

**The Future Role of Strategic Alliances
in the
Privatization of Environmental Projects
in
Southeast Asia**

by

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ABSTRACT

The growing global environmental market provides many opportunities and poses many challenges to environmental services and technology providers. This thesis examines the growth of the environmental market in Southeast Asia and the means for meeting this demand.

The reasons driving the growth in the environmental market in Southeast Asia are examined including the demands of a growing middle class and increasing regulatory control and oversight. The various market segments in a number of Southeast Asian countries are evaluated. The provision of environmental infrastructure, including wastewater and water systems, is found to be one of the strongest and fastest growing segments in a number of Southeast Asian countries.

Privatization is explored as the most efficient means of meeting this growing demand for environmental infrastructure given the current fiscal constraints in the various countries. Available funding sources and project delivery methods are evaluated.

Finally, the use of strategic alliances within the privatization framework is examined. The research performed for this thesis indicates that strategic alliances provide many benefits for accomplishing the business objectives of environmental firms while meeting market demands, as long as drawbacks are recognized and handled appropriately.

Thesis Supervisor: Professor David H. Marks
Title: Professor of Civil and Environmental Engineering

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List of Abbreviations

ACEC - American Consulting Engineers Council
ADB - Asian Development Bank
BLT - Build-Lease-Transfer
BOO- Build-Operate-Own
BOT - Build-Operate-Transfer
BT - Build-Transfer
BTO - Build-Transfer-Operate
CAO - Contract-Add-Operate
CEO - Chief Executive Officer
DBO - Design-Build-Operate
DOT - Develop-Operate-Transfer
ETE - Department of Commerce Environmental Technologies Exports
ETNA - Environmental Technology Network for Asia
GSP - Global Strategic Partnership
IBRD - International Bank for Reconstruction and Development
ICL - International Corporate Linkage
IDA - International Development Association
IFC - International Finance Corporation
MCE - Mobilization of Consulting Engineers
OECD - Organization for Economic Cooperation and Development
OPIC - Overseas Private Investment Corporation
ROO - Rehabilitate-Own-Operate
ROT - Rehabilitate-Operate-Transfer
TEPA - Taiwan Environmental Protection Administration
US-AEP - United States Asia Environmental Partnership

1. INTRODUCTION

In Southeast Asia, increased concern for and interest in environmental issues fueled by the economic growth of the middle class is dramatically expanding the market for environmental services and placing additional burden on existing environmental infrastructure systems such as water supply and wastewater treatment plants and networks. The Asian Development Bank projects that the market for water and wastewater infrastructure alone will total \$15 billion per year over the next decade.

However, debt-service obligations and other fiscal constraints are limiting the public sector's ability to finance the growing demand for infrastructure development and improvement. The private-sector is reacting to this demand by financing the development, design, construction, and operation of infrastructure projects.

Given the magnitude of these projects and the risks involved more and more companies are entering into strategic alliances to meet the demands of the market and to access required capital and technologies while allocating these risks among a number of parties. However, alliances carry substantial costs in strategic and organizational terms. There are very real problems associated with coordination and potentially conflicting objectives. Nevertheless by the year 2000, the nature of competition in the global environmental industry will have changed dramatically and the industry will be moving away from adversarial competition toward cooperation.

This thesis examines the growth of the environmental industry in one region of the globe—Southeast Asia, the acceleration of infrastructure privatization to meet the demands of that growth, and the use of strategic alliances in the privatization of

environmental infrastructure projects as a means of moving toward “cooperation” and successful project development and completion. It seeks to answer the following questions regarding the environmental market in Southeast Asia:

- What are the growth projections for the environmental market in various Southeast Asian countries?
- What market segments are the strongest?
- What funding sources are available to execute environmental projects?
- What delivery methods are most appropriate for these projects?
- Given the identification of a strong environmental market and suitable delivery methods, is the use of strategic alliances an appropriate strategy for entering the market, increasing market share, and executing successfully?

The research conducted for this thesis determines that there is a strong and growing environmental market in Southeast Asia particularly in the area of environmental infrastructure which, due to current governmental financial constraints, requires private participation in project funding and operational aspects to ensure success. Furthermore, due to the inherent risk of these projects and other concerns outlined in this thesis, the use of strategic alliances is suggested as an appropriate method of addressing these concerns and meeting other objectives of the involved parties.

2. ENVIRONMENTAL MARKET IN SOUTHEAST ASIA

Fueled by the concerns of a growing middle class, the market for environmental technologies throughout the world and particularly in Southeast Asia has tremendous potential. In a 1992 report, the International Finance Corp. (IFC), the private-sector arm of the World Bank, estimated the global market for environmental goods and services at about \$300 billion annually in the early 1990s and forecasts potential growth to more than \$600 billion by the end of the decade. One of the fastest growing market regions for environmental goods and services over the next decade will be in the Asian Pacific Rim countries, where the Organization for Economic Cooperation and Development (OECD) expects demand to increase annually by an average of six to seven percent for the remainder of this decade and early into the next century. Some industry associations estimate the current market for environmental goods and services in Asia at almost \$31 billion and predict the regional demand to grow by more than eight percent a year. (Rondinelli 1994, 1)

Water and wastewater infrastructure probably represents the largest segment in this market. The Asian Development Bank (ADB) believes that \$80 billion to \$100 billion would be required in the next five years just to lay the foundation in Asia for an acceptable water infrastructure, the region's most serious problem. (Moffat 1996, 122) Specifically, the market for water and wastewater infrastructure projects over the next ten years in Asia/Pacific rim countries is estimated at \$15 billion per year. (Schwarz 1994, 136) Furthermore, these countries are increasingly integrating environmental protection into their economic development plans and committing financial resources for

these needs. The ADB has committed \$4.4 billion in loans and technical assistance programs for the environmental sector for 1995-1997.

(<http://www.sover.net:80/~jcox/seasia.htm>)

Despite the fact that the focus on Southeast Asia is on water and wastewater, it is estimated that billion of dollars needs to be spent treating and cleaning up the region's existing sewage and industrial waste.

2.1 KEY MARKETS

2.1.1 *China*

The U.S. Embassy in Beijing estimated that environmental spending in China in 1994 totaled approximately \$15 billion. Annual growth of 30 percent is projected over the next ten years. The Chinese National Environmental Protection Agency estimates that nearly \$4 billion per year will be needed to control pollution and that nearly \$40 billion will be needed to clean up existing damage.

(<http://www.ita.doc.gov/envirotech/china.html>) Given the experience in the United States, these figures are probably conservative. Currently \$1.2 billion in water and wastewater infrastructure is earmarked for funding by multilateral development banks such as the ADB and World Bank, as well as an estimated \$8 billion financed by other sources, including the Chinese government and foreign investors.

(<http://www.usiahq.usis.it:80/abtusia/posts/HK1/wwwhae03.html>)

One of the main factors driving any environmental market is the growth of environmental rules and regulations. In China, the regulatory system continues to evolve—impact assessments are needed for most new ventures and the shipment of

hazardous waste was recently regulated. As enterprises strive to meet stricter regulations, the demand for environmental products and services must increase.

2.1.2 Taiwan

In 1992, the Taiwan Environmental Protection Administration (TEPA) initiated a five-year environmental plan. Under the plan, 19 measures are being implemented in a number of areas including air quality improvement, water pollution control, municipal solid waste disposal, and industrial/commercial waste management. Approximately \$2.9 billion are expected to be spent in these areas over the next five years. As in China, with the tightening of regulations, Taiwan's environmental technologies market can be expected to maintain its current 20 percent growth rate.

(<http://www.ita.doc.gov/envirotech/taiwan.html>)

2.1.3 Hong Kong

A number of different estimates indicate an environmental market in Hong Kong over the next decade of from \$5 to \$10 billion. More than \$1.5 billion in upgrades and expansion to waste collection and treatment infrastructures are being implemented, and an additional \$1.3 billion in projects are planned. Hong Kong has also initiated an ambitious program with an estimated cost of \$5.3 billion to clean up Victoria Harbor.

(<http://www.wef.org:80/docs/pressreleases/wnprnov4.html>)

2.1.4 Thailand

Within Asia, Thailand offers one of the potentially fastest growing environmental markets for multinational companies. The government of Thailand, recognizing the adverse impacts that environmental pollution, hazardous waste problems, and

environmental degradation are having on the Thai economy and on the health of its people, is committed to heavy investment in environmental protection. Thai officials estimate the demand for all types of environmental technology and services at nearly \$10 billion over the next decade, including \$3 billion for energy efficient products, \$2 billion each for municipal water supply and vehicle air pollution equipment, and more than \$2.5 billion for municipal and industrial wastewater treatment facilities, industrial air pollution, and solid and hazardous waste disposal. (Rondinelli 1994, 1)

Specifically, proposals for a 20-year plan to integrate wastewater treatment in the Bangkok metropolitan region provide \$1.1 billion for the development of wastewater treatment plants. (<http://www.wef.org:80/docs/pressreleases/wnprnov4.html>)

2.1.5 Malaysia

Increased public concern and interest and a growing middle class is resulting in a growth in the environmental market in Malaysia. Also, recent moves to privatize some hazardous waste handling and wastewater services indicates that the Malaysian government is becoming aware of its environmental problems. However, weak regulatory enforcement will likely impede attempts to address pollution in the short term.

