
Fazil Najafi, University of Florida

DR. FAZIL T. NAJAFI

Dr. Najafi is a professor of Civil and Coastal Engineering at the University of Florida. He earned his BSCE from the American College of Engineering, Kabul, Afghanistan, and his BSAE, MS, and PhD degrees in Civil Engineering from Virginia Polytechnic Institute and State University. He has worked for 35 years in government, industry, and education. Besides teaching during the last 14 years, Dr. Najafi has conducted research, has been a participating member of several professional societies including ASEE, has published numerous refereed and non-refereed articles, and has presented many technical papers to international, national and local organizations.

Micheal Dreznes, International Road Federation

Micheal G. Dreznes

Michael G. Dreznes was originally hired by Energy Absorption Systems, Inc. in 1986 to create their International Department in Chicago, Illinois. In 2004 he was promoted to the position of Vice President of Corporate Communications for Quixote Corporation. Dreznes maintained responsibility for the international activities for all the Quixote companies.

In 2006, Dreznes left Quixote Corporation to accept his current position of Deputy Director General of the International Road Federation, a global organization whose mission is to improve road design and safety through technology transfer.

James Ekberg, University of Florida
The Role of the International Road Federation in the Enhancement of the Economic Expansion of Developing Countries

Abstract

The objective of this paper is to present the role of the International Road Federation (IRF) in the enhancement of the economic expansion of developing countries. The basic philosophy of the IRF for the past fifty-eight years has been that road infrastructure development is the true key to economic and social progress in any country in the world. Since 1948, the IRF has been promoting technology transfer to developing countries.

The IRF Fellowship Program has provided education opportunities at some of the finest institutions of higher learning in the world to individual Fellows from various countries with experts and leaders in the road industry as mentors. These Fellows return home to participate in responsible leadership roles in their countries, and their strong influence has affected the development of transportation systems. This paper will illustrate the contributions made by some of these Fellows.

Studies have shown a direct link between a country’s gross domestic product and the level of sophistication of its infrastructure. Through the education and training activities offered by the IRF, countries around the world have gained the tools to expand the sophistication of their infrastructures and increase their gross national income. This paper will illustrate how the IRF’s influence to make better roads has resulted in global economic growth, and that it continues to add to this growth today.

Introduction

Since its founding in 1948, the basic philosophy of the International Road Federation (IRF) has been that road infrastructure development is the true key to economic and social progress in any country in the world. Ever since, the IRF has been promoting technology transfer to developing countries through its unique university scholarship program (IRF Fellowship Program), Road Congresses, the creation of training materials, and the leadership and technological expertise of its members.

The IRF Fellowship Program has provided 1166 individuals from 112 countries with the opportunity to be educated in some of the finest institutions of higher learning in the world and to be mentored by some of the true experts and leaders in the road industry. These Fellows have returned to their home countries to accept positions of great responsibility including those of ministers, deputy ministers, senators, company presidents, managing directors, cabinet ministers, university professors and researchers. They have exerted a strong influence on the orderly development of transportation systems worldwide. This paper will illustrate the contributions made by some of these Fellows to make the roads of their countries better, thereby helping the economic growth of their countries.
The IRF has also sponsored many training seminars ranging from road safety to contract maintenance to asset management, teaching individuals from developing countries the current technologies that are available in their particular fields. The organization has developed a series of training videos to allow technologies to be introduced to an ever greater number of individuals in these developing countries. The effects of these programs have been far-reaching.

Multiple studies have proven that a country’s gross domestic product can be directly tied to the level of sophistication of its infrastructure. The IRF, through its education and training activities has allowed countries around the world to expand the sophistication of their infrastructures using state-of-the-art technologies, and it continues to do so today. While the original focus of the organization in the 1940’s was to help rebuild Europe after the war, today it is focusing its technology transfer efforts on emerging countries in Asia, Latin America, the Middle East and Africa. These countries want to grow, and they understand that with better roads the citizens will enjoy better lives. The study of roadway infrastructure systems and the gross national income (GNI) of high-, medium- and low-income countries indicate a close correlation. Overall, the majority of countries have shown an increase in their gross national income as their roadway infrastructure expanded.

The IRF can do more and is willing to do more. The mission is not over and a new generation of road authorities needs to become aware of the programs available to them through the IRF, and they must continue to pursue technology transfer to make their roads better. This paper will help to increase awareness of the IRF and the importance of its mission to improve lives through better roads. Since 1948, the credo of the IRF has been “Better Roads Mean Better Living.”

The correlation between a country’s gross national product and the sophistication of its road infrastructure

Once wheeled vehicles were invented, roads became an alluring idea. Romans used roads to move military chariots and other wheeled vehicles quickly through the empire. The United States (U.S.) interstate highway system exploded with growth in 1956 and was originally designed to support movement of intercontinental missiles across the United States to reduce first-strike risks during the Cold War¹. Additionally, ease of travel from one location to another as roads were built stimulated economic growth and helped increase the GNI per capita of countries from low-income to high-income nations.

