

Offshore Software Development in Vietnam

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Table of Contents

TABLE OF CONTENTS2

EXECUTIVE SUMMARY3

OFFSHORE SOFTWARE DEVELOPMENT: WHY AND HOW IT IS DONE.....4

WHY VIETNAM?.....6

 VIETNAM ECONOMY: A REVIEW AND UPDATE6

 VIETNAM IP LAWS: EFFECTS OF THE BILATERAL TRADE AGREEMENT7

STATUS OF OFFSHORE SOFTWARE DEVELOPMENT IN VIETNAM.....8

STRENGTHS AND WEAKNESSES OF VIETNAM AS AN OFFSHORE SOFTWARE DEVELOPMENT

LOCALE10

 STRENGTHS10

 WEAKNESSES11

LOOKING FORWARD.....12

ENDNOTES13

Executive Summary

“Offshore Software Development” in the IT world is the term most often used to describe the business of outsourcing software programming and engineering services to contractors or wholly-owned facilities located in foreign countries with lower labor costs. Currently, India is the largest provider of such services, with the market estimated to be worth \$6.3 billion¹ in 2000-2001. However, several countries in each region of the world have begun pursuing this promising business at the same time that India may be reaching the limits of what they can produce.

Vietnam is such a country. Software development activity in Vietnam has recently enjoyed a surge in interest and activity, thanks in large part to the support and dedication of the country's government. In May 2000, the government affirmed its commitment to the rapidly growing software industry, establishing goals of training 50,000 IT workers by 2005² and expanding software technology parks and zones. The government also set a target of \$500 million in software exports by 2005², exponentially higher than its contribution at the time.

Vietnam possesses tremendous human resources with almost 75% of the population younger than 35². This youthful energy is apparent in the eagerness of high-school and university students to learn computer science and enter the technology arena. Moreover, the workforce has been underemployed and very easy to train, offering inexpensive, highly skilled labor pools. A joint report issued by Oracle and IBM stated that Vietnamese could be trained twice as quickly as their counterparts in most other Asian countries. With a dynamic and youthful population that can be educated at low costs, Vietnam is poised to equip its technology sector with trained professionals.

Although the software development industry in Vietnam is growing rapidly, a number of fundamental drawbacks remain. The largest is a lack of experienced project managers at all levels of the process from top management to junior project managers, resulting in very few Vietnam companies whose project management and quality control processes are certified according to international standards. Language is another concern, as many major offshore software development locales are primarily English speaking. However, many Vietnamese do speak English fluently and there are even companies in Vietnam where English is the primary language. Other drawbacks that affect the Vietnam industry itself are high bandwidth costs and a lack of marketing capability in the U.S. and other target markets.

Intellectual property protection and security are major concerns of companies considering offshore software development. Thankfully, the laws on intellectual property ownership in Vietnam are already thorough and still growing thanks to the Bilateral Trade Agreement with the US ratified in December of 2001. Enforcement of these laws has been somewhat of a problem, but the trade agreement outlined the parameters for establishing stricter and more centralized enforcement. There have been no recorded violations of intellectual property rights in the offshore software development industry, and as always, companies can ensure their safety by working with reputable and experienced organizations and contractors.

This industry is certain to continue growing quickly. Vietnamese companies and project managers are quickly gaining experience and many are currently preparing to attain world recognized quality and business process certifications. The Vietnamese government and the people of Vietnam are excited about their opportunity to follow in the footsteps of India and become a prominent player in the world of offshore software development outsourcing.

Offshore Software Development: Why and how it is done

Offshore development in the IT world is the term most often used to describe the business of outsourcing software programming and engineering services beyond national boundaries. The three most common justifications for offshore development are cost reduction, internationalization and inadequate supplies of domestic resources.

Cost reduction is the traditional reason for offshore development. Low-level tasks such as coding and software testing can be performed in less-developed countries at costs as low as ten percent of domestic ones. India has built revenues for this type of outsourcing from \$110³ million in 1990 to \$6.3 billion in 2000-2001¹. Attracted by such huge success, other less-developed countries are attempting to become serious contenders for India's near monopoly.

Software manufacturers seeking international markets and needing to localize their products to specific platforms, languages and cultural requirements often find it most efficient to use offshore development resources in or near their target markets. Ireland, Australia and Finland are in the most demand for this type of outsourcing today. Cost savings from these more-developed countries remain available, but are less dramatic.