Also, reliable estimates of the potential size of the market are scant. Environmental consultancy ERM believes the 1994 market for goods and services was on the order of \$432 million, noting that market opportunity is further limited for foreign firms. Once again, new and more strict regulations and enforcement being promulgated by the Malaysian Department of the Environment will likely lead to further growth of the environmental market. (Business Asia (1994), 2)

2.1.6 *Indonesia*

The Indonesian government has recently enacted new laws establishing environmental standards and institutions. Environmental impact statements are now required for all new development projects in an effort to promote sustainable economic growth, and last summer financial institutions became obligated to require impact statements as a condition for funding private developments. These efforts will result in a dramatic increase in the market for environmental goods and services in Indonesia.

Water quality is the most pressing environmental problem in Indonesia and twenty key rivers are being restored under a program initiated in 1989. Also, the government has identified ten locations for industrial waste treatment and disposal facilities to supplement the country's sole working facility. (Reade 1994, 34)

Funding for many of these projects is coming from the multilateral development banks. Indonesia is one of the top recipients of loans from these institutions.

(<http://www.rovers.net:80/~jcox/seasia.htm>)

2.2 U.S. MARKET SHARE

In 1995, only eight percent of the U.S. environmental industry's revenue came from overseas. However, exports made up just under 40 percent of total growth in 1995, up from 25-30 percent in previous years. This has allowed the overall industry to experience approximately four percent growth despite maturation of the domestic market as indicated in Table 1. (<http://www.ita.gov:80/envirotech/docwebt.html>)

Table 1. U.S. Environmental Industry Growth Projections

| | Revenues 1994 (\$ billion) | Revenues 1995 (\$ billion) | Growth (\$ billion) | Share of Growth (Dom. vs. Int.) (%) |
|----------------------|-------------------------------|-------------------------------|------------------------|---|
| Domestic | 161 | 165.5 | 4.5 | 60.8 |
| International | 11.5 | 14.4 | 2.9 | 39.2 |
| Total | 172.5 | 179.9 | 7.9 | |
| Annual Growth | | | 4.3 % | |

Nevertheless, U.S. market position does not compare favorably with major competitors, such as Germany and Japan, whose percentage of environmental export may exceed 20 percent. France and the United Kingdom are also ahead of the United States, principally due to their expertise in privatized water infrastructure which has given them an advantage in international privatization projects.

(<http://www.ita.gov:80/envirotech/docwebt.html>)

Specifically, in Taiwan, the United States is second only to Japan as a supplier of environmental goods and services with American-made equipment being very competitive in the public sector. (<http://www.ita.doc.gov/envirotech/taiwan.html>) For years, the United States has dominated the environmental technology and services sales to the island's public sector, while Japanese firms have excelled in private-sector sales. In Hong Kong, experts predict that the best opportunities for U.S. firms will be in air pollution, hazardous waste management, water and wastewater systems design, solid waste management, clean-end incineration, diesel fuel emission control, and treatment and disposal of toxic metals. (Reade 1994, 33)

2.3 GOVERNMENT PROGRAMS TO ASSIST IN ENTERING THE MARKET

The United States government has initiated a number of programs to assist firms interested in either entering or expanding business within the global environmental market. Several of these programs specifically target opportunities in Asia and the Pacific Rim.

The Department of Commerce's Environmental Technologies Exports (ETE) office is the principal resource and key contact point for American environmental technologies companies. ETE was established to assist U.S. companies in their efforts to export environmental technologies, goods and services by expanding partnerships with the private sector, enhancing trade promotion and business development activities, and increasing the flow of information on business opportunities in the environmental market. (<http://www.ita.doc.gov:80/envirotech/intro.html>)

The United States-Asia Environmental Partnership (US-AEP) was established to assist U.S. companies in introducing environmental products, services, and technologies to potential clients in Asia's private and public sectors. This is being accomplished through the establishment of Offices of Technology Cooperation in nine Asian cities in cooperation with the U.S. and Foreign Commercial Service. These offices, opened in Bangkok, Bombay, Colombo, Hong Kong, Jakarta, Kuala Lumpur, Manila, Seoul, Singapore, and Taipei, are staffed by Environmental Technology Representatives who serve as commercial officers for local environmental markets and are tasked with the early identification of business opportunities and assisting U.S. environmental firms in making the local contacts necessary to be successful in obtaining contracts.

The Environmental Technology Network for Asia (ETNA) was established in 1994 under an initiative of the US-AEP in support of technical representatives and environmental business advisors charged with identifying and disseminating information regarding environmental product, service, and infrastructure needs in Asia and providing counseling services to U.S. environmental companies and organizations interested in pursuing opportunities in Asia.

A number of companies including Law International and ICF Kaiser have reported obtaining contracts through the efforts of US-AEP and ETNA. These successes have led to the expansion of ETNA's efforts in the area.

Additionally, with funding from the US-AEP, the American Consulting Engineers Council (ACEC) has established the Environmental Infrastructure through Mobilization of Consulting Engineers (MCE) program to provide information and advisory services to U.S. firms interested in pursuing environmental opportunities in the Asia-Pacific region. The ACEC works with the US-AEP to promote an emerging public/private partnership in the delivery of municipal services in Asia. It encourages the participation of U.S. companies in the development, design, construction and operation of infrastructure projects primarily in the water supply, wastewater treatment, and waste management sectors.

The ACEC specifically explores the development of consortia and strategic alliances which would have the capability to compete successful private projects as well as identifying and structuring project finance for urban infrastructure projects in coordination with the ADB, the Export-Import Bank, the Overseas Private Investment Corporation (OPIC), and other U.S. and multinational organizations. The ACEC also

organizes and convenes workshops to help U.S. firms better compete on environmental infrastructure projects in Asia and build strategic alliances.

(<http://www.usaep.org:80/EIMCE.html>)

3. PRIVATIZATION IN ENVIRONMENTAL PROJECTS

3.1 HISTORY OF INFRASTRUCTURE PRIVATIZATION

Environmental infrastructure projects, including water supply and wastewater treatment, represent the largest segment of the environmental market in Southeast Asia. Rapid economic development, the growth of the middle class, and continued population growth have increased the need for new and improved infrastructure in developing countries. However, debt-service obligations and other fiscal constraints have limited the public sector's ability to finance the growing demand for infrastructure development and improvement. The private-sector is reacting to this demand by financing the development, design, construction, and operation of infrastructure projects. However, this is not a new phenomenon. Since the end of the last century, private American, Canadian, and European firms have had an extensive role in the development of infrastructure systems such as railroad, power plants and communications in parts of Latin America and Asia. But a resurgence of nationalism in the 1950's and 1960's brought a downturn in infrastructure investment and development as many countries expropriated foreign-owned infrastructure.

The positive experience of privatization pioneers (the United Kingdom, New Zealand, and Chile) reopened the doors to private development, ownership, and operation of environmental infrastructure projects. Since 1984, 54 countries have privatized more than 286 infrastructure companies and at least 272 private greenfield projects are currently underway in 52 countries. Asia currently leads the world in infrastructure

privatization. (<http://www.pw.com:80/us/ipgnet.htm>) Nevertheless, this represents only a fraction of the total infrastructure project volume. However, industry sources believe that eventually the remaining barriers to privatization will fall.

3.2 METHODS OF PRIVATE SECTOR INVOLVEMENT

Private sector involvement in environmental infrastructure projects ranges from no ownership or investment responsibility—in management and service contracts—to moderate risk and investment responsibility without ownership—in leases, concessions and build-operate-transfer (and related schemes) projects—to the maximum potential reward and amount of risk implied by the transfer of public ownership through the sale of assets.

3.2.1 *Design-Build-Operate*

A key method for the delivery of infrastructure projects is Design-Build-Operate (DBO). As discussed in a later section, governments are often interested in this procurement method due to negative experiences with sequential design-bid-construct. Primary advantages associated with this procurement strategy include time savings, private financing of design, construction, maintenance and operation generally supported by user fees passed directly through from the government, single point of responsibility for all phases, incentives to innovate in rapidly changing technological areas, and adaptability to environmental infrastructure projects.

In this project delivery method, the contractor assumes responsibility for the full range of activities mentioned above and is required to meet levels of performance specified in government contract documents. Normally, a “Project Brief” is generated by

the government which establishes minimum environmental standards and performance requirements while providing maximum flexibility to developers to suggest approaches to meet these requirements. Frequently this results in the use of innovative technologies and the ability to far exceed the government's requirements and expectations while also reducing costs.

Governments in selecting the DBO procurement method have recognized the ability to potentially meet the following objectives: creating a well-publicized program open to competition from around the world; providing a fair contracting process; obtaining high environmental standards; obtaining a long-term commitment to operation of the facilities with steady employment for workers; and fairly allocating risk between the successful contractor and the government.

Normally DBO proposals for environmental infrastructure projects are evaluated on the basis of technical merit, cost to government, and impact on the environment. Payment is generally based on usage and user fees and contingent on meeting performance requirements. (Miller 1995, 55)

3.2.2 Build-Operate-Transfer

Put simply, with a Build-Operate-Transfer (BOT) scheme the private sector raises the finance, builds and operates the project, repays the debt and takes a return itself from the project's revenues before handing the facility or assets over to the sponsoring government after an agreed contractual period.

3.2.3 Build-Operate-Own

With a Build-Operate-Own scheme the finance and building processes are similar to the BOT but the company retains ownership and operates the project indefinitely, continuing to derive revenue from it.