Transportation plays a crucial role in the economic development of a country allowing the movement of people and goods to and from areas of agricultural and rural development, industry and trade (marketplace). Road costs vary widely from country to country and are dependent upon a number of variables: cost and availability of labor and materials as well as climatology for that area of the world and how that may shorten the work season.

The GNI is the total market value (in U.S. dollars) of a country’s final output of goods and services in a year. GNI is better known as gross national product (GNP) and was renamed only recently. The development of the road network system could be an important factor that may influence the GNI of a country for a given year. In this paper, GNI per capita (GNI divided by its population) and the respective road network for a country for a given year is presented in
Table 1. GNI per capita and Road Network 2000-2004 (High Income, Middle Income, Low Income, separated by a dashed line)

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>AREA (SQ KM)</th>
<th>GNI (per capita)</th>
<th>KM of ROADS</th>
<th>GNI (per capita)</th>
<th>KM of ROADS</th>
<th>GNI (per capita)</th>
<th>KM of ROADS</th>
<th>GNI (per capita)</th>
<th>KM of ROADS</th>
<th>GNI (per capita)</th>
<th>KM of ROADS</th>
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<td>43,940</td>
<td>5,225</td>
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<td>71,011</td>
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<td>36,170</td>
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<td>34,260</td>
<td>3,678,154</td>
<td>35,400</td>
<td>3,607,877</td>
<td>37,610</td>
<td>3,621,037</td>
<td>41,440</td>
<td>3,632,272</td>
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<td>1,661,340</td>
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<td>1,711,167</td>
<td>34,010</td>
<td>1,777,276</td>
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<td>71,847</td>
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<td>*</td>
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<td>12,020</td>
<td>97,252</td>
<td>14,040</td>
<td>97,252</td>
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* Data not available
Figure 1. A Typical Example of High-Income Group’s Change in Road Network Extracted from Table 1

Figure 2. A Typical Example of High-Income Group’s Change in GNI per capita Extracted from Table 1
Figure 3. A Typical Example of Middle-Income Group’s Change in Road Network Extracted from Table 1

Figure 4. A Typical Example of Middle-Income Group’s Change in GNI per capita Extracted from Table 1
Figure 5. A Typical Example of Low-Income Group’s Change in Road Network Extracted from Table 1

Figure 6. A Typical Example of Low-Income Group’s Change in GNI per capita Extracted from Table 1
For operational and analytical purposes, the World Bank’s main criterion for classifying economies is GNI per capita. Based on its GNI per capita, every country’s economy is classified as low income, middle income (subdivided into lower middle and upper middle), or high income. Table 1 displays countries with economies from 2000-2004 according to GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, $875 or less; lower middle income, $876 - $3,465; upper middle income, $3,466 - $10,725; and high income, $10,726 or more. A sampling of countries in each economic range is shown in Figures 1 through 6 illustrating the change in their country’s GNI and road network from 2000 to 2004. Figures 1 and 2 should be viewed together presenting a typical relationship between kilometers of total roadway infrastructure (Figure 1) and GNI per capita (Figure 2). Both Figures 1 and 2 present high-income countries. Similarly, Figures 3 and 4 represent middle-income countries and Figures 5 and 6 represent low-income countries.

Overall, the majority of the countries listed in Table 1 show an increase in their country’s GNI as their road network developed each year. Quality of paved roads differs from country to country, some countries having more gravel and dirt roads that make up the majority of their road network than paved roads. Ultimately however, the expansion of a country’s road system allows opportunities for growth in commerce, trade, and industry as people and resources can reach areas once too difficult to consider for development.

The IRF Fellowship Program

The basic philosophy of the IRF Fellowship Program is to identify promising individuals working in the transportation industry in a developing country and to provide them the opportunity to obtain a year of advanced learning in the United States or Europe. This advanced learning includes formal education at a world-renowned university, as well as, practical experience and the opportunity to meet many key decision makers in the transportation industry. The candidates are nominated by IRF Members based on their potential to become leaders in the transportation industry in their home countries. The IRF staff assists the Fellows in gaining admission to a university and obtaining their visas.

The IRF Fellowship Program includes an Executive Leadership Program that is conducted during Transportation Research Board (TRB) week in Washington D.C. During this week, the Fellows take field trips to visit organizations such as the Federal Highway Administration, the World Bank, and the Maryland Department of Transportation. They are also introduced to a variety of industry organizations including the Institute of Transportation Engineers (ITE), International Bridge Tunnel and Turnpike Association (IBTTA) and American Society of Civil Engineers (ASCE) among others. The Fellows attend classroom sessions on leadership and are introduced to industry leaders that are members of the IRF.