The growing shortage of IT professionals, especially in the most developed industrial countries, is rapidly becoming the most important reason for offshore development. For instance, the U.S. Department of Commerce reports that by 2003 there will be a shortfall of some 1.4 million computer programmers in the United States alone.¹

Until quite recently the term "offshore development" has been somewhat of a misnomer. Although contracts may exist between an onshore client and an offshore contractor, most of the work has actually been performed at the onshore client's site by "consultants." Indian offshore development contractors to U.S. clients, for instance, performed 95% of their work on-site in 1991-1992⁴. But as demand for this type of service increases it is being made especially difficult by visa requirements designed to protect domestic workforces. For instance, the United States requires on-site workers to obtain H-1B visas and during the recent economic slowdown, has ceased to increase the total number of such visas made available.

This type of onshore-offshore development is often referred to as "body shopping" or "body shipping." It has allowed companies to access relatively inexpensive, temporary IT resources without the need to negotiate with the individual workers themselves, and with minimum risk. Contracts are with the offshore provider, which remains responsible for most of the employees' support. In the United States the demand for such onsite services far exceeds the supply of H-1B visas.

Thus, business needs are overcoming the biggest barrier against true offshore development, the lack of trust and perception of risk among clients, and now most offshore development is actually taking place offshore. In order to reduce the risk, many clients choose to retain as much control as they can over production. One major method is mandating that at least the project manager for each project remain onsite. This type of onsite/offsite combination of offshore outsourcing is often referred to as the "4th generation" outsourcing model and is offered only by the more progressive offshore companies who have established strong, demonstrable communications infrastructures for this type of project management.

The most attractive sources for offshore development are countries with well developed IT support infrastructures, favorable demographics and labor costs, competent technical education facilities in national university systems, a well established presence of leading hardware and software platform manufacturers and a favorable Government regulatory environment supporting offshore development activities.

India possesses most of these advantages, and the Indian government is aggressively helping to develop the offshore development sector, which now accounts for more than 10% of the value of all Indian exports. The Indian National Association of Software and Service Companies (NASSCOM) is one of the strongest industry groups in the World. India has an excellent university support system that works closely with leading hardware and software

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manufacturers and telecommunications facilities in India continue to improve dramatically. The number of high-speed leased lines in use by offshore development companies has increased to more than 1200. Last year more than 185 companies out of the Fortune 500 companies outsourced their software requirements to one of the more than 1250 Indian companies engaged in offshore development.⁴ As India has experienced such phenomenal success in this area, the wage rates have dramatically increased as the production of qualified developers has been unable to meet the demand, creating the opportunity for other locales to become major players in the outsourced software development market.

There are interesting similarities when comparing India's IT infrastructures in 1990 and Vietnam's in 2002. Vietnam's present level of offshore development revenue is approximately the same as India's a decade ago and the wage rates in Vietnam are roughly the same as India's initial rates. Perhaps most importantly, Vietnam's government is aggressively pursuing the growth of its software development industry with significant tax credits for employees, employers, investors and even computer science and engineering students. There is every reason to believe that by the end of the present decade Vietnam will number itself among the world's leading offshore development providers.

Why Vietnam?

It is important when considering an offshore outsourcing vendor, to understand the people, the economy and the intellectual property laws of the country in which your development work will occur. When most Americans hear the mention of Vietnam, they only know of a war that ended before most current Vietnamese citizens were born. There is very little general knowledge of Vietnamese trade arrangements, the excellent education system that produces a 92% literacy rate (the highest in Asia), and the dedication of the Vietnamese government to the expansion of the economy and foreign trade. Certainly, even fewer Americans or Europeans are aware of the strengths and weaknesses of Vietnam as a potential offshore development location.



Vietnam is a country of 78 million people, of which 92% are literate and 70% are under the age of 35.² The youthful energy of Vietnam is apparent in the eagerness of high-school and university students to learn computer science and enter the technology arena. Moreover, the workforce is underemployed and very easy to train, offering inexpensive, highly-skilled labor pools. A joint report issued by Oracle and IBM stated that Vietnamese could be trained twice as quickly as their counterparts in most other Asian countries.⁵ With such a dynamic and youthful population trainable at low costs, Vietnam is poised to equip its technology sector with skilled professionals.