3.2.4 Concessions

In countries where political will or consensus is not broad, these difficulties tend to favor concession agreements, which involve the contractual operation of existing infrastructure systems for a defined period. (Vives, 22)

3.2.5 Other Methods of Private Sector Involvement

Other self-explanatory methods of private sector involvement include build-transfer (BT), build-transfer-operate (BTO), build-lease-transfer (BLT), rehabilitate-operate-transfer (ROT), rehabilitate-own-operate (ROO), develop-operate-transfer (DOT), and contract-add-operate (CAO).

3.3 GOVERNMENT'S ROLE

There are ways in which governments can play a positive role in accelerating the role of privatization in the development of environmental infrastructure projects.

First and foremost, governments need to ensure that the projects to be privatized are economically feasible. Many public works projects are not self-supporting and may require government subsidies to provide a suitable rate of return on investment.

Second, disagreement over the allocation of risk among the various players—investors, lenders, builders and government entities—often hold up or kill projects. Determining and apportioning risk up front is painful and time-consuming, but it avoids

problems later on. Many governments attempt to shift all of the risk to the private sector, but most industry sources feel that public-private partnerships work better. The key is having the government willing to support part of the risk.

Another problem sometimes comes from a lack of commitment from the very governments that desire the projects. A new regime often changes, interferes or halts a project, with frustrating and costly results for the private sector. The Chinese government surprised Hong Kong's developer Gordon Wu's Hopewell Holdings Ltd. by building a free road parallel to Wu's Guangdong toll road. One source estimates that it has resulted in losses totalling hundreds of millions of dollars. This type of government interference is obviously a discouragement to new investment and calls into question the stability of the whole legal and regulatory framework that China and other Asian countries are trying to put in place to support the privatization of infrastructure development. On the other hand, government support can speed a project along by making the project highly visible and tearing down legal, political and regulatory road blocks. (Schreiner et. al. 1996, 31)

3.4 FUNDING SOURCES

The expansion of water supply and wastewater infrastructure demands huge but uncertain amount of capital. Those regions with the least ability to pay for or raise that capital are also the regions with the greatest need. Banks may be able to raise that capital in the international money market, but the local governments and users will eventual bear the costs.

Investors expect and demand a return on capital. Utilities such as water and wastewater suppliers have only one way to achieve that return and that is through the

collection of customer fees. Smart investors will not fund infrastructure development in areas where customers do not have the income to pay those fees. In that case, customers either do without the service or the local government subsidizes the service, paying investors the return on capital that is not available through the collection of user fees. In poor countries, expansion of utility infrastructure must provide enough value to society and enough impetus to a country's development to produce the income needed to pay for the expansion.

Historically, returns on water and sanitation investment have been relatively low compared to other investments, at approximately nine percent. Many investors will shy away from projects with this rate of return and an increase in rate of return would necessitate higher user fees.

Furthermore, utilities are capital intensive entities. Infrastructure developers must commit to spending enormous sums of money on projects that take years to come to fruition and which yield no profits during the construction period. In addition, these assets once in place can not be moved if need does not meet expected demand or if politically or economically destabilizing conditions arise. Therefore, given the increased risk, investors demand a higher rate of return than in more stable businesses.

Nevertheless, a number of funding sources are available for infrastructure development programs.

3.4.1 Institutional Lenders

The World Bank, its affiliates, and regional development banks, such as the ADB, have provided large amounts of financing for environmental projects. These agencies,

however, have limited resources and almost unlimited demand on those resources.

Therefore, these agencies prefer to leverage private financing where and when available.

(Hyman 1995, 22)

The total World Bank loans, credits, and guarantees provided to countries in South Asia during fiscal year 1996 amounted to over \$3 billion, maintaining its average from the previous several years. However, substantial fluctuations have been seen between its components, the loans and guarantees from the International Bank for Reconstruction and Development (IBRD) and from the International Development Association (IDA), the concessionary lending arm of the World Bank. After power development, water supply and sanitation projects received the largest amount of funding at \$227 million followed closely by other environmental projects at \$200 million.

The Manila-based ADB has been a primary source of funding for environmental projects in a number of Southeast Asia countries including China, Indonesia, and Vietnam. Total ADB funding in China and Indonesia for 1996 exceeded \$1 billion while Vietnam received approximately \$350 million.

(<http://www.enr.com:80/new/vietnam.htm>)

3.4.2 Commercial Banks and Equity Investors

A larger source for project funding are lending institutions, such as banks, and equity investors. These are a source of enormous pools of capital and they have a long history of financing the acquisition of existing assets and for facility expansion and construction in developing countries. However, these investors tend to turn over these assets frequently which may disrupt the market and does not create an ideal climate for

investment in long-lived projects whose break-even point may occur many years into project development. (Hyman 1995, 23)

In the past, banks lent mainly to governments to help finance infrastructure projects. To bankers, those were sovereign loans that were either made directly to governments or to state-owned enterprises with government guarantees. In making such a loan, the viability of the project was not as important an issue as the credibility of the debtor government. However, a combination of factors have acted together to force governments of many Asian countries to reconsider their strategies for financing infrastructure projects. Fortunately, the private sector, including investors and financial institutions are showing increasing interest in infrastructure investment opportunities in Asia. This is a highly significant development because it shows that the viability of infrastructure development is supported by the confidence of the business community in the region, which, bankers say, should be in a better position than government bureaucrats to assess accurately the demand for such new facilities.

The World Bank says that at present there's no shortage of equity funds for the financing of viable projects. A major source of such funds are international and regional investors, including corporations, contractors and equipment suppliers. On a smaller scale are the domestic investors who usually have to link up with overseas institutions to undertake projects.

Another important source of capital includes the various international infrastructure funds, which raise money from institutional investors around the world. These funds usually limit their role to that of passive investors by taking large equity interests in projects without getting involved in their construction or operation. Project

investors, on the other hand, are likely to leverage equity with a high level of debt financing to obtain a higher return from investment. As a result, debt financing typically accounts for 60% to 75% of infrastructure projects.

Because of this, guarantee of return of equity is usually quite meaningless to lenders. The guaranteed return on such a small portion of the total capital outlay usually cannot cover the operating expenses and interest payments in a bad project.

Much of the debt financing of infrastructure projects is provided by suppliers or in the form of export credits. However, bankers say that many international banks are beginning to gear up their operations in this region for the expected increase in project financing business.

Of the hundreds of regional and international banks operating in this region, only a few dozen are equipped to do project financing. Naturally, the cost of bank loans to finance a private sector project is higher than the cost of sovereign debt. This is because in a public sector project, the state assumes most of the risks in guaranteeing repayment of loans. The risk lenders face is limited to that of a massive depreciation of the local currency against the currency in which the loan is denominated. But in private sector projects, the sponsors, or developers, assume the project completion and commercial risks. The creditworthiness of these private developers is usually lower than that of sovereign states, hence the higher cost of borrowing.

Therefore, only the most economically viable projects are likely to be approved by lending banks.

The most encouraging trend, according to bankers and economic analysts, is that many Asian countries are taking firm steps toward liberalizing their economies. This is

allowing much broader access to capital, as many Asian governments are becoming more willing to provide some of the fundamental things that the capital market demands, including the willingness to disclose information and abide by contract terms. (Leung 1996, 49)

3.4.3 Self-Financing Through Operations

Another method of financing infrastructure projects is by increasing prices to cover costs. World Bank studies suggest enormous underpricing of utility services. These studies indicate that some utilities could raise user fees by as much as 50 percent. A price increase of that size could alleviate pressure on government budgets, provide resources for utility expansion, and reduce the demand for utility service (due to price elasticity of demand) perhaps enough to lessen or eliminate the need for outside financing.

Facilities can be operated more efficiently. If the utilities made better use of existing assets, they could cut back on orders for new equipment, lessening the need for new sources of capital.

Demand can be controlled through pricing. There are two pricing strategies. First, prices can be kept stable which would result in fluctuating demand, or prices can be allowed to fluctuate in order to keep demand stable. In most of the world, utility regulators have historically fixed the price. When demand rises utilities maintain the price and meet rising demand by building more facilities. When demand falls the utility rarely lowers prices to encourage demand, thus resulting in poor resource utilization. Use of market clearing price ahead of building programs could induce customer activities that

would, to some degree, obviate the need for new construction. Lowering the price when demand is down, would encourage greater economic activity in the country.

Raising the funds needed to improve and expand infrastructure facilities will strain the resources of less developed countries. They will be forced to attract huge sums from abroad or raise prices sufficiently to allow self-financing of projects, or, raise the initial sums abroad and gradually raise prices to levels that then allow self-financing. They could also consider use of the innovative methods for controlling demand through pricing.

Perhaps the introduction of Western-style utility supply systems in a very underdeveloped region is a uneconomic endeavor. Poor rural areas may require simple solutions that emphasize distributed systems, with low levels of reliability, run by local entrepreneurs and agents, rather than distant bureaucrats, and, perhaps service to the community rather than to private individuals. Privatization and expansion programs seem designed to ignore these opportunities in favor of standard supply side options. (Hyman 1995, 24)

Nevertheless, the role of the private sector both in providing and in financing infrastructure development in Southeast Asia is growing rapidly. Private sector participation and financing is essential to sustain economic development due to government inability to meet demand. This participation includes utilization of both domestic and foreign capital to allow for investment in infrastructure. Currently, taking all developing countries together, about ninety percent of financing is provided through government channels. Nonetheless, the emergence of private sector participation in

infrastructure development using innovative financing techniques is having a marked effect. (Hyman 1995, 25)

3.5 KEY DRIVERS AND UNCERTAINTIES AFFECTING PRIVATIZATION ACTIVITY

3.5.1 Factors Accelerating Infrastructure Privatization Activity

Several factors that have helped privatization activities in the infrastructure area include ideological shifts and demands of a new middle class (both of which have been previously mentioned), donor pressure, regional bandwagoning, fiscal imperatives, globalization of capital markets, and technological know-how. These factors are each discussed individually below.