IRF members are encouraged to meet with the Fellows while they are studying at the universities. Some members become “mentors” and “adopt” Fellows during their stay in the United States or Europe. These relationships are nurtured and continue once the Fellows return home.
Many of the Fellows use their educational experiences to enhance their careers once they return home. Their contributions have helped to develop the road networks in their home countries. While it is difficult to determine the exact monetary value of these contributions to society, it is clear that the technology transferred and the relationships developed during these Fellowships have significantly affected the growth of the infrastructures of these home countries. The following individual examples clearly demonstrate how important these Fellowships have been to a variety of different countries around the world.

**Rafael Cal y Mayor – Mexico – Yale University, 1954**

Rafael Cal y Mayor was a former traffic engineer from Mexico City, founder of the first Chair of Traffic Engineering in the School of Engineering at the University of Mexico, and one of the first two IRF Fellows. Cal y Mayor, along with Ricardo Gandolfo of Peru, pioneered the Fellowship Program at Yale University’s Bureau of Highway Traffic in 1949.

In a 1981 interview with “World Highways,” Eng. Cal y Mayor said, “In 1950, traffic engineering was virtually unknown in Mexico. Through the International Road Federation, I was able to study this subject, and on my return to Mexico, start the difficult job of setting this new technological tool and persuading public administrators to use it.”

Eng. Cal y Mayor played an integral role in the efforts to implement traffic engineering in Mexico and in 1966 was asked to organize the Traffic Engineering Commission at the Ministry of Public Works. He headed the Commission until 1972 when he was appointed Director of the Traffic Engineering and Transportation Department of the Federal District (Mexico City). In 1978, he organized his own consulting firm and continued to use the lessons he learned during his Fellowship regarding planning, traffic, and transportation studies and design until his illness which lead to his untimely death in 1987.

Rafael Cal y Mayor was the founder of the first chair in traffic engineering in the School of Engineering at the University of Mexico. A Fellow in the Institute of Transportation Engineers (ITE), Cal y Mayor served as vice-chairperson of the 1977 ITE annual meeting in Mexico City. From 1978 to 1979, he served on the ITE International Board of Directors as Director for District Eight.

His first book on traffic engineering was published in 1962 and is now in its sixth edition. It is a standard textbook in a number of Latin American engineering schools. He was also the author of a second book on traffic education and safety. Active in trying to improve the knowledge of transportation engineering in South America and Latin America, he translated the text of several transportation engineering textbooks into Spanish, including the Institute’s *Manual of Traffic Engineering Studies* and extracts from the *Transportation and Traffic Engineering Handbook*.

Eng. Cal y Mayor was one of the founders and a long-time supporter of the Mexican Road Association, which in 1985 established the Rafael Cal y Mayor Award for outstanding traffic engineering performance by an individual. Appropriately, Rafael Cal y Mayor was the first recipient of the award, presented to him on December 10, 1985, by Minister of Transportation and Communications, Eng. Daniel Díaz Díaz.
He was an enthusiastic supporter of the IRF Fellowship Program saying in the 1981 interview, “When I consider what the United States has done for other countries through diplomatic and other efforts, I cannot name a program that has been as effective as the IRF Fellowship Program. It has been a proud and understated effort.” If this is so, it has been largely a result of the influence of individuals like Rafael Cal y Mayor.

Eng. Saturnino Suárez, former President of the Mexican Road Association, and a member of the Board of Directors of IRF, said of Cal y Mayor, “He was a true apostle of traffic engineering, a man of conviction, morality and faith, an author and an enthusiastic teacher.”

It is clear that Cal y Mayor’s contributions to the traffic engineering industry in Mexico have been significant. Who knows where the Mexican infrastructure would be without Cal y Mayor, and who knows where Cal Y Mayor would have been without the IRF Fellowship.

**Ricardo Gandolfo – Peru – Yale University, 1949**

Ricardo Gandolfo from Peru participated in the Highway Engineering Program at the University of Yale, New Haven, Connecticut, in 1949-1950. His professional career was developed at Peru’s National Directorate of Highways. During his thirty-five years of civil service, Gandolfo had many opportunities to promote the highway engineering techniques he learned during his Fellowship.

As the District Highway Engineer, Gandolfo was in charge of planning and implementation of the first highway inventory and traffic study in the highway network. He introduced highway planning and programming techniques and promoted improved highway maintenance by mechanizing tasks and modernizing the shops and the technical operations center.

As result of his participation in Pan-American Highway Congresses, Gandolfo participated in the drafting of Peru’s *Highway Traffic Signs Manual* and the drafting of the *Inter-American Manual on Uniform Traffic Control Devices*. Today, these publications serve as the standard for highway signs in the Americas.

In addition to his road activities, Gandolfo also was in charge of the Feasibility Study and Pre-Design of the Rapid Mass Transportation System (METRO) for the metropolitan city of Lima.