Vietnam Economy: A Review and Update⁶

When the last of the US troops left the American Embassy in Saigon in 1975, it marked the end of almost thirty successive years of war for Vietnam. Vietnam was unified by the Communist government of Ho Chi Minh and quickly shut itself off from the world, politically and economically. In 1986 the government initiated the *Doi Moi* program to modernize the economy. It was the beginning of Vietnam's effort to liberalize its economy and follow open market reforms. In 1990, the government ratified the Strategy on Socio-Economic Stabilization and Development. This plan specifically targeted a reduction in inflation from 85% at the time to less than 10%, and a 400% growth in exports within five years.

These efforts were rewarded as many foreign companies, investments, and international organizations entered Vietnam in the early 90's. The economy grew between 8 – 10% in the years preceding the Asian Financial crisis and

inflation was held to less than 5%. The government had managed to meet almost all its prior targets and was not significantly impacted by the the Asian financial meltdown, partly because it had not undergone the boom that the economies of Thailand, Indonesia and Malaysia had in the early 1980s. However, exports and foreign investments did suffer between 1997 and early 1999, and the US and Vietnam continued to work on establishing a Bilateral Trade Agreement.

In early 2000, the Vietnamese economy began to gather steam again. Vietnamese GDP had been growing steadily and annual growth returned to 6.5% in 2000 and inflation was at an all-time low. Industry and services accounted for 72% of the economy compared with 50% in 1991. Private enterprise in Vietnam began to boom with 6,500 new companies registered in the first six months of 2000 and the Vietnamese government began to privatize its profitable State Owned Enterprises (SOEs) in earnest, with over 500 companies successfully privatized by June of 2000. Vietnam targeted a 7.5% annual growth rate each year for the decade beginning in 2001. This would allow the country to double GDP over that period.

Furthermore, key international agreements and government policy paved the way for a prosperous economic future, driven by technology. The summer of 2000 was a historic period for Vietnam with the inauguration of the first stock exchanges in Ho Chi Minh City and Hanoi in June, and in July, Vietnam and the US signed the much-awaited Bilateral Trade Agreement (BTA), spurring investment, trade and technology transfer between the two countries. The government confirmed their commitment to the growth of their nation's economy and businesses by their participation in the Asian Free Trade Agreement (AFTA), which heralded a new era of technology exchange between Vietnam and its Asian neighbors.

Vietnam IP Laws: Effects of the Bilateral Trade Agreement

Intellectual property law is one of the fastest developing areas of laws in Vietnam and began a decade ago, with the introduction of the Ordinance on Protection of Industrial Property Rights in 1989. After the 1989 Ordinance, the Government issued a series of regulations for protection of patents, trademarks, designs and copyrights. However, the most noted development of the IPR regime in Vietnam is the Civil Code passed by the National Assembly in 1995, which took effect on July 1, 1996 and is followed by a host of implementing regulations. Under the Civil Code and its guiding regulations, significant changes have been made toward compliance with the international standards, especially the Agreement on Trade Related Aspects of Intellectual Property under WTO (TRIPs). For example, the term of protection of an invention has been increased to 20 years from 15 years; a trademark registration shall be cancelled on the basis of any five year consecutive non-use; procedures for copyright registration have been regulated, etc.⁷

The signing and ratification, in December of 2001, of the long-awaited Bilateral Trade Agreement between Vietnam and the United States marked a new development in the bilateral trade - economic relations. The Agreement finally completes the process of economic normalization between Vietnam and the US and is a significant step toward Vietnam's accession into the World Trade Organization.

The pact with the US is comprehensive, covering four major areas: trade in goods, trade in services, intellectual property, and investment relations. The Agreement includes an entire chapter comprising 16 articles that cover a variety of issues in the intellectual property field in respect of the trade and economic relations between the two countries and set out specific details for civil and administrative procedures, criminal procedures and enforcement procedures of Intellectual Property Rights (IPR) in Vietnam.

