FINANCING MAJOR WATER PROJECTS IN THE POOREST ECONOMIES

by

Elie Elhadj

e-mail EEH100@aol.com

Occasional Paper No 35
Water Issues Study Group
School of Oriental and African Studies (SOAS)
University of London
July, 2002

Introduction

Investment in water utility projects around the world, especially in developing countries is expected to be very substantial in the next two decades. Masons Water Yearbook 2000-2001, by David Owen, reveals that “according to the United Nations Environment Programme (UNEP), the number of people without access to safe drinking water will rise from 1.4 billion in 1999 to 2.3 billion by 2025 in the absence of accelerated capital spending programmes. The World Bank believes that US$ 600-800 billion needs to be spent over the next 10 years to ameliorate water and sanitation problems in the developing economies.

The focus of this study is on financing water for drinking and household use in developing economies, especially the poorest. It will: 1) examine the nature of the demand for funds by water and related projects in the poorest economies. 2) Address the nature and characteristics of the various supply sources of funds. 3) Compare the demand requirements in (1) with the supply sources in (2) to determine the most appropriate source(s) that might best fit the financing needs of a particular water project. Irrespective of GNP size, even the poorest of communities, needs to provide clean drinking water to its members for two reasons:

1) Water is the substance of life. Social responsibility makes providing clean drinking and household water to all residents a priority. This is in addition to the value that clean water contributes to reducing disease cost, increasing life expectancy and productivity. Masons Yearbook lists the economic cost of poor water supplies and sewerage as being in terms of “illness (500 million affected each year), debilitation (15 million rendered 'economically inactive' each year) and death (12 million dying each year)".
2) **Water pricing is unique.** Why does financing domestic water projects differ from project financing in other industries? The difference between water projects and others lies in the ability, or inability, of water projects after completion to raise sufficient revenues to make the investment viable. Below a certain level of consumption, water has zero price elasticity of demand. Regardless of cost every person consumes a minimum volume to survive. It is estimated that the average annual per capita consumption of drinking water is some 1 cubic meter and that for household use is 50 to 100 cubic meters. A price beyond the ability of the poorest in modern urban living to pay could trigger serious social and political unrest. Indeed, customary or religious beliefs in many parts of the world expect clean domestic water free of charge.

Water pricing is critical to viable water project financing because water provision is by its practical characteristics a monopolistic endeavour. Water pricing involves striking a balance between two opposing factors. **The first factor** is the monopolist’s tendency, in the absence of government regulation, to set water prices at exploitatively high levels in order to net the highest a return on investment. **The second factor** is the inability of the poorer segments in society to pay a price that would render the rate of return on investment in water companies viable. If the poor were to be helped through paying concessionary rates, then other users must compensate the owners of the water company for any concessionary pricing. If the owner is the private sector, the water company should be supported financially in order to maintain its financial viability either by all taxpayers through government subsidies, or by the more affluent users through paying higher water prices. If the government owns the water facilities, all taxpayers would underwrite the subsidy.

Ownership of WSS facilities in developing countries ought to remain in the hands of the public sector. There are five reasons here:

1) **The unique** social, humane and economic nature of clean domestic water supply suggest that the profit motive should be removed from its investment decisions.

2) **Absence of mature financial markets** in most developing countries makes harnessing domestic equity and fixed-rate long-term lending facilities to meet the needs of private sector water utilities almost impossible.

3) If **foreign equity** participation by one of the major international water companies is hoped to inject substantial equity into water utilities in developing countries, the hope is exaggerated. As will be discussed below, foreign companies are not likely and should not be expected to expose themselves in a major financial way to the complex web of economic, political, business, social and legal risks of developing countries. Indeed, these risks dissuade many local investors as well.

4) If private sector ownership is intended to improve the credit worthiness of the water company in order to enable it access to greater amounts of domestic and foreign loans on better terms than if it were owned by the government, the hope is misplaced.
The credit worthiness of a government owned company with an explicit and irrevocable government guarantee is the finest risk in the specific country.

5) If private sector participation in management (PSPM) is sought in order to improve the operational efficiency of the water company, private sector management efficiency could be accessed without ownership transfer from the government.

Government ownership of water facilities does not mean, however, public sector management as well. As will be discussed below, private sector management could enhance the operational efficiency and financial viability of business ventures more than public sector management could. Nor does this imply public sector ownership of other industries.

On the other hand, investment of scarce financial resources in water for agricultural purposes in poor countries ought to be decided on economic grounds. Agricultural crops should compete with other projects on rate of return criterion. Cereals may be grown in rain fed lands with a minimum of capital, provided still that they produce a higher rate of return than competing investments. Wheat, for example, requires large volumes of water, estimated at some 1,000 to 1,300 cubic meters per ton to grow. At around US$100 per ton, it is a rather inexpensive alternative to import from the international markets. There is little prospects for international wheat prices to increase measurably in the near or the medium term. In fact “ World grain prices in 1999 were no more than 50% of their real value in 1961 and no more than 30-40% of their level in the early 1950s (The World Bank, 2000). Real food prices in general “ have been falling for a very long time, certainly since the Napoleonic wars and possibly since the fourteenth century (The Economist, December 31,1999). Tony Allan (International Water and Irrigation, 2001) articulates this situation aptly: “The world price of wheat has been falling in real terms for about two hundred years, for reasons of technology; the perverse subsidies and the unwillingness to reflect what economists call externalities in the price…The major exporters of grain – the USA and the European Union (EU)- put wheat on the world market at about half its cost of production… As a result…grain importing regions will enjoy the benefits of the North’s distorting subsidies for the foreseeable future.” Therefore, before a new investment in land reclamation and irrigation is made, economic feasibility should prove that it would not be more beneficial to import the wheat (virtual water) instead of producing it at home. That food independence is made into a national security priority in many developing countries is a reasonably sounding objective. But, it is illusory. The import list of all countries makes independence from foreign influences, political or otherwise, a mirage. Clean drinking water independence, especially in poor arid and semi arid lands, ought to be a higher order security priority.

Conclusion

Financing major water utility projects in the poorest developing countries should rely on two sources:

A. Depend first on domestic public and private sector resources of the specific developing country. Activating and mobilizing domestic resources that are
inefficiently utilized, dormant or dead is as important as discovering new resources. These include:

1) **Promoting domestic capital markets** for bonds and equities in order to create a better investment environment to attract local currency savers as well as expatriate nationals with foreign currency assets abroad.

2) **Privatising or the granting of concessions** to the private sector to operate government owned businesses in order to reduce waste and increase productivity.

3) **Forming Islamic banks** in Islamic developing countries to attract the financial assets of those religiously inclined wealth holders who prefer to keep out of the conventional banking system. This, however, might be a political issue, not only financial.

4) **Creating value from** untapped economic resources such as **drafting** young men and women to work on water projects and other economic infrastructure in lieu of a part of **national military service**.

5) **Regularizing real property rights** in those developing countries in Latin America and Africa where land and home ownership is not evidenced by formal title deeds in order to allow bank lending against the new collateral.

6) **Devising creative micro credit schemes** that could enlist the participation of the smallest of borrowers in economic development.

B. **Depend second on Financial aid** from friendly foreign governments and multilateral financial institutions and development funds.

C. **Do not rely upon foreign private sector** sources such as foreign commercial banks and capital markets. They simply cannot accommodate the web of business, economic, social and political risks inherent in most developing countries, let alone the poorest ones. Balance sheet reasons prohibit commercial banks, domestic and foreign, from providing the fixed-rate long-term type of funding required by water utilities.

**Reducing the cost of a water project through using optimal technology**, even if it were not high technology, is as important as efficient financing.

1. **The Nature of the Demand for Funds by Water Projects**

   Like any industrial project, funding water utilities requires three types of funds: **equity, long-term debt and short-term working capital**. As will be discussed below, in order to avoid foreign exchange losses all three types should be **denominated in the domestic currency** of the project’s home country. Business entities like water utilities that generate all of their revenues in local currencies should limit their financial commitments to local currencies only. All foreign currency requirements should be bought from the central bank at the time of need, if the risk of exposure to currency fluctuations is to be averted completely.