The collapse of Marxist ideologies and the move from nationalism to free market economies has had a substantial role in increasing private participation in infrastructure through the 1980's and into the 1990's. Laws are being enacted to lessen the problems inherent in private investment. As more nations have embraced free-market policies, ripple effects have been felt throughout neighboring regions.

Donor agencies such as the multi-lateral development banks, with the backing of the Group of Seven nations, have been putting pressure on recipient governments to support private sector participation in infrastructure development. Contractual requirements are encouraging private involvement.

Government provided infrastructure services are frequently inefficient and are characterized by pricing that does not reflect long-run increases in marginal costs. The cost of subsidization has increased as debt-laden enterprises become increasingly

dependent on government subsidies. Additional government borrowing to support these enterprises may result in higher long-term interest rates, inflation, and economic stagnation.

The reduction in exchange and capital controls has increased the availability of funds to finance infrastructure development. The growing acceptance of non-recourse financing, where the project's projected cash flows secure debt obligations, encourage lenders and investors to assess the credit risk of a project solely based on cash flows. Risk is spread through public and private guarantees. International capital markets can be accessed through public stock offerings. The growth of infrastructure privatization is further facilitated through emerging local capital markets and institutional investors.

Finally, the ability of the private sector to efficiently design, construct, and operate infrastructure is another key driver in the acceleration of infrastructure privatization. (<http://www.arabia.com:80/star/960411/EC2.html>)

3.5.2 Uncertainties Affecting Privatization Activity

A number of uncertainties could limit the growth of privatization activity including ideological commitment, technology, availability of capital, and opportunity cost of investment.

Government policies toward private participation in infrastructure, particularly in those sub-sectors which are natural monopolies or public goods, may not continue their expanding free-market bent. Populist, nationalist, or environmentalist forces may resist foreign participation and private control of public goods. Governments may be pressured

to not allow developers to supplement existing networks with improved services to selected users.

Barriers to cross border flow of capital may limit privatization activity and international capital markets may not continue to fund infrastructure privatization. The role of local markets has not been defined and a global return to mercantilist/protectionist policies and its impact on capital and exchange rate controls could significantly complicate foreign direct and portfolio investment. Local institutional investment which is facilitating privatization activity in countries such as Thailand and Malaysia could cease. Another unanswered question is whether local capital markets will develop sufficient liquidity to strengthen the credibility of employee share ownership programs.

Financial institutions and developers may question the opportunity cost of investment. Country and sector specific developments in advanced economies may direct capital away from emerging markets. High yield alternatives and booming stock markets in advanced economies may divert institutional and individual investment away from developing country infrastructure development.

(<http://www.arabia.com:80/star/960411/EC2.html>)

3.6 SCENARIO FOR ACCELERATION OF PRIVATIZATION IN THE NEXT DECADE

Current trends and the experience of Hong Kong as presented in the next section would seem to favor the following scenario for the growth of environmental infrastructure privatization activities in the next decade.

Over the next decade, it is projected that national disengagement from infrastructure development and management will continue, while the breadth and depth of

private sector involvement will accelerate in all geographic regions including Southeast Asia. Despite some resistance to private sector involvement from populist and environmental movements, the factors that have driven privatization in the 1990s, including technological innovations, free market political ideologies, and institutional development, will continue to propel it after the turn of the century.

Between 1997 and 2007, the water sector is predicted to experience the most dramatic increase in investment over any preceding decade. Investment demand will likely spark large growth in the number of international tenders and private sector competition will increase as a growing number of local private operators begin to compete with the dominant international players.

As private sector participation increases, a complementary development will gain momentum—the growth of governmental, financial and support institutions to attract and sustain the investment. With encouragement and technical assistance from donor agencies, as well as through a learning process based on observing other regional governments, these institutions will be put in place to ensure fairness in project award and to strengthen private-public partnerships.

(<http://www.arabia.com:80/star/960411/EC2.html>)

3.7 TWO CASES FOR PRIVATIZATION - HONG KONG AND MALAYSIA

3.7.1 *Hong Kong - Thirty Years of Success*

Hong Kong has enjoyed a thirty year record of success in the private financing of large scale infrastructure projects. Private financing of infrastructure requires investors to balance the risks and rewards of investing in a project over other investment opportunities

such as domestic and foreign stock markets, money markets, and bond markets.

Nevertheless, in spite of this competition for investment capital, a number of large infrastructure projects have been privately financed in Hong Kong. Based on investors' expectations that returns from these investments would at least meet or exceed those available from these other investment vehicles, billions of dollars in private financing have been invested in infrastructure projects.

Three prerequisites have emerged in Hong Kong and throughout Southeast Asia for infrastructure projects to be feasible from the point of view of the financial markets.

First, the individuals proposing the project must have credible local political knowledge and strength and be willing to contribute a substantial portion of the capital required during early phases of project development. The project sponsors must also possess sufficient financial strength to overcome unanticipated challenges in designing, constructing, operating, and maintaining the proposed facility.

Second, the project must be "rational". That is it must be feasible in terms of design, construction and operation. It must generate sufficient revenue to be self-financing. The project must be supported locally, both by government agencies and banks willing to assist in either long-term or construction financing.

Third, there must be sufficient return on the project to interest sponsors and financing investors.

These three prerequisites have been met for a number of mega-environmental projects in Hong Kong including landfills and hazardous waste treatment facilities.

The key method for environmental infrastructure project delivery in Hong Kong has been Design-Build-Operate (DBO). The government's interest in DBO has been

fueled by bad experiences with sequential design-bid-construct processes. Facilities have not always performed in accordance with expectations and the government has had a difficult time identifying and solving problems when both the designer and builder deny responsibility.

Continued population and economic growth in Hong Kong have combined to force the government to develop a strategic plan for upgrading environmental infrastructure. Key elements of the plan include a significant increase in Hong Kong's capacity to safely and properly transfer and dispose of solid waste, commissioning of a central chemical waste treatment plant, and a dramatic expansion of Hong Kong's capacity to treat wastewater. These three efforts have generated fourteen environmental infrastructure projects using the DBO process to address significant environmental problems. This program is unique in the world and a model for utilizing infrastructure privatization in other developed and developing regions in Southeast Asia.

A forty percent increase is expected in the quantity of waste generated in Hong Kong between 1994 and 2006, from 9,500 tons per day to 13,000 tons per day. Furthermore most existing landfills were not designed in conformance with current standards and threaten the environment. Hong Kong's strategy is to accomplish three objectives at once; close unsafe landfills and incinerators, meet expected demand with new landfills and transfer facilities, and reduce overall disposal costs.

To implement this strategy three new large landfills are being constructed in remote areas of Hong Kong. In addition, a network of nine waste transfer stations are being constructed to serve the new landfills. All twelve facilities are being developed

using the DBO delivery method. Each of these projects is very large and uses state of the art technology, engineering, and construction methods.

Implicit in the government's procurement strategy for these facilities is the recognition that the key to success is the ability to attract the world's finest waste management companies to finance, design, construct, and operate these landfills. The government has set specific criteria and objectives to provide a climate hospitable to major corporations interested in submitting proposals for these projects. The government has set the highest international standards for the design and construction of these facilities and is allocating risks fairly between the government and the developers.

One of the means used by the government to fairly allocate risk is to specify levels of performance in the contracts which are reasonable and can be evaluated by interested firms prior to proposal submittal. The income stream projected to be generated by these projects is sufficient to attract high quality, well-financed consortia to propose on and win these projects while also reducing overall costs to the government. Each of the landfill projects is projected to produce annual cash flows from \$400-\$600 million Hong Kong dollars which is sufficient to finance construction and operating costs while also providing a rate of return close to 15-18 percent which exceeds those for other possible investments in the market. The operating term for these contracts approaches fifty years with termination for default rights retained by the government. The government succeeded in its objective at attracting the world's best firms to design, build, and operate these facilities as teams led by BFI and WMI have been selected as DBO contractors for two of the three landfills. (Miller 1995, 51-61)

3.7.2 Malaysia - A Recent Entry into the Privatization Arena

Recent moves to privatize some hazardous waste handling indicates that the Malaysian government is both becoming aware of its environmental problems as well as changing its approach to dealing with pollution. Malaysia is following in Hong Kong's footsteps by leaving the job of providing environmental services to the private sector, thus letting the market decide the price of the services. With government subsidies absent, companies can put a realistic value on services while also making an adequate rate of return on investment.

Leading Malaysian economic professor Mohamed Ariff think that the change of position make sense because: "It goes to the heart of the problem, which is that natural resources are unowned, unpriced and unaccounted for in the market. The theory says that if environmental assets such as clean water, clean air and unpolluted rivers are brought into the economic equation and given a price in line with their value, consumers will take greater care of them. Governments seldom price properly, markets always do." (Astbury 1994, 5)

Many of Malaysia's 143 local authorities have sold their waterworks and water supply networks to private firms—some of them joint ventures with foreign partners. Eventually, all the authorities are expected to do the same.

In a very large privatization move, last December, the government awarded a 28-year concession to Indah Consortium to operate the country's entire sewage system. Indah is a joint venture between Malaysia's Berjaya Industrial and Britain's North West Water. They estimate that their capital investment will exceed \$2.4 billion making it Malaysia's largest privatized project.

