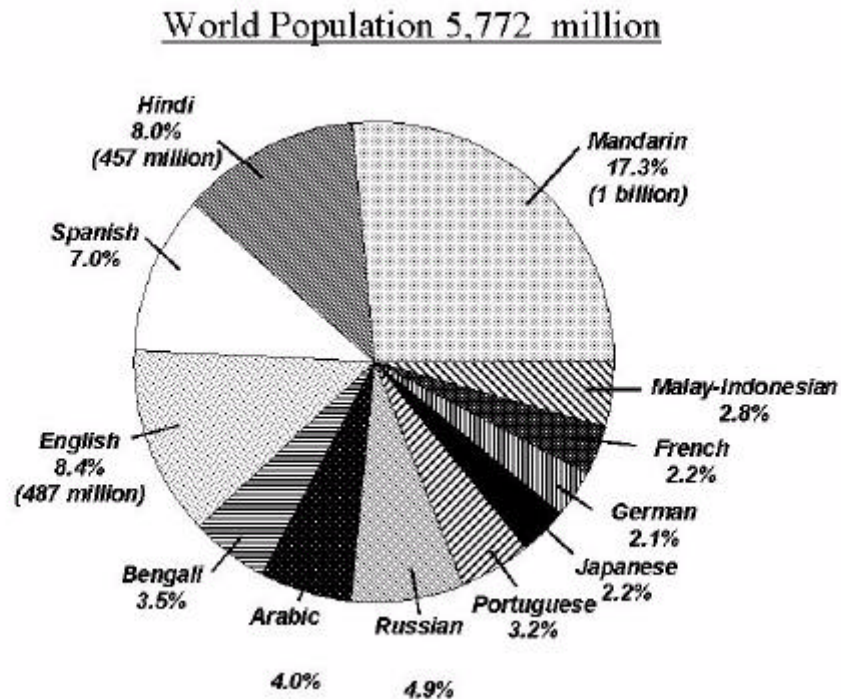


Figure 2: Principle World Languages (Languages with over 100,000,000 Speakers) (Source: The World Almanac and Book of Facts 1997)

Attaining a “survival level” in one of the European languages may take at least two years of training at the undergraduate level (Mann, 1997, personal communication). Attainment of language skills in non-European languages may take many years. Dr. Charles Adams, professor at the Institute of Islamic Studies at Montreal’s McGill University estimates that “it would take 18 months of hard work to become proficient enough in Arabic to speak” at a level which would allow one to communicate (Forbes, 1974, September 15).

Culture

There are many resources for quickly gaining a comprehensive knowledge of foreign countries or regions. One of the best is the *Area Handbook Series* written by the Federal Research Division of the Library of Congress, as part of a program sponsored by the U.S. Army. There are over 100 titles in the series, each covering in depth one country or small group of closely related countries. The books describe and analyze the political, economic, social, and national security systems, and the ways these institutions have been shaped by the history and culture of the country. The

books give a great deal of information on the people who live in the country, and explain the customs, beliefs and attitudes which are important for understanding and interacting with the society. The series is available through the U.S. Superintendent of Documents.

Familiarity with foreign customs and culture can be gained in other ways. Ex-military personnel or their children, who have been posted in various countries, may have a distinct advantage. Having a foreign-born parent or other early exposure to a second language and culture can also be a bonus. Travel with family, foreign exchange experience during high school or college, and activities such as overseas mission projects through churches or government programs can give valuable experience. Overseas study through the college or university construction program is another possible means for gaining experience. In addition, most international contractors will offer cultural training for their professional staff working overseas.

Engineering and Construction Practices

Another field of study for the prospective international construction manager is foreign construction and engineering practices. For an American used to working with competent and innovative specialty subcontractors in the U.S., it may be a rude awakening to find that overseas, the workforce will often have to be trained, and activities demonstrated before they can be performed. The construction manager must have a good understanding of engineering design, and design principles, and know when changes can be made without causing disastrous consequences. Although some projects for U.S. clients may be built to familiar American standards, various foreign standard specifications may be used (German DINS, British Standards, French Norms, and others) with which an American will likely have no previous experience. In addition, the American construction manager should be familiar with the metric system of measurement, which is the standard in most foreign countries.

Equipment and construction techniques may be very different from the familiar American ones, not necessarily because more modern methods are unknown. In southern India in the late 1960's, the Nagarjuna Sagar dam was built as a masonry gravity dam, the largest of its kind. The 370 foot high dam was built of locally quarried stone rather than concrete, which would have been the preferred material in the U.S., because the project could be done more cheaply using abundant local labor and local materials. Use of the local material also saved the Indian government considerable foreign exchange since all the equipment for concrete batch plants would had to have been imported.

Political Climate

Knowledge of the political climate of a country or region can be extremely important to an American working abroad. Some countries are avoided by international companies because of the potential danger of kidnapping or terrorist activities against employees. In addition to information that may be available from the company, an individual should keep abreast of current events in the region of interest through the news media.

Practical Considerations

Finally, the international worker must look at the practicalities of working and living abroad. For many, this will include concerns about family housing and schooling. For dependents living in the same country as the worker, knowledge of the local culture and customs regarding restrictions on spousal employment and travel are important. In many Middle Eastern countries, there are dress and travel restrictions for women. Often, adequate schooling is unavailable for American children, and the dependents may be based in a city far from the job site. Periodic vacations and travel benefits for workers in such situations may be part of the compensation package.

The availability of health care, and coverage of health care costs overseas should be investigated. In many developing countries, hospitals and emergency medical care fall far below American standards. Treatment for serious illness, especially those requiring surgery, may necessitate airlift to another country for adequate care.

Other practical considerations for the employee and dependents include: rules and regulations with regard to obtaining valid work permits, resident visas, entry and exit visas; customs regulations on importing and exporting professional and personal items; travel restrictions; taxes and foreign exchange repatriation regulations in the host country.

Conclusions

For many years the United States enjoyed a position of strength in several international construction sectors, including petroleum/industrial, dams and power generation. Today, construction firms in Japan, Korea, Germany, Italy, the United Kingdom and other European nations have equalled U.S. expertise in these areas. Other nations in Asia, Latin America, and the former Soviet states have emerged to take their places as industrializing nations. The increased competition will pose a continuing challenge to the U.S. construction industry, especially to those firms which compete for international work. However, the development taking place abroad holds many opportunities for those firms and individuals with the necessary experience, attitude, and education ready to accept the risks of overseas work in order to reap the rewards.

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