1.A. **Equity**

1.A.1. Equity protects creditors from loss in the event of bankruptcy of a business venture. It usually amounts to about 50% of project construction cost. Owners prefer that
equity be as small as possible. Creditors and rating agencies prefer the opposite. A higher equity needs to be balanced with cost. **Equity is the most expensive form of financing.**

1.A.2. **Foreign currency investors** should in all probability **expect to lose a part of their investment** in the developing country as the exchange rate of the host country’s currency depreciates in terms of the US$ between the date of making the investment and the date of repatriating the capital plus any return. **Currencies of virtually all developing countries**, except for those crude oil exporters who enjoy surpluses in their balance of payments on foreign transactions are more **likely to depreciate in the future against US$** than maintain their value, let alone appreciate. This is because annual spending by developing countries on foreign goods and services for infrastructure projects and other necessities exceed their export proceeds, sometimes substantially. A **balance of payments deficit means a reduction in the country’s US$ reserves.** Less US$ reserves leads the central bank to try to raise exports, eliminate certain imports and raise the price of the US$ it charges in terms of local currency.

To illustrate, suppose that an investor made on July 1,2xxx an investment of US$1 million in a venture in a developing country when the rate of exchange between the US$ and the country’s local currency was, say, £ 50 to US$ 1, for a total equity of £ 50 millions. Suppose further that at the time of repatriating the £ 50 million equity (assuming no capital gain) to US$ the rate of exchange becomes £ 60 to US$ 1, then the investor will receive only US$ 833,333 (£ 50 millions / 60) instead of the original US$ 1 million, for a foreign exchange loss of US$ 166,666, or 16.7% of the principal over the life of the investment. Conversely, the investor would realize a foreign exchange gain if the rate of exchange between the local currency and the US$ appreciates to £ 40. In this case the gain would be US$ 250,000 (£ 50 millions / 40 – US$ 1 million). However, the possibility of a gain in these circumstances is rather remote. In Egypt, for example, the value of the Egyptian Pound in terms of the US$ dropped by some 25% over the past 2 years (from E£ 3.3 in mid 1999 to E£ 4.15 in early August 2001). In Lebanon, the drop in the value of the Pound in terms of US$ during the 1980s was staggering, from £4 to about £1,600 (where it currently stands). Put differently, in 1980 an investor would have needed US$ 250,000 in order to make an investment of L£1 million (L£1 million/4) in Lebanon. By 1990 the value of this investment was reduced to mere US$ 625. Examples from many countries around the world tell of similar stories.

1.A.3. In order to **avoid the risk of local currency depreciation in terms of foreign currencies** foreign investors should **pay for their local equity in local currency, not in US$**. They should be able to obtain the local currency through borrowing it, assuming that the rate of interest is acceptable, from a local bank under the guarantee of a foreign bank, if necessary. **But Foreign exchange laws** in most developing countries usually mandate that **foreign investors must pay** for their shareholding in local business ventures in a reserve currency such as the US$ or that foreign non-residents are not eligible to borrow from local banks. Consequently, if foreign investors in US$ are to avoid exposure to the almost certain risk of local currency depreciation against the US$, they should obtain from the central bank of the host country, if possible, a **guarantee that the central bank would maintain the rate of**
exchange between the local currency and the US$ constant in respect of the specific investors for the duration of their investment as well as dividend. Special concessions should be granted by the central bank if the government is serious about attracting foreign capital into the country. The more eager the government is to attract US$ investment the more accommodating it should become to grant such a concession. Instead of the central bank, a similar arrangement with the local project to indemnify the foreign currency equity investor for any currency exchange loss could serve the investor’s purpose just as well. But, the effect of such an arrangement on the project is equal to a foreign exchange borrowing by the project and would, as will be discussed in the following section, expose it to the risk of local currency depreciation against the US$.

1.B. Long-Term Debt

1.B.1. Because of long payback periods, the majority of water utility project borrowing should correspondingly be long term. Furthermore, In order to avert exposing the project over its long life to the vagaries of constant interest rate fluctuations, annual interest charges should remain as stable as possible over long periods of time. Otherwise, the project could be exposed to serious financial risks when floating rates become higher than the fixed rates that could have otherwise been obtained on long-term borrowings. Of course, a benefit would accrue when floating rates become lower than long-term fixed rates. But, since water projects are supposed to make a return on investment from the supply of water and not from speculation in interest rates, interest charges should remain as predictable and certain as possible. Therefore, financing water utilities should be: 1) long in duration (10 years plus) and, 2) fixed in interest rate.

1.B.2. Imports of foreign goods and services for the construction and later operations of water projects must be paid for in foreign currencies such as the US$. To raise the US$ needed to pay for these imports the project should convert its local currency resources to US$ at its home central bank once the goods are imported. Since water utilities revenues are denominated in local currency any borrowing to provide the liquidity necessary to make these payments should likewise be denominated in the local currency of the project, not US$. This is to avoid exposure to foreign exchange risks, if (more likely, when) the value of the local currency depreciates against the currency of the exporter between the dates of borrowing and loan maturity.

Conversion of local currency to US$ in most developing countries is provided by the central bank. Foreign exchange controls are applied in such economies in order to ration the allocation of their limited US$ resources to worthy imports only. If the central bank does not possess the US$ needed for the imports of an important water project, the government should seek US$ grants from friendly governments and multilateral aid agencies. If such proves to be impossible, the government, not the project, should attempt to borrow the US$ from private sources in order to enable the central bank to convert the local currency of the project to US$. If such proves to also be impossible, the project, whether owned by the government or the private sector, should be abandoned until such a time as US$ resources become available from balance of
payments surpluses (reduction in unnecessary imports and/or an increase in exports) or from foreign sources.

1.B.3. Even if rates of interest on certain foreign currencies at a given point in time are substantially lower than those of the home currency, borrowing in those foreign currencies, tempting as it may be must be avoided. Interest rates on the Japanese Yen or US$, for example, are at present lower than those paid on many other currencies. However, borrowings denominated in Yen or US$ by a non-Yen or non-US$ revenue generating entity would risk not only eliminating any saving from lower Yen or US$ interest cost but also a further loss if the value of the Yen or US$ appreciates sufficiently against the home currency of the borrower between the times of borrowing and loan repayment. To illustrate, assume that a project borrows US$ 1 million in order to import foreign goods and services and that the rate of exchange was, at the time of borrowing, £ 50 to US$ 1. This transaction would be recorded in the balance sheet of the project as a liability equivalent to £ 50 millions. Assume further that at loan repayment date the exchange rate between the two currencies became £ 70 to US$ 1. The borrower will now show a loss of £ 20 millions (US$ 1 million x 70 - £ 50 millions). The longer the tenor of the loan is the higher the likelihood of exposure to currency risk becomes.

1.B.4. Can a borrower hedge such a foreign exchange risk? Theoretically the answer is yes. But even if in the highly unlikely event that a long-term hedging contract between the US$ or the Yen and a little known currency of a developing country is possible to arrange the cost of such a contract could eliminate any interest rate advantage.

1.B.5. Purchases of foreign goods and services in US$ should be kept to an absolute minimum. Whenever possible, local goods and services paid for by local currency should account to as great a proportion of the total cost of a project as possible. For example, it may very well be possible that 200 porters in a high unemployment developing economy could do the work of a crane or a tractor to spare the US$ cost of an expensive equipment. Indeed, drafting young men and women in developing countries to perform economic and social services in lieu of a part of their military service could be beneficial. Participating in the construction of infrastructure projects whether as labourers or engineers reduces the venture’s foreign currency needs and provides local employment opportunities. It would also enhance the technical know how in local construction and manufacturing for further future development. In many small villages and hamlets around the world a myriad of success stories are told by the young American volunteers of the Peace Corps and their hosts on how so very little could produce so very much. Their good work with the support of their local hosts stands as a living proof of how effective ingenuity and creativity can be in producing low cost improvised but effective solutions to difficult problems in spite of poverty, nature’s adversity and inadequate facilities.

1.B.6. Long-term debt should amount to around 50% of the construction cost of the project. The allocation between equity and long-term debt is based upon financial prudence. This is especially true in the case of private sector ownership. It assumes that in the event of failure there would be a reasonable amount of equity as a cushion to
**protection** creditors against loss of value in the venture’s assets. Of course, the higher the ratio of equity to total cost of the project the better it is for creditors. But as indicated in section 1.A above, a balance between the two should be maintained because equity is the most expensive form of funding. In case of a 100% government ownership, with an unconditional and irrevocable government guarantee of the financial commitments of the project, equity could be reduced, even eliminated. Creditors, in such a case, would rely on the credit standing of the government. It should be noted that while it is highly unlikely that a 100% government owned project would default on its obligations, an explicit guarantee from a government agency like the ministry of finance is the only certain assurance of government credit responsibility.