Another large privatized project in Malaysia is its first centralized hazardous waste management facility. Kualiti Alam, the project manager, hope to complete this waste management facility and its related storage and collection stations in the outlying regions later this year. This \$78 million project links Danish companies Chemcontrol and Enviroplan with two large Malaysian firms, Arab-Malaysian Development Corp. and United Engineers. (Astbury 1994, 5)

Several additional privatization projects are under development. A contract for the supply of medical waste treatment and disposal services to government hospitals is under review and Malaysia is also planning for the privatization of a nationwide air quality monitoring service and operation of a nationwide municipal solid waste collection and disposal service. (Business Asia (1994), 3)

4. STRATEGIC ALLIANCES IN ENVIRONMENTAL PROJECTS

Strategic alliances, are a prominent tool in carrying out global strategies. These are long-term agreements between firms that go beyond normal market transactions but fall short of merger. In the following sections, the term alliance encompasses a whole variety of arrangements that include joint ventures, licenses, long-term supply agreements, and other kinds of inter-firm relationships. International alliances, between firms in the same industry, in this case the environmental industry, are based in different countries and are a means of competing globally. Activities in the value chain are divided on a worldwide basis among partners. While strategic alliances have long been employed, their fundamental character has been changing. Historically, firms from developed countries formed alliances with firms in lesser-developed countries to perform marketing activities (often required to gain market access). Today, more and more alliances involve firms from developed countries who team up to serve whole regions or the entire world.

As will be discussed in the following sections, companies enter into alliances to gain a number of benefits. One is economies of scale or learning, achieved by joining forces in marketing and resource management. A second benefit is access to local markets, needed technologies, or to meet government requirement for local ownership. A third benefit of alliances is to spread risk. Finally, sophisticated competitors often employ alliances to shape the nature of competition in an industry by, for example, licensing a technology widely in order to promote standardization. Alliances can offset

competitive disadvantages, whether they be in factor costs or technology, while preserving independence and foregoing the need for a costly merger.

However, alliances carry substantial costs in strategic and organizational terms. The very real problems of coordinating with an independent partner, who often has different and conflicting objectives, are just the start. Coordination difficulties impede the ability to gain the benefits of a global strategy. Today's partners often become tomorrow's competitors, especially partners with more robust competitive advantages or that are more dynamic. In addition, partners obtain a share of profits which can be substantial. Alliances are unstable, and many dissolve or fail. After a hopeful start, the relationship falls apart or evolves into a merger.

Alliances are frequently transitional devices. They proliferate in industries undergoing structural change or escalating competition, where managers fear that they cannot cope. They are a response to uncertainty, and provide comfort that the firm is taking action. Alliances appear to be most common among second-tier competitors or companies trying to catch up. Alliances offer initial hope in weaker competitors of preserving independence, though ultimately a sale or merger may well follow. (Porter 1990, 612-613)

The following sections examine the many issues involved in the formation of strategic alliances, the roles of the strategic alliance partners, and the benefits and drawbacks associated with strategic alliances.

4.1 BUSINESS ACTIVITY FACTORS LEADING TO THE FORMATION OF STRATEGIC ALLIANCES

The emergence of strategic alliances and other collaborative agreements between companies has characterized global business activity since the beginning of the 1980's. Those alliances, which encompass firms within a similar or different business sector, have different scopes of operation, from lines of business to geographical regions of operation.

The objectives of these agreements, discussed in a later section, which may range from maintaining or increasing market share and competitiveness to simply ensuring survival, are a response to three primary factors that have thoroughly changed the context in which business activities are carried on. (<http://www.pw.com:80/us/ipgnet.htm>)

4.1.1 Globalization of the Economy

The globalization of the economy along with the growing interdependence between countries has eliminated geographic borders for economic activity. Markets, including that of Southeast Asia, are becoming increasingly internationalized. The slow rates of growth of the domestic environmental markets in the United States and other industrialized nations has intensified, encouraging the trend of firms in this business to look elsewhere for opportunities. Furthermore, the rise of the environmental industry in emerging markets and the elimination of commercial barriers also supports this trend. Although this means greater efficiency in the markets due to a higher level of competition, it also results in an increasing volatility in foreign exchange markets and a certain degree of protectionism on the part of some governments. These factors have undoubtedly favored the creation of strategic alliances whose purposes are to facilitate

access to particular markets and to reduce the risks and obstacles associated with entrance to those markets including country and exchange rate risks, and cultural and political barriers. (<http://www.pw.com:80/us/ipgnet.htm>)

4.1.2 Profound Technological Innovation

The process of intense technological innovation which has characterized some sectors of the environmental industry in the past decade, including innovative processes for the handling and disposal of solid and hazardous waste and wastewater treatment, have forced firms to consider entering strategic alliances to reap the learning and sharing benefits that can be recognized through these alliances. Worldwide research and development efforts have been translated into real strategic assets. A company's competitive position is improved by internal development work as these developments are not normally available to outsiders. The high cost or impossibility of companies acquiring these technologies has induced firms with complementary technologies to work together to benefit from the synergies resulting from combining these technologies. In this way, firms can avoid the financial risk associated with the alternative of direct mergers or acquisitions to acquire these capabilities.

(<http://www.pw.com:80/us/ipgnet.htm>)

4.1.3 Competition for Capital

The privatization of environmental infrastructure projects requires large amount of working capital. However, the intense competition for capital in increasingly integrated financial markets has raised the standards of credit demanded of borrowers, many of whom, during the last decade, depended heavily on the debt markets to finance

expansion. In this context, costs rise, and capital is scarce for investment projects which in the Southeast Asian environmental market contain a certain degree of business and financial risk and do not have a long history or strong balance sheets behind them. Firms lacking internal financial capacity or seeking to share risks have turned to strategic alliances as an efficient means of undertaking new business opportunities while assuming a lower financial risk through sharing it. (<http://www.pw.com:80/us/ipgnet.htm>)

This element appears repeatedly as a component of globalization strategies for firms, especially when responding to privatization processes in countries with emerging economies. In those case, the formation of a strategic alliance with a local partner constitutes the preferred route to market entry and is an effective means to becoming familiar with the local socio-economic and political climate and limiting exposure to the numerous risks presented by foreign investment. (<http://www.pw.com:80/us/ipgnet.htm>)

4.2 GOALS BEHIND THE FORMATION OF STRATEGIC ALLIANCES

The ability to maintain or improve the competitive position of the participating firms is the objective behind the formation of all strategic alliances. This is in reference not only to direct competitors, but also in regard to customers and suppliers and the desire to possess a greater power to negotiate successfully on a global scale. Depending on the particular alliance, this objective can be reached in different ways with intermediate objectives that may diverge or coincide with the principal goal of improving competitive advantage.

The most common strategic goals for the formation of a strategic alliance within the broad objective of improving competitive advantage include the following:

- To participate in new markets, giving the business a more global dimension in order to meet the needs of multinational customers. Normally, one wishes to enter growing markets, but even in those with some degree of maturity, the national competitors are able to maintain a good brand image that constitutes a considerable barrier to entry. The way to overcome that obstacle is to take as a strategic partner one of the principal local firms in the market.
- Gain access to specific complementary technologies or management systems that might allow operating synergies between parties.
- To take advantage of the learning curve that comes with sharing strengths and weaknesses with other organizations to improve competitive position.
- To reach a size sufficient to take on investment projects of a certain breadth, for example, purchase of enterprises being privatized. Doing so permits the firm to reduce the amount of capital committed and to reach the first of the objectives cited, sharing costs and risks which, in the case of international operations and privatization projects, include exchange and country risk.
- To gain access to alternative sources of financing that permit the firm to take advantage of business opportunities even when the firm itself does not have the financing capacity to consummate the deals alone.
- To preserve local market share, a defensive measure against hostile competitors, while avoiding transaction costs such as acquisition, mergers, or disinvestments, which normally are less cost-effective, as is discussed later.
- To take advantage of favorable tax regimes or political incentives, most of all in third world and developing countries. (<http://www.pw.com:80/us/ipgnet.htm>)

In short, many objectives provide a rationale for strategic alliances, in spite of the fact that success is not assured, a matter that will be discussed later.

4.3 FORMS OF STRATEGIC ALLIANCES

A number of different terms have been used to refer to collaborative agreements between companies. For instance, Perlmutter and Heenan (1986) coined the term “GSP” which stands for global strategic partnerships. They characterized five features of GSPs as alliances: (1) two or more companies develop a common, long-term strategy; (2) the

relationship is reciprocal; (3) the partner's efforts are global; (4) the relationship is organized along horizontal rather than vertical lines; and (5) the participating companies retain their national and ideological identities.

Along similar lines Auster (1987) used the term "ICL," international corporate linkage. He defined ICLs as "diverse interorganizational arrangements created by firms based in different countries to obtain strategic advantages in their markets and environments". The whole variety of licensing arrangements, technological transfers and exchanges, and research and developments agreements are included in addition to joint ventures. Moreover, he estimates that joint ventures represent only 30-50 percent of ICLs. There is a specific reason why Auster deliberately avoids the term alliances: "Collaboration, cooperation and alliances suggest that the firms involved are working together to pursue common goals. In reality, goals may range from shared, to mixed, to conflicting, and the underlying relationships may range from cooperative to exploitive." (Hara et. al. 1994, 494)

However, the majority of existing literature speaks of strategic alliances as being similar and synonymous to joint ventures. This can be attributed to the fact that the strategic principles and functions of both are similar. Regardless, a joint venture agreement is certainly one of the possible forms of strategic alliances.