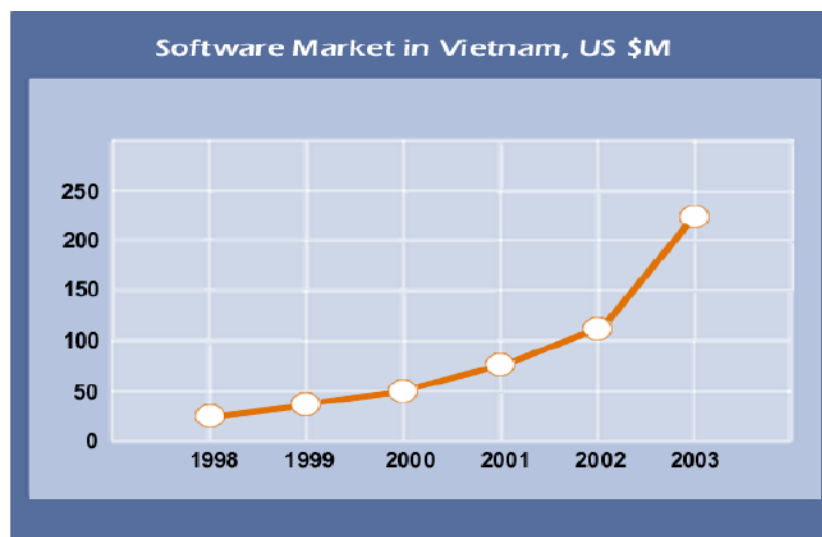
Though there were quite a few State authorities involved in and vested with the authority to enforce IPR infringements, unfortunately, there was no central authority to handle IPR infringements. Various improvements have been and will continue to be made under the regulations of the BTA. Vietnamese laws and enforcement of IPR have already reached TRIP compliance in most areas in just 12 months since the ratification of the agreement. Vietnam continues to increase their enforcement capacity and will meet TRIP compliance standards for all areas within the next 18 months.

Status of Offshore Software Development in Vietnam

The Vietnamese IT market grew 45% from 1998 to 2000 and was projected to grow to \$690 million by 2003¹ with certain sectors like software and telecom set to grow at twice that rate. A large number of multinational IT companies are already established in Vietnam and are doing exceedingly well.² Cisco and IBM doubled earnings in fiscal year 2000 in Vietnam and were expected to do so again in 2001. Other renowned corporations that have established offices in Vietnam include Fujitsu, Oracle, Microsoft, Digital, Ericsson, Nokia, and Compaq. The presence of these leading international IT companies indicates the growth potential of the local marketplace and has a positive impact on the number of trained experienced technical employees.

While the demand for programmers worldwide has continued to grow faster than the available supply of qualified specialists companies have been looking for new sources of labor to fill the gap. As the problem has become even more acute in the past few years, Vietnam's dedication to economic growth and the increase in IT training and infrastructure spurred by these large corporations has allowed Vietnam to step on the world stage as a source of highly skilled, low cost programmers.

In May 2000, the Vietnamese government affirmed its commitment to the rapidly growing software industry, offering details on increased training of IT professionals and expanding software technology parks and zones. The government also set a target of \$500 million in software exports and 50,000 newly trained IT professionals by 2005². The industry's primary role model was India and its staggering progress in software development. With Vietnam generating many of the attributes that India had a decade ago, many believe that the software industry in Vietnam will prove highly lucrative for early entrants.



On paper, at least, the attractions of Vietnam are not hard to spot. Many US and European companies look towards Vietnam as a center for software outsourcing because of its inexpensive and skilled labor pools and incentives offered by the government to foreign investors. Industry observers claim that developing software in Vietnam is 90 percent less expensive than in the United States, and between one-third and one-seventh of the cost of developing in India.⁵ Moreover, IT companies in Vietnam retain key staff and keep project teams together for months at a time. Low rates of attrition in comparison to Indian and U.S. onshore development teams ensure continuity and that familiarity grows between client and contractor.

Already, the likes of Anheuser Busch, Bayer, Cisco, IBM, Nortel Networks and Sony have seen the value and made the decision to outsource software development projects to Vietnam - either directly or through third-party developers with an onshore presence in the United States and Europe. In fact, about 30 software development companies are currently operating in Vietnam. Some, such as Raleigh-based International IT Services, are U.S.-

owned, by Vietnamese expatriates, and others have U.S. sales and liaison personnel, but are still owned and operated from within Vietnam.