### 1.C. Short-Term Debt

As the project begins operation, short-term working capital becomes necessary. Working capital represents the difference between current (short-term) assets and current liabilities. In order to avoid foreign exchange losses working capital debt should be **denominated in local currency**. Due to its short-term nature, renewal of such loans on maturity is priced at the prevailing interest rates on rollover dates. Accordingly, the nature of the interest rates of short-term facilities is **floating**. However, to ensure funding continuity in the event of an unexpected future deterioration in the financial position of the project a **long-term commitment** by a bank to maintain working capital facilities would be prudent. The cost of a commitment fee on the unutilised portion of the banking facility could represent a **small premium** for the project to pay against unforeseen adverse business circumstances.

### 2. The Nature and Characteristics of Suppliers of Funds

In this section, the focus will be on private sector financing entities; namely, commercial banks and capital markets. In section (3) the range of financial sources will be discussed whether private or public, domestic or foreign which are available to water projects in poorest economies whether owned by the government or the private sector.

#### 2.A. Commercial Banking

Commercial banks everywhere are subject to a wide range of risks such as, credit and documentation, interest rates, liquidity, foreign exchange and banking operations. These risks compel bankers to be ultra cautious. Banks are entrusted with the awesome responsibility of **managing society’s saving**. Bankers must preserve their assets from loss. Only those risks that dictate and shape the type, terms and conditions of banks’ credit facilities to water utilities; namely, **interest rates and credit risks** will be discussed here.

**2.A.1. Interest rate considerations**

Commercial banks provide mainly **floating rate loans**. The tenor of such loans could sometimes exceed 10 years but the rate of interest would be adjustable at regular short intervals. **Fixed rate loans are scarce** especially when the tenor becomes longer than about two years. Islamic financial organizations such as banks and mutual funds, however, provide a certain amount of fixed-rate medium-term loans (around 2-5 years), sometimes, longer. This is due to their different cost of funds structure.
Commercial banks cannot satisfy the fixed-rate long-term nature of financings needed by water projects. Sound liquidity management requires that loan tenors should generally correspond to the tenors of deposits. In most developing countries where fixed-rate long-term bond markets do not exist the majority of bank deposits are from domestic customers. These deposits are typically short-term. A maturity mismatch between deposit and loans exposes the bank to liquidity problems as well as to potential losses. Bank loan rates charged to borrowers are based on the average overall customer deposit rate paid by banks to depositors plus a profit margin to compensate the banks for assuming the lending risk and operating expenses. Since deposit rates are constantly changing, as deposits mature and get renewed at current market rates of interest, bank loan rates must float over the cost of deposits.

To be simplistic, assume that a bank paid 3% per annum for a 1-month deposit of £1,000. In lending the deposit the bank has two alternatives. First, lend it for a similar period of 1-month and earn a margin of, say, 0.5% p.a. to compensate the bank for its operating expenses plus a profit, for a total of 3.5% p.a. Or, second, lend it for a longer period of, say, 2-months and earn in addition to the 0.5% a further margin of, say, 0.25% p.a. in order to compensate the bank for assuming the additional risk inherent in the unforeseen circumstances of lending for a longer period, for a total rate of 3.75% p.a. or a total margin of 0.75% p.a. It should be noted that under normal circumstances longer periods produce higher market rates of interest in what might be described as a normal yield curve. However, this is not always the case. An expectation by the market that the monetary authorities are likely to reduce interest rates in the near future will be factored into the calculation of the basic rate to produce lower rates for longer periods in what is described as an inverse yield curve. Assume that the bank decided to lend the 1-month deposit in our example for 2 months in order to earn the additional return of 0.25%. On maturity of the deposit (at the end of the first month) the bank needs to renew it with the same depositor or repay it, if the depositor chooses to decline a renewal, and in its place obtain a similar amount deposit from a new depositor for one additional month in order to fund the one remaining month in the tenor of the loan. Assume further that meanwhile, under conditions of a normal yield curve, market rates for 1-month deposits rose from 3% p.a. to 5% p.a. The bank is now compelled to accept the additional 2% cost for the one-month deposit in order to repay the maturing deposit without delay. The profit and loss statement of this transaction would appear as follows:

- Revenues of the 2 months: £1,000 x 3.75% p.a. / 12 months x 2 months = £6.25
- Cost of the 1st month deposit: £1,000 x 3% p.a. /12 months = £2.5
- Cost of the 2nd month deposit: £1,000x 5% p.a. /12 months = £4.17
- Total cost of the 2 months: £2.5+ £4.17 = £6.67
- Net loss: £6.25 – (£6.67) = £(0.42)

Had the bank been contented to earn 0.50% p.a. instead of 0.75% p.a., by avoiding the mismatch, and consequently the interest rate risk between the maturity of the deposit and that of the loan, it would have earned a certain margin of 0.5% p.a. over its cost of funds for each of the two months instead of a loss, as follows:
- Revenues from the 1\textsuperscript{st} month loan: £1000 x 3.5\% p.a. \(\slash\) 12 = £2.92
- Revenues from the 2\textsuperscript{nd} month loan: £1000 x 5.5\% p.a. \(\slash\) 12 = £4.58
- Total revenues of the 2 months: £2.92 + £4.58 = £7.5
- Cost of the 1\textsuperscript{st} month deposit: £1000 x 3\% p.a. \(\slash\) 12 months = £2.5
- Cost of the 2\textsuperscript{nd} month deposit: £1000 x 5\% p.a. \(\slash\) 12 months = £4.17
- Total cost of the 2 months: £2.5 + £4.17 = £6.67
- Net profit: £7.5 - £6.67 = £0.83

In this example the bank was clearly caught in its own gamble. **Banks should not gamble.** This example illustrates the reason behind the resistance of commercial banks throughout the world to make fixed-rate long-term loans.

The inability of commercial banks to provide fixed-rate long-term loans should not necessarily mean the end of their relationship with corporate borrowers in need of fixed-rate loans that are longer in duration than what commercial banks could provide. Through **interest rate swap arrangements**, a floating-rate long-term borrowing could be converted to a fixed-rate borrowing for a similar tenor. Even in the unlikely event of finding that such an arrangement is possible to arrange in a particular developing financial market the long duration of the transaction would probably cause the swap cost, when added to the cost of bank borrowing, to be too expensive for the borrower in comparison with the alternative of, for example bond issuing. To be realistic, however, such facilities do not exist in the financial markets of most developing countries.

**2.A.2. Commercial lending risk considerations**

**Even a small loss could impact profoundly on a bank’s capital leverage ratio,** the ratio of deposits to net worth (capital plus retained earnings). A unique characteristic of banking entities in contrast with manufacturing ventures is the large size of debt in the form of deposits relative to net worth which banks are permitted by central banks to have. While the capital leverage of a manufacturing facility is typically around 1, 2 or 3 times capital, bank’s capital leverage reaches 15 times or more. To illustrate the consequences of high leverage, assume that a bank has a net worth of $1 million and deposits of $15 millions. Assume further that the bank developed a loan portfolio of $10 millions. It is clear that it takes only 5\% of the loan portfolio to written off, or $500,000, assuming no other income during the period, to eliminate 50\% of the net worth of the bank. Indeed, the bank’s entire net worth in this example would disappear if losses from the bad loan portfolio reach 10\% of the loan book.

**Water projects present lenders with a special concern.** Whether government or private sector owned their assets could not be pledged as loan security. Their public service functions must continue to be provided unhindered by creditors or receivers when they run into financial difficulties, even bankruptcy. Private sector water assets are impossible to remove or sell as security. It is the commercial viability of the project alone that the bank should rely upon for timely repayment. As a credit enhancement, banks would normally request a government guarantee or the joint and several guarantee
of private sector shareholders, if their number is manageable and their combined credit worthiness is acceptable or that the form of ownership be a partnership.

**Lenders in certain Middle East and North Africa (MENA) countries** must also contend themselves with additional difficulties. Commercial laws are limited in scope and archaic in content. They do not address all types of disputes. The lawmaker is often unrepresentative of the people. Law enforcement is selective. The political standing of certain defendants often obstructs the enforcement of court orders. Also, Islamic law as applied in countries like Saudi Arabia for example, prohibits the taking or giving of interest. Thus, **Sharia courts** deny banks the entire interest element of any claim past and future. Notwithstanding loan agreements between bank and borrower, an increasing number of borrowers suddenly invoke piety, especially during periods of poor economic performance. All this explains the reasons behind the cautious attitude adopted by most banks towards credit assessment and lending in general. But, **in spite of all their caution**, banks are not immune to loan losses. Just consider the cycles of debt rescheduling and loan forgiveness of developing countries during the past century and the **billions of US$ lost** to failed ventures at home.

