Municipal Infrastructure Financing: the Case of Inverse BoT

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Since 1990, local governments in Hungary have made significant investments in water and wastewater treatment systems using overwhelmingly state funds -- mainly targeted and addressed grants. Drinking water systems were completed in 5 years, and now cover essentially all localities and serve 99 percent of Hungary's population. Regardless of the success in terms of quantity, the financial efficiency and economies of scale of these developments came under increased scrutiny. Many of Hungary's fixed networks for natural gas supply, electric power, and telephone were privatized and operated on a regional basis. The next challenge is faced in the areas of wastewater collection and treatment, solid waste handling, and road construction, the three areas being also important for eventual EU accession.

Hungary's local government infrastructure finances are often rational only in the context of the present legislative, fiscal, and business framework, but are sub optimal at both national and local level. Based on comprehensive review of recently completed sewage projects we have identified key actors and prototype investment models, which support the following conclusions. (i) The primary criterion for municipal decisions is to maximize grant funding rather than to optimize investments. (ii) In construction of utilities, the grant system causes severe liquidity problems to municipalities hence they use expensive bridging tools to overcome. (iii) The financing trap, the moral hazard effects, and the weak local governance support perverse vendor finance and distort public private partnership in financing and operating utilities. In a common BoT scheme the private concessionaire builds, operates, and transfers the utilities to municipal ownership in 20 years. In CEE countries local governments tackle with the investment and

operation of utilities for a few years, and hand them over to private partners often under questionable privatization or lease contracts. More liberalized investment finance would reduce moral hazard and transaction costs while would support standard BoT arrangements[1].

Actors Involved in Municipal Infrastructure Projects

There are several actors in developing and providing utility services, each with different, sometimes conflicting, objectives, legislative and economic conditions, and motivations. These actors are: the local government, the utility operator company, the large users, the prime contractors, the financial institutions, and the small customers of utilities.

The Local Government

The key actor in initiating, planning, funding, constructing, and operating a sewage treatment plant and collection system is the municipality or, alternatively, a group of municipalities in a loose association managed by a lead municipality. In most cases, the municipality directly owns the treatment plant and the network because these are by law core assets (see [Hertelendy – Kopanyi 1999] and [Kasso 1999]); the municipality is often also owner of the utility operating company. The municipality and its institutions, such as schools and hospitals, are often major consumers of utility services, while the local government is a regulator and oversight body charged with representing the interests of all commercial, private, and industrial consumers.

As project manager, the local government supervises technical planning, engineering, and construction and obtains funding sources in the form of grants, loans, and equity. Setting utility rates is a conflicting and difficult municipal function. On the one hand, the local government should support cost-based pricing with a modest profit; on the other hand, as a political entity it often fails to support an economically rational price or a price adjustment of adequate magnitude.

[1] This paper is based on [Jokay – Kalman – Kopanyi, 2001]

As the price regulator, the local government has the right to examine in detail the utilities' operation and cost structure even if it is not the de facto owner. This raises the classic principal-agent dilemma on information asymmetry in the sense that the public authority may not have technical skills to review and encourage efficient utility operation [Baar 2001].

The Utility Operator

The operator could be a department of the local government; an independent municipal enterprise; a private enterprise or a state-owned firm. At the onset of the new local government system in Hungary, core and non-core assets were separated. Assets such as machinery, vehicles, buildings etc. were spun off into an operator company, while core assets such as land, sewer pipes, treatment plants were transferred from the state to the books of municipalities. Commonly, a pro forma lease arrangement was created between the municipality and the operator who pays a negotiated leasing fee, which conceptually should be sufficient to cover the real depreciation and financing cost of the core assets.

Political considerations, however, limit the extent to which the leasing fee covers these expenses. Under this arrangement, the value and depreciation of municipal assets are indirectly related to user fees. Very often the user fee is set on a political basis, and the leasing fee is calculated with the aim to enable the operator to cover its own capital and operational expenses and provide for a moderate profit. As a result, the leasing fee is often very nominal.

Looking at the whole universe of the integrated service providing utility system, the majority of assets are directly owned by the municipality, while the undercapitalized operator owns only a relatively small portion. One major consequence is that the operator does not have enough physical collateral to obtain financing for new investments, and thus various local government

guarantees are needed, involving of real estate and other assets with no relationship to the capital project being funded.

Large users

Large industrial and commercial users of water and sewage services have a vested interest in plants that have the capacity to treat their effluent adequately -- interests often at odds with those of the population that does not feel the effect of environmental degradation directly. Heavy users must comply with discharge standards in order to obtain or renew operational licenses to avoid fines and penalties or a disruption of operations. In project planning where several large users account for a significant portion of the effluent and pollutants, it is often in the best interest of the local government to involve the large users at all stages from planning, to capacity engineering, and especially project finance preparations.