Discussions with multiple companies currently outsourcing software development efforts to Vietnam results in consistent findings, they each indicate that:

- The projects are all generally viewed as successful and the company has chosen to scale up their research and development teams in Vietnam.
- Vietnam research and development and software development centers are ranked on par with U.S. and Indian centers.
- Cost savings are normally a large factor in the initial decision to develop in Vietnam, but are not the primary reason for the success and growth of their Vietnam software development teams.
- Intellectual Property rights and security have not been issues.

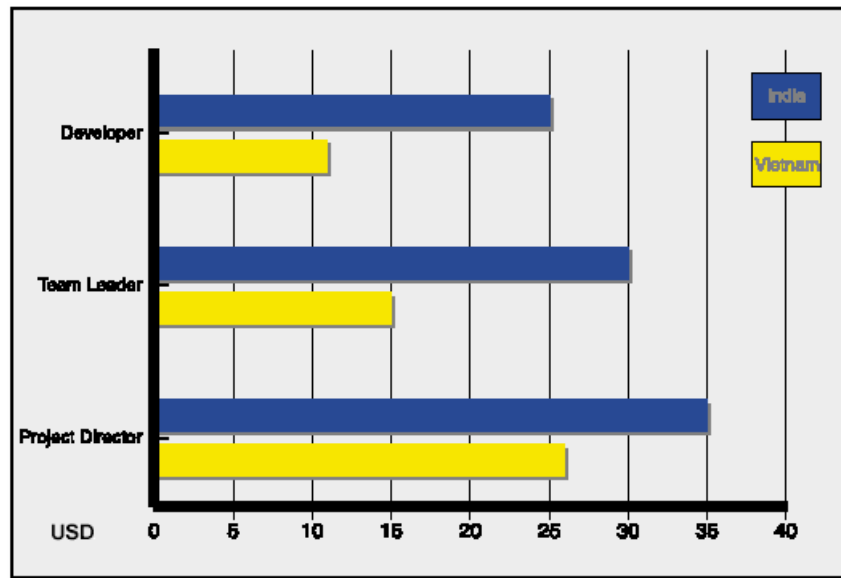
After conducting considerable research on the market in South East Asia to locate a vendor, Cogita Solutions of San Francisco chose Vietnam as an offshore development center. CEO Brad Reynolds says, "If a company our size goes to India, no one is going to get excited—we're not Sun or IBM. But in Vietnam, service levels are much higher for smaller projects [from companies like ours] because the market is still emerging."⁵ It was for precisely such reasons that Hong Kong-based Web applications company Diffinc Innovations decided on Vietnam, after experiencing quality problems in India. Thanks to their experiences with outsourcing to Vietnam, the company actually plans to close in-house development centers in China and Singapore and replace them with operations in Vietnam.

Strengths and Weaknesses of Vietnam as an Offshore Software Development Locale

Telecom giant Nortel Networks has been in Vietnam since the early 1990s, and is well acquainted with the pros and cons of doing business in the country. Alex Pierson, vice president of Nortel's Enterprise Business Networks division, urges some caution, but maintains that Vietnam is well worth a look. "American CIOs engaged in software development should be looking further than India, where costs are rising," he says. Even so, he warns that Vietnam is an emerging market and the transformation of Vietnam into an offshore development center is a work in progress. For anyone thinking of outsourcing IT projects there, an understanding of Vietnam's strengths and weaknesses is vital to the success of any project.⁵

Strengths

- Labor Costs:** One of the main benefits of tapping into Vietnam's offshore development capabilities is the relatively low labor cost when compared to similar specialists in other markets. IT professionals, who worked for foreign companies like IBM were paid \$300 per month in 2001 and Vietnam continues to hold a large cost savings advantage over other offshore development locations, such as India, where the loaded cost per person is double that of a similar person in Vietnam.



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- Government Support:** By far the most important factor in Vietnam's rise as a viable location for outsourced software development is the dedication of its government to the growth of software exportation as an industry. The government continues to establish incentives and structures to pursue its goal of becoming the second largest provider of outsourced software development in the world.
- Human Resources:** In Vietnam universities, computer science is one of the most sought after degrees because students realize that there is an abundance of jobs in this area. In January 2001, the government signed agreements with foreign countries such as India to aid in the training of its budding technologists. In addition, Vietnam scientists are very strong in the fields of applied sciences such as mathematics and physics, and the Vietnam educational system continues to produce highly qualified graduates. Above all, there is still a wealth of undiscovered talent in Vietnam.
- Culture:** Vietnamese culture is rich in traditional values and therefore loyalty and customer service are valued much more there than in other offshore locales. There is also a familiarity with European and Western culture as

a result of French rule in the early part of the century and the prevalence of Catholicism as the second largest religion in the country.