In view of the **importance of the banking system to society’s saving** and its sensitivity to risk, banking laws have been enacted in all countries and **central banks** charged with the responsibility to **regulate and supervise** the conduct of banking institutions under their control. **Protecting the depositor**, especially the small one, is of primary concern to legislators. The landscape is littered with failed banks that were for incompetent or dishonest reasons reckless in their lending practices.

In order to show the **cultural environment** within which the banking profession operates, a few passages from a letter sent in December 1863 by the Comptroller of the Currency of the United States to all national banks are apposite. His **sage admonitions are as relevant today as they were more than a century ago**.

“**Let no loans be made that are not secured beyond a reasonable contingency. Do nothing to foster and encourage speculation. Give facilities only to legitimate and prudent transactions. Make your discounts on as short time as the business of your customer will permit, and insist upon the payment of all paper at maturity, no matter whether you need the money or not. Distribute your loans rather than concentrate them in a few hands. Large borrowers are apt to control the bank. If you doubt the propriety of discounting an offering, give the bank the benefit of the doubt and decline it. If you have reasons to distrust the integrity of a customer, close his account. If an officer lives beyond his income, dismiss him; even if his excess if expenditures can be explained consistently with his integrity, still dismiss him. Extravagance, if not a crime, very naturally leads to crime. The capital of a bank should be a reality, not a fiction; and it should be owned by those who have money to lend, and not by borrowers. ‘Splendid financiering’ is not legitimate banking, and ‘Splendid financiers’ in banking are generally either humbugs or rascals”**.
2.B. Capital Markets

Efficient deployment of domestic wealth for economic development, especially in developing countries depends on the availability of effective local capital markets. Mobilization of private sector wealth from individual investors is critically important for the supply of long-term investments to water utility projects. Lack of investment alternatives force individuals’ saving to be deposited on a short-term basis in the commercial banking system, with all the limitations on the capabilities of this system’s balance sheet to participate in the long-term development of infrastructure projects. Lack of investment opportunities might also lead individuals to entrust their hard saved assets to intermediaries, sometimes unscrupulous, to invest in dubious ventures. Over the years pyramid schemes caused huge losses to unsuspecting investors big and small in developing as well as developed countries. Indeed, some wealth holders might be forced to keep their assets out of circulation altogether through hoarding in jewellery and under home mattresses. Capital markets provide investors with relative security, rapid liquidity and market determined yields. Indeed, without the professional and efficient operations of such markets it would be unlikely that even a small portion of the considerable foreign assets owned by resident or non-resident nationals of many developing countries would ever be repatriated.

2.B.1. A rating agency is an integral part of capital markets. It should be objective and competent in evaluating the credit worthiness of the subject entity. It should be independent of the issuer and the underwriter. It should be a guide to investors. While a bank depositor relies for repayment on the financial strength and good management of the bank, the control and support of its supervising central bank and on small deposit insurance arrangements, an investor (depositor) relies entirely on the credit standing of the issuer (borrower) of a capital market instrument such as a bond or commercial paper. In performing its due diligence the rating agency helps investors evaluate for themselves the risk of the specific issuer and its home country. On the macro level, they evaluate the political, social, economic and foreign exchange risks of the subject country for the immediate and distant future. At the corporate level, they analyse the strength of balance sheet, profit and loss and cash flow statements, competitive position, management capabilities, depth and professionalism. Ratings are updated annually, sometimes more frequently to reflect the changing fortune of a country or company. Changes in rating would correspondingly affect the pricing of a bond issue. A lower rating causes the borrower to pay a higher rate of interest for its borrowings as a compensation for the higher risk. By virtue of their existence, rating agencies instil in the business sector and beyond a culture of transparency, disclosure, openness and accountability.

Creating a new rating agency in a developing country is a difficult task. It requires a considerable number of years to build. Credibility and good reputation are the capital of a rating agency. A good name could be lost at the slightest impropriety. One approach in the effort to establish a local rating capability is to invite one of the prime rating agencies in New York or London to establish a branch office. Inviting two rating agencies to compete could be more beneficial to investors. Another way is for the foreign rating agency to assist on an advisory or partnership basis in the creation of such a capability at the Accounting or Finance departments of, for example, a local university.
2.B.2. A bond market is the principal source of fixed-rate long-term funds (10 years plus). It is particularly beneficial to those economic entities that qualify to access the capital markets directly such as creditworthy infrastructure, manufacturing and other projects. But, bond markets are also important to those who cannot access them directly, such as small businesses. Without the possibility of fixed-rate long-term financial arrangements, such small economic entities in developing countries will remain subject to the uncertainty of interest rate fluctuations. Such uncertainty may inhibit them from long-term financial commitments. But, through the ability of commercial banks to access bond markets, especially in those developing countries where such markets do exist, small economic entities will benefit indirectly from the flexible terms of a capital market’s products. As commercial banks in these countries include bond issues in their balance sheets, the average maturity of banks’ liabilities becomes longer; thus, allowing the banks to correspondingly lengthen the maturity of their fixed-rate loans to small proprietors. This leads in turn to enhancing economic growth. Otherwise, the tenor of commercial banks fixed-rate facilities would be that discussed in (2.A.1) above.

The bond market relies on the bond as a negotiable legal instrument that could be traded. At the primary market level investment companies underwrite a particular bond issue. They later sell it entirely or in part to secondary market investors ranging from private individuals to pension funds, hopefully at a reasonable profit and make a market for future trading in the issue. International investment companies can distribute their capital market issues to worldwide investors. The bond market removes the banking sector from its natural intermediary function between depositors and borrowers. Instead, a broker introduces a particular investor (depositor) to a particular issuer (borrower). While depositors rely on the bank for the return of all deposits and interest, investment companies assume no such responsibility. It is the credit standing of the bond issuer alone that investors rely upon.

The development and growth of bond markets denied commercial banks the long-term lending opportunities, along with the relevant income, to prime corporate borrowers that they traditionally served when floating rate loans were the only long-term funds available.

Bonds may be held for return or bought and sold at any time for liquidity or trading profit. A bond market ensures that Liquidity is readily available. There is always a price that will clear the specific bond issue. Investors realize a capital gain on the sale of a bond when current market interest rates for similar periods are lower than the rate of the bond coupon. As interest rates drop and, in order for an investor to receive the same amount of interest income as before over the remaining life of the bond, the principal that needs to be invested at the lower rate must be greater than the principal that was invested at the higher rate. Conversely, investors would suffer a capital loss if current market interest rates exceed the rate paid by the coupon because an investor would now need a smaller principal to invest at the higher rate than was necessary at the lower rate in order to produce the same amount interest income over the life of the bond. To illustrate, suppose that an investor purchased a 5-years $1,000 bond of company X
with an interest rate coupon of 6% p.a. when 5-year market interest rates were 6% p.a. The annual interest income in this case is $60. Suppose that the investor decided to sell the bond when market interest rate for a similar remaining period was 4% p.a. Now the investor would need to invest $1,500 ($60 / 0.04) at the lower interest rate of 4% p.a. in order to receive $60 in annual income, assuming no deterioration in the credit rating of company X and a liquid market. The reverse is true when market interest rates exceed 6%. Like stock market price quotations, bond prices are adjusted constantly to reflect the effects on the specific issue of any change in supply and demand, market interest rates and rating.

2.B.3. Commercial paper facilities are arranged by investment company brokers to provide issuers (borrowers) with short-term funding for up to 1 year, but typically 1-6 months. Like their role in bond markets, brokers bypass commercial banks. They simply introduce the investor to the issuer. Consequently, investors assume the full risk of the issuer without recourse to the broker. Sometimes, a less than adequate credit rating could be enhanced by an acceptable bank guarantee.

The advent of commercial paper caused commercial banks to lose a valuable source of short-term lending opportunities to prime corporate borrowers, along with the relevant income. Through bypassing commercial banks and their expensive machinery commercial paper issuers and investors are both able to share in the saving, with the former enjoying a lower rate of interest on borrowing than a bank loan would be and the latter a higher rate on lending than a bank deposit.