As Assistant Director General to the Vice Minister of Transportation, Gandolfo was in charge of the coordination of activities with international credit organizations to finance the works in the area of transportation. As a result of his background and accomplishments, Gandolfo was asked by the American States Organization to serve as Technical Consultant of the Permanent Secretariat of the Pan-American Highway Congresses.

In his private practice, he has participated in several studies, designs, and projects for highways and urban roads, as well as the area of road safety. These studies included a document that is very important to the economic development of Peru titled, “The Integral Study of Highway Traffic in Peru in the year 2000.” Gandolfo coordinated the management of consulting services...
for the Ilo – Desaguadero Highway, which serves as the international connection between Peru and Bolivia. The economic effects of this highway for Peru cannot be understated. He also participated in the most recent revision of the *Peruvian Highway Design Manual* and the *Standard Specifications for Peruvian Highways Safety*. These documents formulate the design of roads in Peru.

In addition to his many years of service to the road industry in Peru, Gandolfo also worked as Highway Consultant Engineer in Bolivia and the Dominican Republic. Road authorities in these countries have recognized what Gandolfo has done for the economic growth of Peru by developing its infrastructure, and they asked him to do the same for their economies.

As an active member of the Peruvian Good Roads Association, including serving as its president, Gandolfo has actively participated with the International Road Federation over the years. In 2002, he was recognized for his contribution to highway development in Peru, and thereby the economic growth of Peru by the Peruvian Good Roads Association. Presently, he is member of the Board of Barriga – Dall’Orto S.A. Consulting Engineers, a well-known consulting firm dedicated to highway engineering and road safety in Peru.

Gandolfo has utilized the knowledge and experience he started to gain as an International Road Federation Fellow in 1949 to improve the infrastructure of Peru since 1949. His multiple contributions and achievements have changed the face of Peru forever. Putting a monetary value on Gandolfo’s contributions would be very difficult. However, the people using the Peruvian roads today would say that his contributions are so great that they are priceless.

**Mario J. Leiderman – Argentina – Ohio State University, 1961**

Mario J. Leiderman was a civil engineer from Buenos Aires, Argentina, when he was granted a scholarship to do postgraduate courses in highway engineering through the IRF Fellowship Program in 1961. In addition to his studies at Ohio State University, he also received practical training through visits to four Departments of Transportation and the Federal Highway Administration in Washington, D.C., that were arranged by the International Road Federation.

When Leiderman returned to Argentina, he applied his knowledge gained in the United States by organizing and conducting the first Road Inventory and Sufficient Rate on the Road Network in the Provincial Highway Department of Buenos Aires. He also coordinated economic studies for planning and road construction using the lessons learned during his studies at Ohio State University. Approximately two years later, Leiderman took advantage of an opportunity to work as a researcher at the Transport Research Laboratory in England. He used his knowledge from Ohio State University to conduct traffic studies as well as operation costs of vehicles and friction coefficient studies on asphalt and concrete pavements.

Upon his return to Argentina a year later, Leiderman continued to use his knowledge and experience to improve the road network in Argentina. He conducted a study that proved the friction levels on many asphalt pavements were causing many road accidents in the Province of Buenos Aires. He utilized some of the technologies he learned during his Fellowship to develop...
the first map of friction coefficient values of the asphalt pavement road network in the Province of Buenos Aires.

Recognizing his background and experience, Leiderman was appointed Technical Advisor of the Pan American Congresses at the Organization of American States. During that period of time, he finished the first *Glossary of Road Terminology* in four languages, English, French, Portuguese and Spanish, and developed the first *Manual on Traffic Control Devices* that was approved by the Pan American Congresses. He also translated from English to Spanish the “Highway Capacity Manual” edition 1965, which was an important tool for the highway engineers in Latin America. Leiderman was invited to attend many meetings in Latin American countries to present this information. His reputation spread and Leiderman was asked to be a lecturer at Howard University in the United States to teach transportation engineering. He accepted and not only taught the classes, he expanded his knowledge of the practical side of the road industry.

Leiderman returned to Argentina and started his own consulting engineering firm working on a number of projects related to traffic and parking, as well as feasibility studies and road safety studies. He also agreed to teach traffic engineering at the University of Buenos Aires, and was hired to train a group of young professional people in the traffic engineering field and reorganize the Traffic Engineering Department of the Municipality of Buenos Aires. In recognition of his outstanding achievements and dedication to the road industry, Leiderman was named the first recipient of the Dr. Mino Award of Excellence, presented to him in June 2005 during the 15th International Road Federation World Meeting held in Bangkok, Thailand.

Leiderman states that, “It is necessary to increase the effort to improve our roads and to provide our drivers with safer road conditions so we can reduce the number of deaths caused by road traffic accidents. We have to implement the programs needed to improve the level of technical expertise for our professional people. We also must encourage the authorities to use new technologies to reduce the severity of injuries and fatalities during traffic accidents. Finally, we must educate our drivers and to have an effective permanent enforcement means to keep the traffic moving safely.” He continued, saying, “The International Road Federation Fellowship Program had a great impact in my professional activity and I have a tremendous debt to IRF and the Argentine Road Association. For this reason I am dedicating my efforts to serve society and to make roads safer.”