A joint venture can be defined as a cooperative business activity constituted by two or more independent organizations for strategic purposes, that create an independent business entity, and that assign share ownership participation, operating responsibilities, risks and financial profits to each partner, while still preserving their own separate identities and autonomy. A strategic alliance, however, does not necessarily require the

formation of a new independent organization to bring about cooperation. Therefore, a strategic alliance can be described as an accord or cooperation between two or more companies by means of which they contribute, share, or interchange resources in order to reach one or more of the previously outlined business objectives. These resources may be know-how, capital, properties, labor, shareholder participation, management systems, marketing, or other types of assets. Alliances can be differentiated by whether the agreement does or does not include a contribution of capital or an assignment of shareownership participations.

Those that maintain shareholder structures can be distinguished between joint ventures, partial mergers, minority interests, and cross-ownership.

Joint ventures as previously described require the creation of a new company from the resources contributed by the partners. This new company has an independent identity separate from that of any of the parent firms. Normally, the partners have equal or close to equal interests in the new company. A joint venture may take the form of a corporation with shareholder agreements and have the disadvantage of double taxation on dividends. Furthermore, the tax benefits obtained by the joint venture can not be utilized by the partners to reduce their own taxes. However, a joint venture can also be organized as a partnership. In this case, the partners have unlimited liability to third parties for the liabilities of the partnership, but enjoy tax advantages not available to a corporation. This is because a joint venture established as a partnership is not subject to corporate income tax and the partners avoid double taxation on profits.

Partial mergers can be considered a joint venture in which the parent firms merge divisions or affiliates to meet defined business objectives.

A minority interest entails the formation of a strategic alliance in a particular field based on the acquisition of a minority share ownership position, normally between five and 35 percent, of the capital of one of the corporations by the other.

Cross-ownership is simply a collaborative agreement established on the basis of an interchange of participations in the shares of each of the corporations involved.

An alliance that does not entail a transfer of capital or creation of a new independent entity normally has a shorter life and involves a lesser degree of commitment on the part of the parent companies. These alliances rarely have any strategic intent and may be no more than a commercial operation. (Hyman 1995, 339)

4.4 BENEFITS OF STRATEGIC ALLIANCES

A partnership is one of the quickest and cheapest ways to develop a global strategy. However, as this section examines, it is also one of the toughest. Many alliances fail and others end up in a takeover in which one partner swallows either the joint venture or the other company.

Strategic business alliances are fueling the growth of some of America's most rapidly growing companies. More than half the CEOs of America's fastest growing companies say they are currently involved in an average of three strategic alliances. Another eight percent have plans to enter alliances, and say they will consider at least two, on average, over the next 12-month period. "These CEOs attach importance to strategic alliances because of the opportunities such associations provide for growth," says George Auxier, national director of entrepreneurial advisory services for Coopers & Lybrand. "These opportunities may be in the form of potential entry into new markets,

added financial leverage through avoidance of overhead or debt, improvements to products and manufacturing capabilities, technology commercialization, and risk sharing in an uncertain economic environment.” (<http://colybrand.com:80/eas/trendset/098.html>)

4.4.1 Benefits of Alliances with Majority Foreign Partners

Prior to providing detail on the subtleties behind the benefits associated with strategic alliances the more general and apparent substantial benefits associated with forming a strategic alliance with a foreign partner are outlined below.

The formation of strategic alliances allows for partner participation in income and growth. The minority partner can share in the earnings and growth of the venture even if its own technology or services become obsolete and other joint venture services become more profitable.

Being the minority partner in a strategic alliance with a local firm may result in preferred treatment, especially in the developing countries of Southeast Asia. Many developing nations do not permit remittance of royalties or their deduction from taxable income by a subsidiary controlled by a foreign licensor. However, this policy does not affect a locally controlled joint venture. In fact, developing countries generally favor and promote these arrangements because they are most likely to offer the politically and economically desired mix of foreign technological and capital involvement, guarantee of local management, and technology transfer.

Strategic alliances with local firms provide easier access to the market and valuable market information. Anticipating supply requirements and pricing can be facilitated by a close, continuing, and carefully cultivated relationship with the managers

of the venture and with the foreign partner. The same relationship also fosters interchange of market and technological information and the avoidance of suspect arrangements or territorial restrictions.

Well managed strategic alliances result in less drain on the minority partner's managerial resources. The minority partner's participation in the development and growth of the foreign enterprise and its market will impose a lesser burden on its managerial capabilities than would a wholly-owned or controlled subsidiary.

A significant tax advantage can be realized by the U.S. partner as income realized through the venture is not subject to U.S. taxation until distribution is made. The magnitude of this advantage depends on the foreign country's tax rate, period of deferral, and the U.S. company's foreign credit position. (Berlew 1984, 48)

A number of broader and more general advantages exist to support the formation of strategic alliances.

Parent firms embrace joint ventures because they allow them to make changes in their strategic positions or to defend current positions against forces which may be too strong for one firm to withstand. These alliances allow the partners to diversify into attractive but unfamiliar business areas while continuing to concentrate in those areas where they possess the greatest relative competence. (Harrigan 1984, 10)

Some firms use joint ventures preemptively to protect markets that are of value to them. They form these alliances with firms in an attempt to deny them access to business territory they consider to be their own. Access to technology and market are the key bargaining chips in negotiations leading to joint venture creation. Firms' preferences concerning how many joint ventures to form (and with whom) depends on which

resources they control. Market access permits firms to absorb aggressive or potentially aggressive outsiders. This approach works best for the local firm when it understands the importance of their control over market access and can prevent their joint venture partner from gaining this resource. To do so, they configure the joint venture to prevent it from ever becoming a competitor. They may form parallel, in-house entities that duplicate the joint venture's activities and learn from its mistakes.

Strategic alliances should be used to fortify the parent firms' weaknesses in the face of regional competition. Complacent firms find it difficult to recognize their weaknesses, and their unwillingness to do so can result in the creation of a barrier to the use of strategic alliances or other adaptive strategies necessary to success in the global market. Furthermore, barrier to alliances tend to be strategic in nature and can also result from uncertainties regarding the firms' ability to manage these ventures. The high entry barriers that would normally deter a single firm from penetrating a new market or learning about a new technology are the very reasons for banding together to form a joint venture in the face of global competition. (Harrigan 1984, 10)

Also, a number of significant advantages are derived from the formation of an alliance as opposed to traditional mergers and acquisitions.

The merger of two firms may be more complex and less efficient than an agreement such as a joint venture in terms of the structure and design of the operation. This is especially the case when dealing with a contribution of determined resources to reach predefined objectives.

When the objective of the alliance is to take control of privatized assets, the valuation of assets contributed or acquired does not incorporate a premium for control

whose size depends on diverse factors such as whether an existing market for the shares of the target enterprise provides a reference price, the financial capacity of the acquiring firm, and the prospects of the target enterprise. To the extent that this produces an imbalance in the aggregation of the contribution of the alliance partners, there are mechanisms to alleviate the financial burden that the partner who contributes less must pay.

The stock markets have a general tendency to be unenthusiastic toward mergers and acquisitions. Share of the acquiring firm frequently drop. However, the market generally views the announcements of strategic alliances positively with the shares of both firms likely to increase in value.

Joint ventures have certain advantages over mergers and acquisitions from an accounting standpoint. Partner-owners do not consolidate the financial statements of the partnership in their own. This allows them to eliminate the need to amortize the “goodwill” that, almost always, is the accounting consequence of a merger or acquisition.

The acquisition and merger process often produces an imbalance of information flow that can lead to a bad acquisition decision. An overvaluation of synergies between the companies can be the source of this risk of adverse selection. The parties to the merger of acquisition will frequently attempt obfuscation to mislead the other party as to the true value of its enterprise. This situation can potentially be avoided through the negotiations leading to the formation of an alliance where all parties, through mutual interest, honestly provide all relevant information leading to a alliance decision beneficial to all parties. (Hara et. al. 1994, 491)

The statistics reflect not only a real move toward collaborative agreements and alliances, but also that merger and acquisition transactions have peaked, due to the greater flexibility that they provide managements in reaching the previously discussed objectives. That conclusion comes from an analysis of the evolution of completed privatizations, taking into account not only amounts paid but also the number of times in which companies formerly under state control have been sold to private consortia constituted as joint ventures, as well as the number of licenses and concessions granted to private groups with foreign participation constituted as consortia.

(www.pw.com:80/us/ipgnet.htm)

4.4.2 Learning through Alliances

The creation of alliances allows firms with an excellent learning opportunity. These alliances allow firms access to partners' skills and knowledge and the ability to leverage their strengths. Firms may also acquire new skills that can strengthen parent-company strategies by working closely with their alliance partners. However, firms must manage the learning process before this can be accomplished successfully.

Successful learning from strategic alliance partners involves two key elements; first, the detection of differences or gaps between beliefs and experience, and second, the resolution of these differences. This is true regardless of the level of learning, whether individual, group, or organization, and the type of learning, cognitive or behavioral. Unfortunately, although most alliance partners had learning as an explicit objective, they did not recognize these elements which resulted in learning opportunities not being exploited to the extent intended.