2.B.4. Equity markets translate the entrepreneurial spirit and business vision of a society into reality. They also activate financial resources that would otherwise remain idle or inefficiently deployed. They widen the opportunities for savers to participate in the creation of new business ventures. Without capital markets, mobilization of local capital resources will remain confined to the efforts of single investors, their extended family or a small circle of investor friends who generally join each other’s businesses and help manage them. Shareholding companies create, on the other hand, a class of professional managers whose performance is measured against: 1) targets, notably net income, set by a board of directors that, in turn, is held accountable to and chosen from among the shareholders and, 2) by the performance of the company’s share price as determined by the stock market. The value of a company share is a function of the calibre and performance of its senior management, net income and future prospects. As these factors change, investors incur capital gain or loss. In an efficient market liquidity is assured. There is always a market price that clears any stock. In contrast with family owned enterprises where the owner/manager hold their position for life or until retirement, the management of publicly held companies serve at the pleasure of its board of directors who would remove the management as it fails to meet the board’s performance targets. Transparency, disclosure and continuity are also ensured. Altogether, these characteristics produce not only a high degree of operational efficiency but also turn the new corporation into a catalyst for cultural change in society towards openness, systematisation and accountability; positive traits everywhere.
3. Mobilizing Domestic Resources Effectively

The effective mobilization of domestic resources should be the primary tool for infrastructure construction in developing economies. Such self-help approach will be encouraging to would-be foreign donors to add their assistance. To mobilize private sector wealth the following actions should be useful.

3.A. First. It is critical that a closely regulated domestic capital market for equities and bonds be developed. Professionally managed and government supervised investment companies could activate what would otherwise remain as inefficiently deployed or dormant assets whether in local currency saving or in foreign currency holdings abroad by resident and non-resident nationals. The incorporation of publicly held companies improves the operational efficiency of the business sector in the developing economy and acts as a catalyst of change in other aspects of the community.

In most countries a high degree of correlation exists between the level of an economy’s GNP and its per capita income distribution on one hand and the state of development and potential further growth of capital markets on the other. Below a per capita income of about US$ 1,000 it is difficult to find a country with an efficient capital market. This is likely due to the rather insufficient amount of commission income that could be generated to sustain the operations of investment companies in such markets from these services. However, a bigger GNP does not necessarily mean a higher degree of financial markets maturity. While, for example, Lebanon’s GNP of US$ 16.6 billions in 2000, according to the Middle East Economic Digest (MEED), is smaller than that of, say, Bangladesh (estimated to be around US$ 44 billions in 1998) the financial markets in the former are more mature than the latter in terms of products, investment instruments and customer participation. Similarly, a larger per capita income does not necessarily mean a higher degree of financial markets maturity. While the per capita income in 2000, according to MEED databank: 2001, in Qatar (US$ 28,000), Kuwait (US$ 17,000), United Arab Emirates (US$ 20,000) or Saudi Arabia (about US$ 7,500) is greater than that of Egypt (US$ 1,300) or Turkey (US$ 2,800) the financial markets in the latter two are older and more mature in terms of customer participation in financial institutions and investment instruments than the former four. These four economies lack the necessary resources for balanced development. Their human resources are limited, natural resources not diversified, local private sector investments lacking, along with wide disparities in incomes between a rich minority and a poor majority plus religious beliefs against dealing in interest which further prohibit the development of such markets.

The existence of commercial banks or capital markets does not necessarily mean the widespread utilization of these facilities by savers and borrowers. Not only bond and commercial paper issuers are needed for success, but also savers who are interested in utilising these facilities and new investment instruments. Other obstacles include resistance by well-entrenched commercial banks that would oppose being
disintermediated by the new investment companies from their best traditional long-term lending business to bond issuing and short-term commercial paper.

3.B. Second. Worldwide evidence, past and present shows that government owned and managed businesses are not as efficiently managed as could be under private sector administration. Witness, for example the sub-standard economic performance of those countries under socialism or communism in comparison with their free-enterprise counterparts. The demise of the Soviet Union, the economic recovery in the United Kingdom in the aftermath of Prime Minister Margaret Thatcher privatisation policy, the disparity in the standards of living between East Germany and West Germany that prevailed prior to their reunification some 10 years ago along with the great price which the German people continue to pay to harmonize living standards between the two, the difference in the economic performance between North Korea and South Korea, the impressive economic achievements of the free enterprise economies of, among others, Hong Kong and Singapore. While many factors are behind these disparities, Adam Smith’s Invisible Hand is the most important. It may be proven mathematically that full competition is the one economic system that allocates the scarce resources of an economy most efficiently. This system should be adopted if a developing economy is to realize its allocative and productive efficiency potential. But not before being complemented by government regulations. This is to prevent mistreatment of the weaker members of society, provide them with an acceptable minimum level of welfare and protect the interests of consumers from product price and quality exploitation by public utilities that are by necessity monopolistic.

Privatisation means the transfer of ownership from the public sector to the private sector of government owned businesses. This transfer may be partial or full. Private sector participation (PSP) means more than privatisation. It also means private sector participation in the management (PSPM), not equity, of government owned businesses. Arrangements under PSPM may range from the short-term (1-2 years) type of a service contract for the supply of a specific service, to the medium-term (5-10 years) type of leasing arrangements or management contracts for the entire water facility. Finally, PSPM could involve long-term agreements that extent to 30 years or longer as in the cases of a build, own, operate and transfer (BOOT) contract as well as concessions. Private sector management results in operational efficiency. In water utilities, minimising expenses, utilising appropriate technologies and maximizing net income lead to the making of viable water businesses that could access financial markets on commercial terms. Otherwise the entire body of taxpayers must pay the cost of inherent government inefficient business management. Even in private sector owned enterprises, outsourcing functions considered as subsidiary to core activities or uneconomic to perform internally to independent specialist organizations is a common practice. Lower production cost and higher profitability are compelling reasons to seek improved efficiency wherever it may be found. Attaining efficiency and financial viability are particularly important if a developing country is to realise its full potential without outside help. This is because foreign private sector financial exposure to developing countries should not be expected to be significant. The complex web of risk in these economies inhibits foreign investors from major financial commitments beyond only a
modest amount of equity. These risks include, among others, host country currency depreciation, immature or inefficient capital markets, nationalisation or expropriation, cultural and legal differences and bureaucratic procedures.

Can public sector business management ever match the efficiency of their private sector counterpart? No. Why? Because the driving force behind private sector managers is performance-based bonuses and competitive compensation. Well-paid private sector management leads to hiring superior staffs that in turn produce superior results. At top management level there is only one layer of authority, high degree of coherence among board members and wide latitude to change business policies quickly. Streamlined decision-making, competitive spirit and an environment of creativity and originality are the hallmarks of successful private sector business. The balance between authority and responsibility of the executive chairman is a sacrosanct cultural trait. In public sector companies a government minister appoints the chairman, who might be full time executive or not, as well as other board members, sometimes even the senior executives. The choice is often influenced by political considerations. This creates one or two additional layers of authority. The senior most public sector executive is paid considerably less than his private sector counterpart. Bureaucratic structures hinder his quick adaptability to changing business conditions. In short, the difference between private and public sector management may be likened to the difference in the quality of care between a mother of her child and that of a baby-sitter.

In water privatisation, examples of success are numerous. In 1989 the water sector in the UK was totally privatised. Since 1993 the waterworks of cities totalling over 200 million in population were also privatised. This resulted in many stories of success. Better water quality, expanded service to new users, reduced distribution losses due to pipe leakages and lower price for water. There were also some setbacks to reflect upon, with solutions evident from the experience of successful privatisations. David Owen, Director of Research at Delphi International wrote recently (28th June 2001 at a conference organized by IBC Global Conferences in London) “in the USA, the private sector has been consistently able to reduce construction and operating costs by 20-35% when compared with the incumbent municipal operators.” Also, that “decreases of 20-40% have been recorded in Germany.”