It is very clear that Leiderman has been a driving force in the development of the road infrastructure in Argentina. It is impossible to estimate what the conditions of today’s roads in Argentina would be if Mario Leiderman had not received that International Road Federation Fellowship to attend Ohio State University back in 1961. Needless to say, the Argentine roads would have been significantly different without Leiderman’s influence. How these road improvements translate to Argentina’s economic expansion is very difficult to calculate, but it would clearly be a defining factor.
Sergio Miguel – Chile – Ohio State University, 1949

Sergio Miguel received an IRF Fellowship in 1950 at the age of 27. The experience of studying abroad enhanced substantially his knowledge in the transportation field and his recognition of the huge importance of road development for human prosperity and the immense need of developing countries to improve their road technologies to achieve substantial cultural and economic development. These principles, further enlightened by later attendance of several IRF Regional and World Meetings, guided his life’s work and allowed him to collaborate in the realization of important road and transport development works and programs in his home country of Chile and other Latin-American countries.

After graduation from the Chilean State University (UdCH) in April of 1947, Miguel was contracted as Chief Engineer for the construction of a 110 kilometer-long section of the Pan American Highway in Northern Chile. Based on his performance in this job, he was awarded the International Road Federation (IRF) Scholarship in 1950 (the second year of this program). In September 1950, he joined postgraduate courses at Ohio State University (OSU) under the tutelage of Professor Emmett H. Karrer, an outstanding engineering teacher with a vast experience in design, construction and maintenance of all types of roads and a deep understanding of the main problems of the engineering sciences. Miguel remembers the memorable sentence with which he opened his first class, “The first problem we have to face in road design and construction is…drainage, the second problem is…drainage, the third problem is…drainage…, only then we can face other problems.” Miguel never forgot the wealth of the teachings and experiences he shared with his students that opened their hearts and enriched their minds, enticing them all to be better human beings and more effective engineers.

On his return home, Miguel was appointed by the Ministry of Public Works to use his newly found knowledge to lead an experimental project to stabilize sandy soils with cut-back asphalt using modern stabilization equipment, with the aim of providing a better foundation for paving a stretch of about 40 kilometers of the Pan American Highway. After a year, he was promoted to Chief Engineer of the recently created Equipment Division of the National Highway Department. The main tasks of this job in the following three years were the upgrading of existing equipment repair facilities and its personnel, as well as planning, design, and execution of the first huge supplier-financed procurement program of road maintenance equipment for the whole country. Miguel has often commented that he could not have carried out these challenging tasks satisfactorily without the knowledge and experience acquired thanks to the IRF Fellowship Program.

In 1956, Miguel joined the Board of Directors of the Chilean IRF branch, the “Instituto Chileno pro Buenos Caminos (ICBC)” and was appointed its executive director. He was also asked by his former highways professor in the Engineering School of the UdCH to take over his seat. In addition, he was invited by a big Chilean import and distribution company to join them as manager of its construction and industrial equipment division. During the following thirteen years, Miguel used his threefold position and the knowledge gained from his Fellowship to promote the use of good engineering practices and sound economic criteria in the Chilean Transport Sector.
Miguel was invited in April 1966 to join the Board of Directors of the Chilean Automobile Club, and was promoted in 1975 to Chairman of the Board, keeping that position until he moved to the United States in April 1977. During these eleven years, Miguel actively participated in: the planning, design, and construction of a new headquarters building in Santiago, along with several provincial headquarters; the strengthening of the driver’s school in Santiago and its expansion to the provinces; the expansion of the Chilean tourism office and its complementation by a cartographic division; the creation of a traffic safety department: and, together with the Chilean Police, the execution of a multi-year countrywide program for traffic safety training in primary schools. Miguel also participated in many national and international meetings and conferences dealing with improvement of national and international road connections, tourism, and traffic.

In 1968, Miguel decided to devote himself entirely to activities related directly to the Transport Sector. He quit his position in the import company and started to work as a private consultant in the Transport Engineering and Roads Administration, maintaining his duties at the University, ICBC and the Automobile Club. Miguel worked on a variety of projects paid for by World Bank loans and became very familiar with World Bank regulations and procedures. The new Chilean government that took over in September 1973, entrusted Miguel with the adjustment of certain projects with the new economic conditions prevailing in the country, and with the preparation of a new bidding process. The World Bank appreciated Miguel’s involvement and contracted him in 1976 as a part time consultant for some assignments in other countries and in April 1977 as regular Bank Staff Engineer.