Research indicates that there are essentially three impediments to learning: (1) a desire to equate learning with performance; (2) situations where partner skills are either too similar, in which there is no impetus for learning, or too great, in which case, managers have difficulty interpreting the differences; and (3) a mind set among managers in the U.S. that favors the home run over incremental learning processes. Organizations need to be more willing to take a look at their capacity to learn in order to overcome these impediments and realize the benefits that may become vital to survival.

Embedded in this subtle art of learning is the fabric for a more durable, competitive advantage. The very properties that make learning difficult to manage are the properties that make it difficult to replicate. If organizations are to maximize the potential for learning in joint-ventures, they need to pay attention to the differences not just the similarities in how the partners do business, bearing in mind that learning opportunities will likely be incremental in nature, with few, if any earth-shattering revelations. However, reaping the benefits of learning will take some patience when weathering the declines in performance that often arise in the learning process. Finally, firms need to think about consciously managing the learning process, not only to maximize learning within the organization, but to minimize unwanted learning between organizations. (Crossan et. al. 1995, 78)

Despite the benefits to be gained through the transfer of knowledge with the framework of the alliance, this transfer needs to be approached with some caution. Although one can set limits to cooperation on paper, in practice these limits are often exceeded in the day-to-day management of the alliance. There is the potential that the positive professional relations that is desired between the employees of the partners could

produce transfers of information or know-how that goes beyond what was set forth in the alliance agreement. It is essential that each company makes clear to its employees involved in the alliance what type of information they may or may not share. This aspect is critical given the normally unbalanced flow of information between partners. For these reasons, it is desirable that all alliances, on their operating sides, limit access to information and to other assets to a small circle of people who are concerned with the coordination of this aspect of the business in their respective organizations, with the objective of avoiding possible abuses. If any of the partners does not pay attention to these issues, one could see a situation in which one of the other partners acquires skills that have nothing to do with the alliance agreement. (Hara et. al. 1994, 505)

In summary, often firms cannot afford to acquire the competencies they need. Or the knowledge they seek cannot be purchased. As an intermediate option (between acquisition or internal development and dependence upon outsiders) alliances represent a special, highly flexible means of enhancing innovation or achieving other strategic goals which managers should not overlook as their industries become global. (Connolly 1984, 21) Alliances expand the value of learning because the close inter-firm ties they foster create more opportunities to find information than many other outside contacts. In this manner, strategic alliances offer firms a window on promising new technologies. (Lewis 1994, 18)

4.5 DRAWBACKS OF STRATEGIC ALLIANCES

Despite the numerous benefits accorded strategic alliances detailed in the preceding sections, a number of drawbacks are also associated with these alliances.

Recognizing these limitations and given the fact that governments across Asia are making it easier for foreign investors to win 100 percent of their local operations, and an increasing number of companies are taking advantage of this opportunity. One of the reasons for this shift away from alliances is that they and other cooperative agreements are extremely difficult to manage. “Whenever you have more than one person involved, the complexity goes up exponentially,” noted Patrick Cheung, senior engagement manager in Hong Kong with management consultants McKinsey & Co. McKinsey research has indicated that only 50 percent of all joint ventures have been considered successful by their participants. Firms that are going it alone are also recognizing the importance in entering new markets at an early stage in the country’s development of that market, allowing the firm to become well established and positioned to take full advantage of growth when it occurs. This is the current position of the environmental market in Southeast Asia—one poised for potentially explosive growth. These same companies are also placing a heavy emphasis on localization, which assists in the evolution (or appearance of evolution) from foreign investor to local firm without having to give up equity or control.

Foreign investors, even those who have been careful to retain majority ownership, are finding it difficult to maintain majority control. Local partners often dominate day-to-day operations and naturally wield greater influence over local staff. This is also a result of cultural factors. Although these differences may initially make a local partner seem desirable, it may in fact make it very difficult for the two sides to work together. Even if the differences in national cultures do not pose any problem, differing corporate cultures may make the two side incompatible. (McGrath 1993, 63) One prominent

example of this is in China where the Cultural Revolution left an age gap between staff—with older Chinese managers who are reluctant to promote staff in their late thirties because they consider them too young—the same group that would be considered appropriate for these positions by U.S. alliance partners. (Moorhead 1993, 165) These and other business and cultural differences between the partners can and sometimes do lead to a breakdown of the relationship and to incurring the penalties of selling or separating their interests in the arrangement.

Strategic alliances in this counter-cultural setting can result in deadlocks if partners have not created equitable mechanisms for resolving day-to-day decision making issues. Board meetings may degenerate into lengthy negotiations as members from the two sides attempt to reconcile their varying and sometimes conflicting interests. Loss of opportunities, technical resources, proprietary information and control over invested capital can result from an inability to overcome management and decision making problems. (Harrigan 1984, 11)

Alliances can also become a form of competition if one partner is more effective at “learning through the alliance” as previously discussed as a benefit and then dominates the relationship and attempts to rewrite its terms. (Main 1990, 122)

Another drawback for the foreign partner in the strategic alliance is cost. Underestimating both the number of staff required and the cost of employing them occurs frequently during the planning stages. For example, in China it can cost as much as \$400,000 to \$500,000 per year to hire an expatriate. (Moorhead 1993, 165) Given these costs, the foreign partner often insists on establishing hiring levels, fringe benefits, and

hiring and firing practices during the negotiation process which can be an early source of tension during the delicate formative stages of the alliance. (McGrath 1993, 63)

As there were specific benefits of strategic alliances over mergers and acquisitions, there are also specific drawbacks.

One of the critical points for the success of all alliances centers on fluid communication between the managers responsible for the joint venture and those at the parent companies. The costs and efforts needed to maintain this level of communication, in terms of human resources, are often greater for an alliance than would be the case in an acquisition or merger.

Loss of sole control over business units contributed to the alliance, in return for representation on the board of directors of the joint venture and the need, therefore, to share decisions and strategy, is another potential drawback versus a merger or acquisition. The extent of this drawback is dependent on the type of alliance and the position of each partner in it.

The main reason that so many joint ventures fail in Asia is because they are formed for the wrong reason: “Investors have no choice. Many have come to view joint ventures as a necessary evil—the price to be paid for admission to the market.” (McGrath 1993, 63)

Given the range of potential problems, many firms are deciding to go it alone when it makes commercial and business sense to do so. And where there is a real need for a joint venture, they will tend to be a good deal more demanding than they are in the current environment. (McGrath 1993, 63) Those starting out would do well to heed the

experience of companies that have pioneered the way and to “remember that every time you make an alliance, you are just as likely to make an enemy”. (Jacob 1994, 146)

4.6 REASONS FOR FAILURE

According to several studies made by McKinsey & Co. and Coopers & Lybrand in 1996, approximately 70 percent of joint ventures, in 23 industrial sectors from a sample of 895 ventures, failed. They failed either because they were dissolved or because they did not live up to expectations. The length of these alliances varied from only a few months to 40 years, with an average life of three and a half years. Only 14 percent lasted more than a decade.

Among the reasons given to explain the failures are the following which are related to the previously discussed drawbacks.

- Conflicts of interest and of competition were not determined prior to the signing of the agreement.
- An incompatibility existed between the business cultures of the partners in the alliance.
- The expected development and access to new technologies did not materialize.
- There was a lack of necessary arrangements to achieve the basic objectives of the alliance.
- The management of one of the partners refused to share its know-how and managerial techniques with its counterparts in the alliance.
- The competitive position or the contribution to the alliance of one of the partners was so out of balance with that of the others that the alliance terminated with an acquisition or dissolution.
- A lack of clarity of objectives existed and there was an insufficient degree of commitment on the part of the top managements of the enterprises involved.
- Planning for the alliance was incomplete or incorrect.

Nevertheless, dwelling on the number of alliances dissolved may miss the point, in that on many occasions the alliances were formed with short term objectives in mind, so that once the objective was reached, the strategic alliance was dissolved.

4.7 FACTORS FOR SUCCESS

Given these potential benefits and drawbacks of strategic alliances, there are a number of factors that firms seeking this mode of business expansion and growth should attempt to maximize.

Prior to selecting a partner or partners for a strategic alliance, it is important to identify those potential partners who provide high quality environmental consulting and engineering services suited to regional clients and those who have the financial strength to bid on major environmental infrastructure projects which form the backbone of the industry in Southeast Asia. It is important that this partner have complementary products and not those of a strictly competitive nature.

There are four steps that should be followed in identifying and selecting an appropriate alliance partner. First, the pros and cons of alternative business relationship and alliance structures should be outlined as a means of articulating the strategic objectives for the alliance. These outlines should be shared between potential alliance members in an climate of cooperation and trust. Second, the resources, capabilities, and market access of each potential partner should be outlined. Third, current, short term, and long term bargaining positions should be analyzed within each partner's organization in the context of that firms' objectives and capabilities. Finally, each potential alliance

partner should examine and evaluate the compatibility of a prospective alliance member's strategic objectives, and develop an operational plan to protect core technology, management systems, and independent market segments during the phase-in period. If there is a realization that any of these areas are at risk and that protecting them would be problematic, then a partnership may be the wrong choice. (Banks et. al. 1993, 31)

After partners are selected, the alliance agreement should provide for protection of key minority shareholder interests. Where there are important differences in objectives, such as market share versus short-term profit, the agreement should allow for resolution of these differences. It is extremely important that there be a fair allocation of risk and benefits between all alliance partners. (Berlew 1984, 54)

After identifying potential strong alliance partners and having entered into an alliance, make every attempt to learn as much as possible about your partner's technology and management without giving away all of your own secrets. (Banks et. al. 1993, 30)

This is important as collaboration between the partners is in a sense competition because the privileged information and strategic resources that are shared may be converted by one of the partners into decisive weapons to destroy the other, if the alliance fails. Therefore, it is essential to assess how the aims of the other partner could affect the attainment of one's own goals. (Hyman 1995, 346)

The conflicts that arise during the development and management of the alliance should not be over dramatized.