3.C. Third. Some Muslims believe that the taking and giving of interest is prohibited under Islamic Sharia. They refuse to bank with western style interest generating banking institutions. In contrast with interest they expect their financial assets to produce profit from trading in acceptable goods, dividend from partnerships and shareholding in acceptable industries and rent from fixed-rate leasing transactions. The development of Islamic finance in a developing Islamic country has a positive impact on the indigenous economy of the specific country in two ways:

First, it Activates financial resources that would have remained outside interest-based finance altogether. Islamic banks attract religiously committed savers to maintain bank accounts in the form of demand deposits. Islamic mutual funds attract religiously committed savers to participate in profit and loss sharing arrangements for the long-term.
It is difficult, however, to quantify the magnitude of this factor. Account balances with Islamic financial organizations at present might have been transferred from conventional banks instead being provided from of out-of-circulation dormant saving.

Secondly, it provides fixed-rate long-term facilities that are critical to infrastructure projects like water utilities. Typically, this type of funds is only available from bond markets. Islamic mutual funds could fulfil the role of bond markets in this respect. As such, Islamic mutual funds become an effective substitute to bond markets in Islamic developing countries that have no domestic capital markets to benefit from.

The development of private sector Islamic financial organizations in one rich Islamic country does not necessarily lead to helping the financing needs of poor Islamic developing countries. Islamic financial organizations could not finance foreign water utilities any more than their conventional Western style counterparts could. This is because exposure by Islamic financial organizations to business risk is governed by standard professional credit prudence. Since the country risk of most developing countries, especially the poorest ones is high, Islamic financial organizations, except IDB, could not be expected to risk investing the saving of their customers in water projects in those countries.

While economic reasoning justifies the formation of Islamic banks in Islamic countries, political opposition to Islamic banking hinders such development. This opposition is due to governments’ fear that in promoting Islamic finance, Islamists political aims might also be promoted against the interest of the governing elites. Islamic activists might see in the growth of Islamic finance an evidence of their growing political strength. Even in Wahhabi Saudi Arabia, the one and only bank that operates according to Islamic financial principles, Al Rajhi Banking and Investment Corporation, is not permitted to include religious connotation in its name. And requests for additional Islamic banking licenses over the years were not granted. Furthermore, resistance by the conventional banking system in Islamic countries could be vigorous if for no reason other than business consideration.

3.D. Fourth. Creating value from untapped economic resources. Drafting young men and women to national economic and social service as a part of military service or otherwise as a new service, especially in those developing countries with high unemployment, to work on infrastructure projects such as water works as labourers, engineers or any other required skill could be beneficial to the whole economy. Such a scheme reduces the cost of the project in local currency and possibly US$ as well. Also, it helps the draftees to develop new skills.

3.E. Fifth. By recognizing and assigning value to dead assets banks would be able to use them as collateral for lending a certain percentage of their estimated value. The new liquidity would enhance economic activity, especially if the purpose of the new loans is productive such as housing, access to infrastructure facilities and skill training. Peruvian economist Hernandez de Soto believes (according to Matthew Miller in the New York Times Review of July 1, 2001) that regularizing real property ownership
rights in many developing countries, especially in Africa and Latin America, would create value for millions of dwellings that may then be used as collateral in bank borrowing. De Soto estimates that the world’s poor have accumulated real property assets worth US$ 9 trillion – twenty times the direct foreign investment in the third world since the Berlin Wall fell and more than forty six times as much as the World Bank has lent in the last three decades. But because these assets are not legally documented they can’t be used as collateral for bank loans. Haiti’s poor, de Soto announced in 1998, have US$ 5.2 billion in dead capital. The pool, he added, is four times greater than the assets of Haiti’s 123 largest private enterprises, eleven times greater than the deposits in Haitian banks and 158 times the value of all direct foreign investment in the country to 1995. As a solution, he invokes the precedent of US government action in the aftermath of the gold rush in the 1800’s when miners squatted and stacked their claims with shotguns. Over the ensuing decades, the US government eventually ratified the ownership realities that had been recognized by communities on the ground. De Soto wants to regularize the property ownership rights of the world’s untitled masses so that “dead” capital may fuel economic growth in these countries. Even if the ratio of the amount of bank loans to the estimated value of the collateral would be only 20% the amount of new liquidity released for development would be considerable.

3.F. Sixth. Micro-finance institutions (MFI) grew out of necessity in some of the poorest of developing countries during the past twenty-five years. They have been creative and effective in devising short-term credit schemes (around one year) to small borrowers, especially women, of under US$1,000 per borrower, but mostly around US$100. MFI’s are commercial banks that specialize in serving the very small retail depositor and borrower. Traditionally high operating expenses and fear of big loan losses associated with this category of customers rendered their profitability unattractive to conventional commercial banks in spite of the rather high rates of interest that micro-financiers charge for loans. These range between 20% per annum for Grameen Bank in Bangladesh and 50% per annum for each of Banco-Sol in Bolivia and Badan Kredit Desa in Indonesia. Contrary to conventional perception, experience shows that the average loan repayment rate of most MFIs is a high 90% or more. MFI’s are owned either by the private sector or by community based cooperatives. They fund themselves relatively inexpensively from customer deposits or from public sector refinance institutions. By devising realistic credit standards that are suitable to the special social and economic environment of small poor villages MFIs have grown to serve millions of customers in Bangladesh, Bolivia, Haiti, India, Indonesia, Peru and Uganda, previously considered by traditional bankers as non-bankable. While a high school or university education, a house and car ownership and a minimum annual income of some US$ 25,000 might all be reasonable conditions before granting a personal loan or credit card limit in New York or London, they are not so in Dacca or Cachabamba. Instead, a saving account of small amounts at regular intervals by a woman customer, for example, with an MFI is considered sufficient to support a new Rs 5,000 (equal to around US$100) loan to her. Group loan contracts such as those used at Grameen Bank in Bangladesh or Banco-Sol in Bolivia, where every member of the group becomes liable for repayment of up to the entire loan in the event of a default by every other borrower in the group are also more appropriate. Such schemes, however, should not be regarded as unique to
MFIs. There is nothing to stop commercial banks anywhere from following similar approaches provided that they can be sold to customers at a reasonable profit.

4. The Range of Funding Sources

In this section the range of possible providers of project financing will be examined and their suitability to finance water projects in the poorest of developing countries. As economies progress on the development scale, available sources of financing from foreign private sector sources could correspondingly increase.

Water utility projects may be owned by: A) Government. B) Domestic private sector. C) Mixture of A and B.

A. Government Owned Projects

These are financed in: A.1) Local currency, and A.2) Freely convertible reserve currency such as US Dollar.

A.1. Local currency financing

This might be accessed from two sectors: A.1.a) Government sources, and A.1.b) Domestic private sector sources.

A.1.a. Government sources. Local currency financing of government owned water projects is usually achieved through official budget decisions on taxation and funding from government owned financial institutions. It may even be achieved through the tempting but irresponsibly dangerous practice of printing money (government’s borrowing from its own treasury through the issuance of IOUs) without the necessary cover of a reserve currency such as the despite the ill effects of such action on fuelling price inflation, raising interest rates and slowing economic growth.

A.1.b. Domestic Private sector sources. These are domestic private commercial banks and governments’ bond issuance in domestic primary and secondary markets.

Domestic commercial banks. Whether owned by the government or the private sector, commercial banks provide mainly fixed-rate short-term local currency loans for working capital purposes. As discussed in (2.A) above their balance sheet structure cannot satisfy the fixed-rate long-term facilities required by water utility projects.

A bond market in its primary and secondary levels is the only viable source of long-term fixed-rate funds for water projects. Where such markets do not exist, 100% owned government projects could serve as ideal vehicles for the creation of a local bond market. Investors would rely on the guarantee of their own government, thus removing the commercial risk from the bond issue. Indeed, as a first step towards creating a capital markets, a commercial paper program could be introduced for government owned companies. Also, the program could be introduced for private sector companies under a local bank guarantees. Such arrangements would transfer the risk of the issuing company
to the government or the bank so that investors would not assume any more risk than the risk of their home government or a bank deposit.