As World Bank Highway Engineer operating out of Washington, D.C., Miguel was assigned to identification, preparation, appraisal, negotiation, and later execution supervision of several important World Bank financed projects in Bolivia, Ecuador, Paraguay, Costa Rica and later Colombia. In 1982, Miguel was promoted to Senior Highway Engineer and was entrusted with the responsibility of taking over supervision of transport projects in Chile, a bold decision in view of the engrained Bank tradition not to allow Bank staff to participate in management of projects for their respective home countries. This first exception to the rule proved highly positive, because the economist-engineer team developed by Miguel could achieve an extraordinary improvement of quality of the conception, execution, and sustainability of transport projects in Chile. After reaching the mandatory retirement age of 62 in June of 1985, Miguel retired as a regular Bank staff member, but was immediately rehired as long-term consultant and kept in that position for ten years until 1995. This extended career in the World Bank allowed Miguel to participate in the performance of a great number of important tasks in many countries around the world.

Miguel’s life was filled with activities that assisted in the improvement of the road systems and of the transport sector, as well as in the employment of sound economic criteria and good engineering practices. During his career, Miguel often rendered homage and thanks to the IRF for the motivation, education, and guidance the Fellowship Program and his involvement in the organization gave Miguel at all times. His contributions to the economic growth of multiple countries through the development of their infrastructures are immense and deserving of great recognition.
Dr. Sadamu Mino – Japan – Ohio State University, 1954

Dr. Sadamu Mino graduated in 1941 with the Bachelor of Engineering degree from Kyushu University. After graduation he joined the Japanese Ministry of Home Affairs as a staff engineer. During the Second World War, he was recruited into the army and sent to Myanmar as a candidate-executive of an Engineering Brigade. In 1947, he was re-appointed to the Ministry of Construction.

While he was working at the Ministry of Construction, he was encouraged to pursue a master’s degree and he joined fifteen other young transportation leaders from fifteen countries in the International Road Federation (IRF) Fellowship Class of 1954. Dr. Mino was assigned to Ohio State University, where he not only learned from books, he met many industry leaders and became familiar with the practical side of the transportation industry. Dr. Mino completed his studies in 1956.

Returning to Japan, Dr. Mino used his newly found knowledge to influence the development of the Japanese highway network. His impressive performance earned him a series of promotions and his career blossomed. Over the next twelve years he was consecutively named Director of National Expressway Division, Director of Planning Division of Road Bureau, and Director General of Kinki Regional Construction Bureau. Dr. Mino was transferred to the Japan Highway Public Corporation in 1968 and served as Executive Director. He left the Japan Highway Public Corporation in 1976 and joined Sumitomo Construction Company Limited and was appointed consecutively as Vice President, Vice Chairman, Chairman, and Chairman Emeritus of the company.

His contributions to the Japanese road system cannot be understated. His influence was obvious in many aspects. Dr. Mino served on several professional associations, such as the Japan Road Association, the Express Highway Research Foundation of Japan, the Japan Society of Civil Engineers, etc. He also served as President of the Japan Prestressed Concrete Contractor’s Association from 1992 to 1996.

Dr. Mino devoted his life not only to the development of the expressway networks and modernization of highways in Japan but through his active participation in IRF and the Road Engineering Association of Asia and Australasia (REAAA,) his engineering experiences also served the betterment of roads and bridges throughout the world. Recognized around the world for his expertise and dedication, Dr. Mino was elected as a member of the IRF World Executive Board, as the IRF Washington Vice Chairman and as a Director in the International Road Federation Educational Foundation. The IRF acknowledged Dr. Mino’s contributions and dedication to technology transfer for the development of the world’s road network by creating the Dr. Sadamu Mino Award. This is the highest award of excellence that is presented to an IRF Fellow every four years.

Dr. Mino joined REAAA in 1975 during his term with Japan Highway Public Corporation. He was elected to the governing council the same year and served the council for 24 years until he succumbed to lung cancer on 29 November 2001, at the age of 83. In 1998, Dr. Mino was named the President of the REAAA and served his term with honor by developing and imple-
menting a strategic plan for the future of REAAA. Dr. Mino’s dedication and commitment to REAAA was admirable. On 14 October, one and a half months before passing away, Dr. Mino was on the point of leaving Tokyo for Seoul to attend the 70th REAAA Council Meeting, but his doctor stopped him.

Dr. Mino was accorded the association’s highest membership award of honorary membership in 1995 in recognition of both his invaluable contribution to the development of science and technology in the road engineering industry and his long-standing service to REAAA. His long-cherished aspiration was to assist young able engineers in Japan and other countries who are in financial difficulties, to join the workshops or technical training courses organized by REAAA and to take advantage of the IRF Fellowship Program. Dr. Mino often used his own personal funds to generously pay for these IRF and REAAA continuing education programs for persons in need. To continue with this desire and in his honor, the Japan Road Association has sponsored sixty-two Japanese young leaders in the IRF Fellowship Program since Dr. Mino was a Fellow in 1954.