Prime Contractors

Due to the size and complexity of a utility development there is a need for a prime contractor who, as the sole counterpart of the investor, is responsible for completion of the whole project. It is also his responsibilities to select subcontractors, coordinate their work and ensure their cooperation. The prime contractor, hence, should be sufficiently capitalized since its capital should provide liquidity and guarantee against unforeseen risks during the completion. The prime contractor "candidate" often volunteers to cover significant expenses, although some of them occur prior to the selection of the prime contractor. The Act on Public Procurement (Act XL, 1995), however, requires a public competitive tender for projects above a certain size, and all but 10 percent of water, wastewater and sanitation projects fall into this category.

The prime contractor could be a municipal enterprise, but very often it is a private company. The latter often volunteers to provide three types of bridge financing to the investor municipality. (i) A loan identified as such in a contract or note. Mortgaged real estate, unrelated to the project could also be involved. (ii) Loan against a fictional sale contract. In order to hide contingent liability, the contractor "purchases" a piece of real estate or other property at a low price with a put option and sells it back at a more favorable price when the municipality's liquidity has restored. (iii) Accepting delayed payments for services rendered. The due amount is paid when the municipality obtains funds from another source.

Having a closer look at these arrangements, the effective real interest rate and the total cost of funds in most of these schemes far exceeds those of purely market-based loans and other forms of credit. This is due to the lack of local government creditworthiness and lack of expertise in project finance and in the analysis of real/effective price of such offers [Makay 1998].

Financial Institutions

Already in the late 1980s, before the transition from socialism, local councils issued 10-15 year notes with fixed 8-10 percent interest rates. In the early 1990s, inflation in the 30 percent range and above destroyed the real value of these instruments. Afterwards, long-term fixed rate financing (such as 20-30 year bonds) were not available as banks tended to lend for no more than 3-5 years at variable rates of interest indexed to government bonds of short term maturity. The present prudential regulation requires banks to set up reserves of 100 percent against municipal loans.

The prevalent grant and soft money system creates adverse incentives for project-based, cash flow financing. In addition, the general level of uncertainty and perceptions of creditworthiness prevents the issuance of classical general obligation debt. Prudent regulations in the legal

framework -- such as the debt service limit provision of the Act on Local Government -- prevent excessive debt. However, the municipal accounting system is cash-based and does not accrue or apportion an impending balloon payment as "debt service," which may cause insolvency or unpredictable violations of the debt service limit in the year of the balloon payment.

Customers

The population plays several roles, the first being as consumers of infrastructure services. A second, no less important role, is that of taxpayer, voter and enforcer of popular sovereignty over the local government. In addition, the population pays a gamut of central government taxes, a portion of which comes back in the form of capital grants to municipal projects. In a slightly schizophrenic situation, the local citizen encourages grant seeking, while as a payer of national taxes such behavior is not necessarily in the citizen's favor.

Customers play a critical role as financiers through user fees, connection charges and local taxes. User fees are often in the crossfire of local political debates, which could result in economically dubious compromises. In addition to hook-up fees, the population often form wastewater associations to borrow funds from banks where 70 percent of the interest cost is paid by the state. This dubious involvement of the citizens in project financing supports the arguments for keeping user charges below full cost recovery.

The State

The state, through various grant and soft loan programs, is essentially the chief financing source for local infrastructure projects that reflect some national priority. In Hungary, these funds come in the form of targeted and addressed grants, from special funds (from Water, Environmental Ministries), and from regional development sources. Using the principle of

matching grants, this means roughly a 50 percent direct state share, that in some cases could be tuned up to 100 percent of project costs.

The state provides payments only against invoices that have already been paid. This reimbursement scheme causes a major liquidity problem even in projects that are overwhelmingly grant funded. Project preparation costs are not reimbursed by the state, and in essence, local governments have to pre-finance the eventual state grants. Vendors and prime contractors or financial institutions provide up front monies. The state as rule maker and the creator of the enforcement mechanism motivates grant seeking and grant maximizing behavior removed from economic and environmental rationality.

Four basic investment models

The four sewage development models summarized below do not represent a statistical sample, yet they still show four very common ways of financing local utilities in the 1990s. Our findings support the conclusion that beyond the intrinsic economic circumstances, the views, perceptions, policy priorities, and certainly political connections of the local governments determine both the technical and financing character of these investment projects. Also, the present system of state investment grants, beyond its primary role in supporting national priorities, often distorts the size, financing forms, and efficiency of local utility investments.

Project Supported Entirely by State Funds

The first typical case is a small village of 1,700 citizens and HUF80 million annual budget in one of Hungary's most disadvantaged regions with a high unemployment rate. This village decided to initiate a project whose total cost over a three-year build-out period was about 10 times its annual budget. This village was motivated by the availability of state grants. The

community began its planning when it was already pre-treating its wastewater in a cheap wetland.

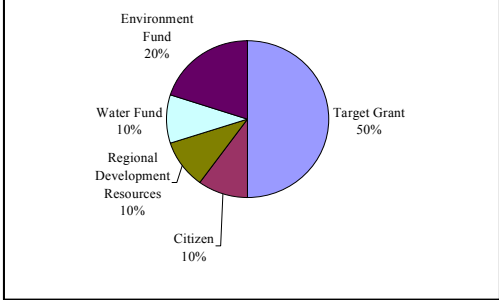
The village faced four options: (i) improve the existing wetland and connect the new sewage collection network there; (ii) build only a network and connect it to the nearby large city; (iii) connect its new network to a nearby medium sized city's treatment plant under construction; (iv) construct a network and a small treatment plant with a neighboring small village.