A secondary market does not necessarily lead immediately to active participation by individual investors in those markets. Thin participation by wealth holders could render them ineffective. The absence of bond markets in most developing countries is a result of not only technical or physical factors. Customs and habits play an important role. They represent society’s culture and way of life. These evolve gradually and sometimes only as a result of unexpected shocks. Only a small proportion of the population of most developing countries maintain bank accounts. To increase their numbers, or expect them to engage in new types of banking services could take years of concerted effort. Rigid religious attitudes against the giving and taking of interest discourage the development of secondary bond markets in some Islamic societies. Even in Islamic countries where secular business laws prevail, participation of religiously inclined investors in bond dealing should not be expected any time soon. Witness for example the growth of Islamic banks and mutual funds in, among others, Egypt, Jordan, Bahrain, the UAE, Kuwait and London where dealing in interest is legal. Muslim customers in such countries, and many other countries where Islamic banks do not exist, decided to bank with the newly formed Islamic investment vehicles in spite of the legality of dealing and availability of modern banking institutions in their home countries. In fact, it is safe to consider that many of these customers never had a bank account of any kind before the advent of Islamic financial organizations. Furthermore, they are not likely to invest in bond issues regardless of whether bond markets existed or not. As such, Islamic banks may activate assets that are dormant. In a country like Saudi Arabia, on the other hand, Islamic law prohibits dealings in interest. Nonetheless, all banking transactions there are discretely based on a full recognition of the concept of time value of money; expressed as commission. Also, government budget deficits are covered through the sale of long-term development bonds to the banking sector. But, secondary bond markets did not develop there yet. It must be that the interest element in bond trading is too transparent for public sensibilities to allow a secondary market to emerge.

**A.2. US Dollar financing sources**

These might be divided into 3 types: A.2.a) Domestic private sector holdings in US$, A.2.b) Foreign government and multilateral financial institutions and A.2.c) Foreign private sector.

**A.2.a. Domestic private sector holdings in US$.** In many developing economies the private sector possesses foreign currency assets that could be useful for economic development in the home country. The big increase in crude oil prices since 1974 benefited not only the oil exporters in the Arabian Peninsula but also to a small scale their poor neighbours. Official financial aid and remittances by expatriate workers, professionals and construction companies improved US$ holdings of people in Egypt, Syria, Jordan, Yemen, Sudan, etc. A good portion of their saving is invested in Europe and the USA. Estimates range between about US$ 30 billions in the case Syria to US$ 50 billions for Egypt. Governments in MENA countries in search of US$ resources, as well
as other governments in a similar position, should act to attract a portion of these assets to finance, among others, water utility projects. But this is a formidable challenge.

The majority of foreign assets owned by resident and foreign expatriates in developing countries are expected to continue to be invested abroad as long as foreign currency exchange control laws remain in effect, except for that amount which is needed by the resident for personal use such as purchasing a home and living expenses. A certain portion might be repatriated if exchange controls are abolished. However, the foreign exchange risk of a drop in the local currency value against the US$ would continue to loom as a hindrance for such a repatriation.

Wealth management seeks to achieve 3 objectives; namely, in order of importance, **security, liquidity and return on investment**. First, although government owned projects are commercially secure, fear of **nationalization or expropriation** of domestic private sector assets under government control is an inhibiting factor. The history of governments in Egypt, Syria and Iraq in the 1960s is still a tough reminder of such a risk to many would-be investors at home and abroad. A military coup in many developing countries could suddenly end all positive policies of an acceptable political and economic regime. Second, **Liquidity** requires that all necessary infrastructure such as modern business laws, efficient financial markets and appropriate investment instruments be in place to enable the smooth and rapid conversion of loans into cash in US$ whenever necessary. Third, **return on investment** must be higher in the home country than what could be earned from a similar investment abroad in order to compensate investors for the additional political, legal and commercial risks in the home country, its slow bureaucratic red tape and other operational difficulties and delays. A fair return on investment also requires that special arrangements with the central bank should be obtained in order to **protect the investor from foreign exchange losses** as discussed in (1) above. Otherwise, would-be investors should raise their target rate of return to account for this serious and unpredictable risk element in the investment decision.

A.2.b. **Foreign governments and multilateral financial aid institutions.** These institutions represent the most viable sources of foreign exchange to developing countries. With facilities that are usually long-term and carry a rather low fixed-rates of interest their aid is critical for the economic growth and welfare of poor societies. Donors’ political considerations, not business or welfare concerns, however, determine the availability and terms of such facilities. While the viability of the water project is important, reliance for repayment of the principal and interest is on the sovereignty of the borrowing government not the project. These sources include the 4 constituent institutions of the World Bank Group- the International Bank for Reconstruction and Development (IBRD), the International Development Association (IDA), the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA)- the Asian Development Bank, the EU (as a multilateral agency as well as the individual assistance programs of EU countries), other direct foreign government assistance, the Development Assistance Committee of the OECD, the Global Environment Facility (GEF), the United Nations Development Program (UNDP), the Islamic Development Bank, the Arab Fund for Social and Economic Development as
well as similar aid funds in Abu Dhabi, Kuwait and Saudi Arabia. The export enhancing agencies of the USA (Exim Bank), UK (Ecgd), France (Coface), Germany (Hermez), Japan (Exim Bank) etc. provide competitive financing and guarantees terms to utility projects in developing countries. Their motive is primarily to enable their own exporters compete effectively against those of other exporting countries.

A.2.c. Foreign Private sector sources. These include foreign private sector commercial banks and bond investors. It is highly unlikely that they would accept the sovereign risk of most developing countries let alone the poorest ones. Foreign equity investors usually need special government permission to engage in state owned projects.

Foreign commercial banks, like their domestic counter-parts, are not a viable source for project financing anywhere. Although they are capable of limited amounts of fixed-rate short-term working capital type facilities these do not satisfy the typically large fixed-rate long-term amounts required by water utilities. It should be noted that foreign commercial banks lend considerable amounts US$ to acceptable sovereign countries for long-term general purposes. But, such lending is priced on the basis of a certain financial spread floating over a benchmark such as the London inter-bank offered rate (Libor) as representing the banks’ cost of funds. Such method of pricing, however, would expose the water project to the vagaries of interest rate fluctuations.

Foreign bond markets are a viable source of fixed-rate long-term loans. Foreign bond markets are theoretically equipped to provide foreign currency fixed-rate long-term funding to water projects that are 100% owned by governments in developing countries. The reality, however, is that very few developing countries possess on their own standing the required credit worthiness to access such markets. Before an investment bank can agree to underwrite a US$ bond issue for a developing country, it must be satisfied that the US$ financial position of the country will remain sufficiently strong to service the interest and repay the principal in the future. The underwriters must be also confident that they would be able to sell their underwriting to secondary market investors at a reasonable profit. Investment banking underwriters are not in the business of holding on their books unsold underwritten bond issue, unless the holding is a conscious investment decision for their own institutions. For foreign investors to hold the bond of any issuer, they must be satisfied of the good credit standing of the borrower. They need to be satisfied that they shall be repaid on time all interest and principal.

Very few of the developing countries that have been rated are only at the threshold of being acceptable credits. The rest are below investment grade. Most developing countries have never been rated probably to avoid an inevitable low rating that would not help their image or attract foreign facilities. An inadequate rating could be supplemented by the guarantee of an acceptable country or aid agency.

Foreign private sector partnership in government owned water projects. Joint ventures between foreign private sector companies and governments in developing countries are typical of the extractive industry such as crude oil and other minerals. A recent trend, however, to privatise state owned waterworks has been gaining momentum.
Before a partnership arrangement could be agreed in the water field there are important issues that must be dealt with by both parties. Is foreign ownership of water utilities desirable in the context of the political and social realities of the specific country? If yes, investors expect to earn a reasonable rate of return on their financial investment, effort and know how. What is a fair price for the equity? What is a reasonable return? Would investors be able to repatriate their invested capital plus dividend in the original foreign currency of the investment, not local currency, at any time? What about foreign exchange control laws? Unlike crude oil and other exportable commodities that generate US$ revenues, water utilities generate local currency revenues. Would the central bank have sufficient US$ to make the transfer? What exchange rate? Could the rate of exchange be guaranteed by the host government to remain constant between the time of making the investment and the time of repatriation? What are the US$ financing requirements of the project? Who is responsible for their arrangement? What terms? How likely is it that a future government might abolish existing agreements? While certain of these risks could be mitigated through the Multilateral Investment Guarantee Agency (MIGA) of the World Bank Group others will remain to be born by the foreign company.

B. Private Sector Owned Projects

It is assumed in this section that private sector ownership of water projects is permitted in the specific developing country. In the majority of countries, however, water and related businesses are owned by the state. In the absence of a government guarantee private sector ownership means that the business risk of the venture resides entirely in the project’s net worth and management. Therefore, all funding sources would be expected to perform their own due diligence to assess the commercial risk involved. Funding may be drawn in two forms: B.1) Local currency financing from domestic sources and B.2) US$ financing from domestic and foreign sources.

B.1. Local currency financing.