Dr. Mino was truly one of the giants of road engineering. The many awards and honors he received in his homeland and around the world are testaments to this. He was named the IRF Man of the Year in 1991, the highest award given by the IRF, and was given the Medal of Transport Development by the Ministry of Transport in Vietnam, among many other very prestigious awards.

The roads in Japan today are a testament to Dr. Mino’s legacy. Some of the major reasons for the excellent road system in Japan were his never tiring efforts and his vision for the future. He built roads and he built leaders. It is impossible to determine the monetary effects that Dr. Mino’s road building aspirations and achievements had on the Japanese gross national product, but it is very clear that this is a very significant value.

**Guy Eboe Otobo – Nigeria – Purdue, 1966**

Guy Eboe Otobo was one of the first Nigerians to participate in the International Road Federation Fellowship Program. An alumnus of McGill University where he obtained the Bachelor of Engineering degree in civil engineering in 1960, he worked as a structural design engineer at Aluminum Laboratories Limited, which was part of the Alcan of Canada group of companies. He received the IRF Fellowship in 1966 and studied at Purdue University. Upon completion, he returned to Nigeria to utilize his education and was to become a major contributor to road development in Nigeria in the future. Throughout his career, Otobo continued to express his gratitude to the International Road Federation for the opportunity it gave him to participate in the Fellowship program, which he insists prepared him for the tasks he accomplished during his illustrious career.

During the sixties and seventies the Nigerian Federal Road Network especially of about 11,000 kilometers increased to about 30,000 kilometers following the takeover of state roads by the federal government. The Federal roads were designed and constructed to international standards adopting such standards as those of the American Association of State Highway Officials (AASTHO), which Otobo learned about during his Fellowship. Engineer Otobo was soon
moved to the headquarters of the Federal Ministry of Works and Housing into senior management positions where he excelled in all the responsibilities entrusted to him. First, he was made head of the Federal Highways Department as the Director of Federal Highways, where Otobo was in charge of the planning, design, construction, maintenance, and management of the over 30,000 kilometers of Nigerian Federal Highways and headed a department with a staff strength of over 8,000 engineers and other staff.

In recognition of the great benefits to his career that he obtained as an International Road Federation Scholar, Otobo single-handedly resuscitated the Nigerian Road Federation and served as its President for ten years from 1978 to 1988. The Nigerian Road Federation became very vibrant during this period and participated in both local seminars, which it organized, and the international seminars of the International Road Federation. Many Nigerian engineers obtained postgraduate degrees from the best universities in the United States of America through the efforts of the Nigerian Road Federation as a sustaining member of the International Road Federation. Otobo was appointed to the Board of Directors of the International Road Federation, Washington and Geneva from 1986 to 1992.

Otobo achieved the pinnacle of his civil service career in 1988 when he was appointed the Director-General of the Federal Ministry of Works and Housing, a position that made him second only to the Honorable Minister of Works and Housing. As the Director-General, he was in charge of the Federal Highways Department, Public Building and Housing Department, Federal Surveys, Lands Environment Urban & Regional Development, and the three parastatals of the Ministry, namely the Federal Mortgage Bank of Nigeria, the Federal Housing Authority, and the Federal Environment Protection Agency. With a personnel population of 40,000, this was easily the largest ministry of the Nigerian Federal Government.

On retiring from the civil service in 1993, Engineer Otobo set up GUY OTobo& PARTNERS, a firm of engineers, planners, and project management consultants. Through this organization, Otobo is once again a key player in highway development in Nigeria now as a consultant involved in the design and supervision of construction of some of the most densely trafficked roads in Nigeria. He was recently appointed by the Government of Nigeria to be the first Chairman of the Federal Roads Maintenance Agency (FERMA), a newly set up agency to undertake the planned maintenance of the Federal Road network.

Otobo’s immense contribution to road development in Nigeria was recognized formally in 2004 when the Government of Nigeria honored him with the national honorary award of Member of the Federal Republic (MFR). Putting the value of Engineer Otobo’s contributions to the road infrastructure and thereby the economic growth of Nigeria cannot be adequately calculated. Suffice to say that Engineer Otobo utilized his education, including the IRF Fellowship and his training and expertise to make Nigeria one of the stronger, more vibrant countries in Africa.

**Wen-Hui Ting – Malaysia – Ohio State University, 1960**

Dr. Ting graduated from the University of Malaya in 1958 and in the same year joined the Public Works Department (PWD) in Malaya (now known as Peninsular Malaysia). While still in the PWD, he received the IRF Fellowship and was sent to Ohio State University (USA) where he
obtained a master’s degree in soils and highway engineering in 1961. Later, he went to Cambridge University, United Kingdom, where he carried out research on properties of soft clays and was awarded a Ph.D. in 1968.