It is important to focus on newly acquired capabilities, rather than on a narrow, short-term goal of reducing operational costs and gaining new market entry. In this manner, it is possible to obtain symbiosis on strategic objectives while benefiting from

the complementary capabilities and combined resources of the strategic alliance. To obtain these benefits and symbiosis there needs to be an emphasis put on mutual dependence, reciprocal learning, and open interaction in all operational decisions of the alliance. Even if the partnership is between close rivals, there is a need to balance the common strategic goals with the divergent objectives of the alliance partners.

In the case of joint ventures or alliances through minority participation, the majority partner should realize the importance of the role that the minority shareholder can play in bringing about success, whether the minority shareholder is a local partner in a country different from that of the majority partner, or a technological or strategic partner. The majority partner needs to avoid translating the management role conferred by ownership into an attitude of superiority, which is not effective in daily management. For this reason, it seems rational to confer some management responsibilities on the minority partner based on qualities that it can lend. These qualities could be better knowledge of the functioning market, of the legal, tax or labor situations, of the socio-political environment, of specific technologies, or of the profile and preferences of the potential customers. (Hyman 1995, 346)

The process of internalizing the strengths of the partners often threatens the continuity of the alliance. Experience has shown that the most successful alliances are those in which one of the partners assumes a certain degree of dependency in respect to the other as far as the possibilities for growth or improvement of the competitive position. However, it is not necessary for one of the partners to give up more than it gets to ensure the survival of the alliance. Certain conditions exist under which it is possible to reach mutual benefit.

The risk associated with the situation described in the section on learning through alliances in which more information is shared than prudent, in respect to the success of the alliance, depends to a great extent on the type of information or know-how that is contributed, and to what degree rapid assimilation is accomplished by one partner. To avoid this risk, the agreement should clearly define the scope of what information is common to the alliance. If doing so creates an obstacle to cooperation, this problem could be avoided by defining a set of quantitative objectives for the alliance, such that whenever the alliance reaches a milestone, it passes to a greater phase of integration and thus higher level of information sharing.

The role played by key personnel lent to the alliance is of maximum relevance to its success. The selection of personnel is important as these employees may sense a loss of connection to the parent firm which can lead to a lack of loyalty. It is fundamental to learn as much and as soon as possible while also contributing the right human resources so that maximum benefits can be produced by the alliance from its integrated parts. Therefore, it is important to make personnel involved in collaborative tasks aware of the advantages offered, for the respective parent firms, of benefiting from the experience and knowledge of others, not only to improve competitiveness—but also to ensure survival—of their own organizations.

5. STRATEGIC ALLIANCES AND PRIVATIZATION—THE KEY TO FUTURE SUCCESS IN SOUTHEAST ASIA?

Those U.S. firms with the technology, financing, project management, local partners and operating expertise to design, finance and deliver complete environmental solutions that facilitate and enhance sustainable economic growth in a foreign setting will most certainly be winners. (Kosowatz et. al. 1995, 26)

The research done for this thesis supports the existence of a steadily growing market for privatized environmental infrastructure projects in Southeast Asia.

Strategic alliances and joint ventures are assuming greater importance in global strategies because cost advantages are becoming more pronounced and greater numbers of firms which formerly operated only in domestic markets are becoming international competitors. These changes have ominous ramifications for non-global firms, for they are likely to be offered partnership in joint ventures by firms who covet their strengths (however transitory they may be). A timely analysis of how joint ventures fit the interests of such firms could help them to forge configurations which leave them better off.

In the past, alliances have often been read as a signal of lesser corporate commitment to the project in question. Firms have been particularly loathe to use joint ventures where local governments did not require them as a condition of entry for domain-expanding multinationals. In environments of scarce resources, rapid rates of technological change and the massive capital requirements of environmental infrastructure projects, joint ventures may be the best way for some underdog firms to

attain better positions in the environmental industry. Strategic alliances may be used as pre-emptive maneuvers to ensure that access to markets is not foreclosed to them because they ventured to late. They are also a way of ensuring that potential entrants do not team up with more dangerous opponents. (Harrigan 1995, 13)

Alliances are no panacea. Sustaining and improving competitive position ultimately requires that a firm develop its internal capability in areas important to competitive advantage. In the long term, global leaders rarely if ever rely on a partner for assets and skills essential to competitive advantage in their industry.

The most successful alliances are highly specific in character. Alliances are a tool for extending or reinforcing competitive advantage but rarely a sustainable means for creating it. (Porter 1990, 613)

The doors to numerous Southeast Asian markets for qualified U.S. environmental engineering firms are just opening. There is ample time to design and implement a successful international strategy before existing windows of opportunity close. Projected conservative growth rates of the Southeast Asia environmental market anticipates that there will be more opportunities than providers in the next decade. Participants should focus on achieving a few highly visible successes in order to demonstrate credibility and build market share. An early history of client satisfaction will be broadcast rapidly because foreign buyers are building their own strong network for evaluating and selecting providers. As the U.S. environmental services industry consolidates and globalizes over the next decade, providers must reengineer themselves to penetrate foreign markets profitably. The successful players will become financial engineers and project

developers, as well as potential investors within strategic alliances in privatized projects that enhance the economic competitiveness of the host country. (Rocco 1995, 47)

By and large, privatizations realized in the past decade have involved enterprises in developing countries such as those in Southeast Asia. The privatizations have injected significant resources into those states, reestablishing confidence and encouraging participation of private capital in productive activities. Privatizations have promoted exchange rate stability and the opening of the economy of the foreign sector, have stimulated competition and foreign investment, and have led many enterprises in developed countries to initiate international expansion.

The strategy of expanding via privatizations, for some, may be the key to success in reaching a critical size internationally sufficient to position the firm to compete or to negotiate possible strategic alliances. If so, then the rash of strategic alliances, initiated in the 1980's mainly to effect privatizations in emerging economies, may represent just the beginning of the trend. Entrepreneurial activity in this environmental sector has barely begun and every sign points to more activity in the future. Nevertheless, no matter how clear the objectives and the benefits of the alliance appear, during the entire process of negotiation, the potential partners must weigh all the costs and risk implicit in the process itself. Among those risks are: the costs of the search for an adequate partner, the costs of coordination and management of the alliances put in place as well as the costs attributable to decisions taken to resolve the problems that arise during the life of the partnership, and the costs incurred upon dissolution of the alliance. In this sense, the statistics that recapitulate the historic evolution of the strategic alliance are not yet conclusive as to

whether this business strategy is or is not the best strategic solution to deal with the new scenario of global business activity. (<http://pw.com:80/us/ipgnet.htm>)

As long as firms recognize the dangers and limitations of strategic alliances and manage these shortcomings, there will be an opportunity for these alliances to lead to successful business development in Southeast Asia's burgeoning environmental infrastructure sector.

6. CONCLUSIONS

The first question that this thesis answered was whether or not a large and growing market existed for environmental technologies and services in Southeast Asia. Section 2 of this thesis, Environmental Market in Southeast Asia, shows the existence of a large and growing market for environmental technologies and services in Southeast Asia. Some estimates put the current market at \$31 billion per year and predict the regional demand to grow by more than eight percent a year.

The second question addressed is what segment of the market is projected to have the strongest growth. Again, Section 2 indicated that water and wastewater infrastructure represents the largest segment in this market. The Asian Development Bank believes that \$80 billion to \$100 billion would be required in the next five years to provide and acceptable water infrastructure.

Next, this thesis addressed the questions of what funding sources are available and what delivery methods are most suited to meeting this demand. Section 3, Privatization in Environmental Projects, suggests that in order to meet the demand for this infrastructure development, which has been fueled by a growing middle-class, governments in Southeast Asia are looking toward the private sector to build, operate, and even own this infrastructure with possible sources of project funding including institutional lenders such as the World Bank and Asian Development Bank, commercial banks and equity investors, and self-financing through operations.

Finally, this thesis examined the use of strategic alliances within the privatization arena to meet the needs for environmental technologies, services, and specifically infrastructure development.

In brief, joint ventures and other forms of strategic alliances offer competitive and strategic benefits. They provide firms with resources for which there are no equally efficient and available substitutes. Some projects would never be undertaken without this means of spreading costs and risks. Some firms would not retain their positions given the rapid pace of change in global competition, without strategic alliances. Timing will be an important part of competitive strategy in this situation because firms which move first can gain access to better partners.

The benefits firms perceive from using strategic alliances will differ according to whether they are “insiders” or “outsiders” with regard to the activities in question. Firms which are new to the market or activity may see strategic alliances as an insurance policy against domestic trade barriers or as a way to diversify. Firms which are already in the market or engaged in the activity may see strategic alliances as a way to curb potentially tough competitors or gain technological assistance. They must find some benefit in opening their markets to outsiders, else they would not consider strategic alliances. Moreover, they must retain control over the enduring competitive advantage their market access gives them. Insiders should not trade away too much of this advantage for fleeting technological benefits.

Despite these substantial benefits and others discussed in this thesis, firms must be cognizant of the potential drawbacks outlined in previous sections before entering into any form of strategic alliance.

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