This may be sourced from: B.1.a) Domestic commercial banks, B.1.b) Domestic bond markets and B.1.c) Domestic equity markets. Also, it is likely that the local government might provide tax, grants and other incentives to encourage the private sector to invest in domestic water projects.

B.1.a. Domestic Commercial banks. As discussed above, whether owned by the government or the private sector, commercial banks usually limit their facilities to short-term working capital. The bank’s credit committee need to be satisfied that the project’s cash flow would be sufficient to meet the repayment schedule on time. Being a utility company, the terms and conditions under which the company may be granted a rate relief in order to net a reasonable return on equity is important. As for security, if the above questions are answered satisfactorily, the water project could stand on its own credit strength. Otherwise, it has to be supplemented by an acceptable guarantor. Tangible water assets may not be relied upon as security in the event of bankruptcy.

B.1.b. Domestic bond markets could provide the fixed-rate long-term funds needed by water utilities. A few developing economies possess capital markets, however. Where they do, investor participation could be improved. The underwriters must satisfy
themselves that the bond issuer possesses a sufficiently **high credit rating** that would allow them to sell the issue to investors in the secondary market at a profit. A reputable **rating agency** should rate the borrower and regularly update the rating in order to reflect changes in its performance and future prospects. A weak credit could be enhanced by an acceptable bank guarantee for the duration of the bond issue.

**B.1.c. Domestic equity markets** are a reliable source to raise capital for private sector water works. Most developing countries lack such a capability, however. It should be created if domestic saving is to be mobilized efficiently. Before underwriting a share issue the underwriting investment bank needs to be satisfied that the project is commercially viable and that it would be able to sell down the issue to investors in the local secondary market at a reasonable profit. Fear of expropriation and nationalisation is also a part of the investment decision.

**B.2. US$ financing**

This may be sourced from: B.2.a) Domestic private sector US$ holdings, B.2.b) Foreign governments & multilateral financial aid institutions and B.2.c) Foreign private sector.

**B.2.a. Domestic private sector holdings in US$**. As discussed in A.2.a above, US$ saving by resident and expatriates of a developing country should be a **prime target** for a government to attract. Indeed, before expecting success in attracting foreign investors, the government should set the good example of a success in **attracting the wealth of its own citizens** to invest in private sector ventures at home first. Aside from concern among investors over the political factors that threaten the security of their capital and the fear of foreign exchange losses, institutional arrangements that provide liquidity and efficient modern management techniques in developing economies are also lacking. Before serious results could be expected every one of these factors should be resolved to the satisfaction of investors. On the micro level, potential investors would want to benefit from the evaluation of a reputable rating agency of the risk of the project.

**B.2.b. Foreign governments and multilateral financial aid institutions** do not support private sector projects in developing countries. The terms of their facilities are usually concessionary. They are intended to benefit the recipient country as a whole, not only the private sector shareholders of a particular project. The International Finance Corporation (IFC) of the World Bank Group, however, provides minority equity participations with the private sector in developing countries.

**B.2.c. Foreign private sector sources** such as foreign commercial banks and foreign capital markets for bonds and equities.

**Commercial banks** could not be expected to provide foreign currency fixed-rate long-term financing to a private sector venture in a developing country any more than they are able to do so for a 100% government owned project. The commercial **risk of the project compounds the sovereign risk of the government**.
Foreign bond markets. While these are theoretically viable sources to extend US$ fixed-rate long-term funding, it is practically unavailable. Here, not only an acceptable credit rating from one or more foreign independent rating agencies of the borrowing government must be obtained but also the business risk of the specific venture must be rated as acceptable. Since very few developing countries qualify as investment grade, and since investors believe that the highest credit rating of any business entity within a particular country cannot be better than the rating of its home country, no private sector ventures could be expected to qualify to access foreign bond markets.

Foreign private sector partnership. In addition to the issues outlined in A.2.c, which ruled out participation by this sector in government owned projects of poor developing countries, the business risk of a private sector owned water project in a poor developing country makes it even more difficult for foreign private sector investors to participate. Foreign water companies, however, might under certain conditions agree to a joint venture partnership with domestic private sector parties or as sole owner of waterworks in a developing country.

C. Funding of Mixed ownership projects

A government might be a minority or a majority shareholder with the private sector. If the risk of the water utility is underwritten entirely by the government through the provision of an explicit guarantee, then the sources available for financing would be similar to those listed in (A) above. On the other hand, if the risk resides in the venture alone or is underwritten by the shareholders in proportion to their ownership, then the sources of financing would be closer to those in (B). The IFC could also be a possible provider of capital.

5. Summary

Water projects require three types of funds: equity, fixed-rate long-term debt and a relatively small portion of floating-rate short-term working capital debt. They should all be denominated in local currency. Equity and borrowing in US$ by developing countries tend most often to bring foreign exchange losses to shareholders and business ventures, respectively. The US$ needed to pay for imported goods and services should be purchased from the central bank at importation time. The proportion of local currency to total cost must be maximized.

Mobilizing domestic resources that are inefficiently utilized, dormant or dead is as important as discovering new resources. These include: 1) Promoting domestic capital markets for bonds and equities in order to create a better investment environment to attract local currency savers as well as expatriate nationals with foreign currency assets abroad. 2) Privatising or the granting of concessions to the private sector to operate government owned businesses in order to reduce waste and increase productivity. 3) Forming Islamic banks in Islamic developing countries to attract financial assets of those religiously inclined wealth holders who prefer to keep out of the conventional banking system. 4) Creating value from untapped economic resources such as drafting in lieu of a part of national military service young men and women to work on water projects and other economic infrastructure. 5) Regularizing real property rights in
those developing countries in Latin America and Africa where land and home ownership is not evidenced by formal title deeds in order to allow bank lending against the new collateral. 6) Devising creative micro credit schemes that could enlist the participation of the smallest of borrowers in economic development.

Sources of water project funding depend on ownership. Government owned water utilities could meet their local currency needs through taxation, currency printing, bond issuance and borrowing from local lending institutions. US$ funding may be available to government owned water projects from friendly foreign government grants and loans, multilateral financial institutions and aid funds, export enhancing agencies of OECD countries and, if certain conditions are met, from expatriate wealth holders. US$ funding from foreign private sector banks and capital markets are not available to the poorest developing countries. Foreign private sector water companies could possibly under certain conditions become interested in a partnership with local government waterworks in poor developing countries. As a developing country moves up on the development scale, foreign private sector financing sources could become available.

Private sector owned water utilities, aside from local government grants and tax incentives, could meet their local currency needs from the local capital market if such a capability exists. If not, it is critical that such a market be developed in order to harness the local saving of local currency savers. US$ funding could be secured from expatriate investors when certain conditions are met. US$ from foreign governments, multilateral aid institutions (except IFC and MIGA) and foreign private sector sources are not available to private sector water projects in the poorest of developing economies. However, as a developing economy moves up on the development scale, foreign private sector financing sources could become available.
### Summary in a tabular form

<table>
<thead>
<tr>
<th></th>
<th>Equity</th>
<th>L/T Debt</th>
<th>S/T Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. Government owned projects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A.1. Local currency financing from:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A.1.a. Government sources</strong></td>
<td>- Taxation</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>A.1.b. Domestic private sector sources</strong></td>
<td>- Printing of currency</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>A.2. US$ financing sources</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>A.2.a. Domestic private sector holdings in US$$</strong></td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>A.2.b. Foreign governments &amp; multilateral financial aid institutions</strong></td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>A.2.c. Foreign private sector</strong></td>
<td>- Foreign commercial banks</td>
<td>No</td>
<td>Rarely</td>
</tr>
<tr>
<td><strong>B. Domestic private sector owned projects</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B.1. Local currency financing from:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B.1.a. Domestic commercial banks</strong></td>
<td>-</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>B.1.b. Domestic bond markets</strong></td>
<td>-</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>B.1.c. Domestic equity markets</strong></td>
<td>-</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>B.2. US$ financing sources from:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>B.2.a. Domestic private sector holdings in US$$</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>B.2.b. Foreign governments &amp; multilateral financial aid institutions</strong></td>
<td>IFC, MIGA only</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>B.2.c. Foreign private sector</strong></td>
<td>- Foreign commercial banks</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>- Foreign bond markets</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td><strong>- Foreign private sector equity</strong></td>
<td>Rarely</td>
<td>Rarely</td>
<td>Rarely</td>
</tr>
</tbody>
</table>