In the Public Works Department, Dr. Ting was actively involved in the Subang International Airport Project and the widening of the Johore Causeway. He then looked after the PWD Soil and Materials Laboratory and in that capacity was involved in numerous Highway, Airport, Ports and Building projects mostly dealing with material, soil and foundation problems. He often used the lessons he had learned during his Fellowship.

After leaving the PWD, from 1973 to 1978 he taught at the University of Malaya where he lectured on soil mechanics and foundation. After 1978, he became a consulting engineer continuing his practice in the field of highway, airports and foundations engineering, as well as in the special field of geotechnical engineering for various types of civil engineering projects.

Dr. Ting has also been a Director and Principal of Zaidun-Leeng Sdn. Bhd., a consulting engineering firm. He is currently an independent geotechnical consultant to several projects. His contributions to the development of the highway network cannot be denied. The question remains, where would the roads in Malaysia be today without Dr. Ting’s involvement and could Dr. Ting have been as involved without the IRF Fellowship that allowed him to continue his education at Ohio State University? Once again, putting a monetary value on Dr. Ting’s contributions is very difficult to do. However, it is very obvious that it is significant.

John Wootton – England – University of California, 1962

John Wootton had been a lecturer in civil engineering for three years at the University of Leeds lecturing in highway engineering, surveying, and structural engineering when he decided to pursue an International Road Federation Fellowship. In 1962, he was awarded the IRF Fellowship to study at the Institute of Transportation and Traffic Engineering at the University of California, Berkeley. This opportunity changed the course of Wootton’s professional career.

Upon his return to England, Wootton was appointed the Technical Director of Freeman Fox Wilbur Smith & Associates where he utilized his newly found knowledge for nearly five years. He was responsible for the technical control of numerous traffic and transportation studies, including studies in London, the West Midlands, Nottingham, Derbyshire, Edinburgh, Rotterdam, Tel Aviv and Athens.

After three years as Joint Managing Director of SIA, Ltd., a computer service bureau, Wootton started a twenty-year stint with Wootton Jeffreys & Partners, first as Senior Partner and later as Chairman. The work of Wootton Jeffreys Consultants, Ltd., included many land use/transportation studies and they specialized in the production of business software for private companies, charities, and professional institutions.

By 1991, Wootton’s reputation had spread across England, and the Department of Transport asked him to be the Chief Executive of The Transport Research Laboratory, the United Kingdom’s national centre for transport research. Wootton’s five-year assignment was to
manage the Transport Research Laboratory for a term through its change into an Executive Agency of Government, but in 1996, the Secretary of State for Transport decided to privatize the Laboratory. Wootton then led a management team who bought the Transport Research Laboratory, making it part of a non-profit distributing charity, the Transport Research Foundation. In this form, the Laboratory has maintained its independence and remained a principal provider of transport research to the U.K. Department for Transport and other governments worldwide.

A year after privatizing the Transport Research Laboratory, Wootton retired and returned part time to his academic roots, joining the Transportation Research Group at the University of Southampton as a visiting professor in transport planning. Due to his reputation, Wootton has been recruited to serve in a variety of positions including Trustee of the Rees Jeffreys Road Fund, a Member of the Public Policy Committee of the RAC and is Chairman of “The Motorway Archive Trust.”

Wootton’s contributions to road development have stretched far beyond the borders of the United Kingdom. Many of the policies and technologies developed by The Transport Research Laboratory have been utilized by countries around the world to improve their road networks. It is next to impossible to put a monetary value on Wootton’s contributions to the world’s infrastructure and the corresponding economic growth. However, the value is significant and Wootton credits the lessons learned as an IRF Fellow as a major factor in his success over the years.

Summary

Road infrastructure development is the key to the economic and social progress in any country in the world. Multiple studies have proven that a country’s gross domestic product can be directly tied to the level of sophistication of its infrastructure. Overall, the majority of the countries listed in Table 1 show an increase in their country’s GNI as their road network develops each year. Quality of paved roads differs from country to country, some countries having more gravel and dirt roads that make up the majority of their road network than paved roads. Ultimately however, the expansion of a country’s road system allows opportunities for growth in commerce, trade and industry as people and resources are able to reach areas once too difficult to consider for development.

The influence of the IRF Fellows to enhance the road networks in Europe, Asia, Latin America, the Middle East and Africa cannot be understated. These individuals helped their countries grow because they understood that better roads would allow the citizens of their countries to enjoy better lives. The IRF continues today to identify future international transportation leaders and to provide them the opportunity to learn academic and practical aspects of the road industry through its Traditional Fellowship Program and its Executive Leadership Program. Someone once said that if you do not grow, you will die. The positive impact of the IRF Fellowship Programs in the enhancement of the Fellows and on the roadway infrastructure, gross national income, and overall economic development of their countries, will help to ensure that countries around the world will continue to grow into the twenty-first century and beyond.
References