Weaknesses

Although Vietnam is developing rapidly, it indisputably remains a nation of farmers rather than developers or other high-tech folk—statistics show that 80 percent of the population still lives off the land. In addition, until recently the country's IT infrastructure was owned and controlled by state-owned monopolies and the choice of potential location is also constrained. Vietnam's fledgling IT industry is largely a tale of two cities—the capital Hanoi, and the country's real powerhouse, Ho Chi Minh City, in the south. It's at Ho Chi Minh City, for instance, that Vietnam's most modern software park, the Quang Truong Software City, opened in March 2001. This development will, when complete, accommodate 10,000 programmers.⁶

- **Inexperience in management of the offshore software development processes:** Vietnam is just starting to enter this market, and lacks experienced managers at all levels of the process from top management to junior project managers. Companies considering outsourcing to Vietnam should look for partners with experienced management teams that have potentially even worked for larger corporations or on large scale projects in the US or Europe.

Alex Pierson, vice president of Nortel's Enterprise Business Networks division, says that one of the critical factors in his experience with Vietnam is the company they use "employs experienced expatriate workers in key management posts to provide an interface between us and the Vietnamese project teams." Certainly, the potential for this kind of connection is there: approximately 1 million expatriate Vietnamese live in the United States—a significant number of them working in IT. "The importance of having someone who understands the way business is done in Vietnam should not be underplayed," Pierson says.⁵

- **Language:** Many of the other major offshore software development zones are English speaking. Naturally, not every software developer on a project needs to speak English. Explains CIO Paul Gresham of Diffinc Innovations "We are happy dealing with Vietnam, and although there is a lack of spoken English at the lowest levels, the understanding of technical English specifications is far greater than it is in China or India." However, when there are more people within the team who speak English there is likely to be a higher level of communications and understanding, and in an effort to increase their comfort with and command of the language, some Vietnamese outsourcing companies have taken the critical step of creating "English only" cultures where all office correspondence and conversation is conducted in English.
- **Bandwidth Costs:** Vietnam has comparatively high cost of bandwidth, which is an essential element in communications for offshore software development. A 128k leased line currently costs \$800 per month, down from \$2,000 two years ago, and international phone calls are among the most costly in the world. These costs are falling thanks to the liberalization of the Telecom sector required by the BTA, but they still remain higher than communication costs in some other offshore software development zones.⁶

Looking Forward

A growing number of the small band of international observers familiar with Vietnam's IT industry believe that the moment has come for Vietnam to take its place as a major player in the outsourced software development market. Vietnam is a young country—half the population is under 30 years old²—and a growing proportion of the economically active population consequently tend to regard the war with America as ancient history. An urban elite class is slowly emerging, just as it did in India, and is beginning to provide the knowledge workers of tomorrow. The objective of training 50,000 IT workers by 2005 is moving forward with an Indian training company designing courses, while an aid package from the Japanese government provides funds. "As international companies become more cost conscious they will look to Vietnam as an alternative to India. If the government can provide a stable investment climate, the young intelligent and dedicated human resources of Vietnam will provide the rest," says Anil Sinha, an analyst working for the World Bank, who has watched the IT market evolve in Vietnam during the past few years. Nortel's Pierson agrees: "Fundamentals are in place and improving all the time. The IT industry could take off here—it really could."

Endnotes

¹ <http://www.usatrade.gov/website/ccg.nsf/showccg?openform&country=vietnam>

² “*IT Vietnam 2002: Outsourcing to an Emerging Market*” Research Vietnam with Anderson (Vietnam) Feb. 2002

³ <http://members.tripod.com/~iimc/spm/report.html>

⁴ <http://www.nasscom.org/template/itinindia.htm>

⁵ “*Outsourcing to Vietnam*” Marc Lopatin, CIO Magazine Nov. 2001

⁶ “*Vietnam Technology and Telecom Fund (VTTF) – Pioneering Investment in Indochina*” Stanford Technology Ventures Program (STVP) Aug. 2001

⁷ <http://www.ustr.gov/regions/asia-pacific/text.pdf>