Expanding and improving the existing wetland and building a collection system was the first and the most economical option in terms of capital and operating expenses. But the regulatory authorities imposed such discharge standards that made difficult the use of the existing system. In contrast, EU discharge standards do not apply to settlements with a population below 2,000.

A second option was to build collection systems and connect it into a nearby large city's underutilized modern treatment plant with low capital but higher operational expenses. This option was rejected due to the cost of moving sewage to a large distance, and due to doubts about the citizens' willingness to pay high sewer charges. Municipalities focus on minimizing operational costs and do not select the most capital efficient option.

A third option was to build the collection system and connect it to a neighboring town's treatment plant under construction. However, since the village was not part of the other town's original grant application, it could not "join" later because a grant-supported project already under way could not be modified.

Chart 1 Financing NT Sewage Investment



Source: Municipality of NT

The forth option was to initiate the construction of a brand-new treatment plant

jointly with another neighboring village. The village selected this last alternative, financed a technical plan, and applied for state grants in 1998. Of the HUF1,000 million total investment cost, the village in question needed to assemble a total of HUF471 million, of which 90 percent was expected to come directly from state sources, and about 10 percent in the form of hook-up fees from the population.

Discussions with the local government leads to the conclusion that this preferred alternative was selected based upon the lowest possible users' fees. However, it became evident that certain expenses were not taken into account such as depreciation.

The investment alternatives were further distorted by an informal rule of cost calculation still very common in the country. The village with favorable soil condition reasonably expected to make this development without any significant cash contribution of the municipality, moreover, it was likely to generate a sizable positive cash flow. Investment costs were based upon "national average unit costs" announced initially by the Transport, Water, and Telecom Ministry as cost ceilings for reviewing the grant applications, but soon became used as national average unit-costs benchmarks (see Box 1).

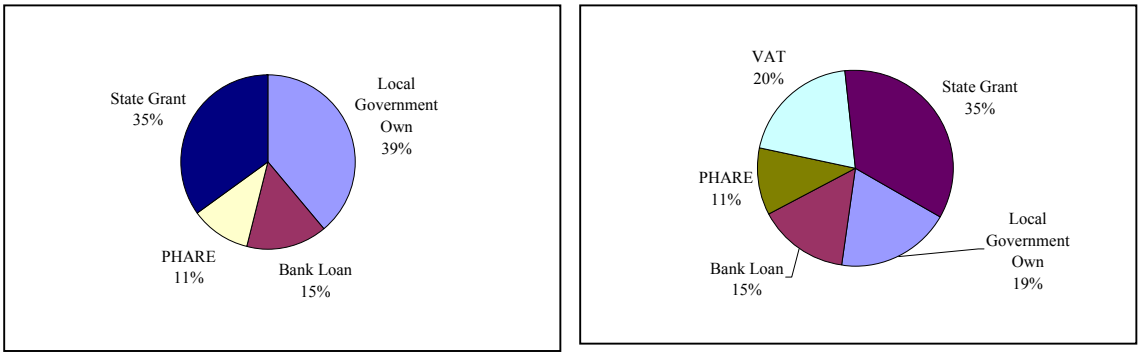
This project was finally not accomplished because of subsequent political changes, but still serves to demonstrate what a large role the actual political relation between the local and central government, and state funds can play in selecting project alternatives.

Investment from Predominantly own Sources

City E is a fortunate county capital of 36,000 residents with well-managed, strategically oriented local government that had a prudent financial record. This city had a budget of nearly HUF5,000 million, and a local economy with low unemployment and a vibrant business sector. Annual budgets were prepared based upon a long-term strategic plan and the city had significant

savings. The specific project was a refurbishment of an existing wastewater treatment plant and an expansion of its capacity.

Chart 2 Financing of a Sewage Development Primarily from Own Resources in City EG



Source: Municipality of EG

The largest owner of the wastewater work was the local government, with 27 percent stake and 45 other local governments shared the rest of the stake. User fees included a profit margin of 3-5 percent sufficient to cover minor repairs but not development. The utility company not only operated but also owned the facilities, so it could finance capital improvements from depreciation allowances. Due to regulation of state grants, the expansion would result in the local governments taking possession of the new facilities directly.

This local government, in contrast to the previous example, and unlike the general approach in Hungary, planned to use an extraordinary proportion of its own funds. The total project cost was approximately HUF1.3 billion (see Chart 2). Despite PHARE loans, and funding from the Water and Environment Funds, the city covered 39 percent of total capital costs from its own sources, eleven percent from a cheap PHARE loan, 15 percent from a bank loan and the rest from state grants. If we include value added tax refunds then the state portion rises to 55 percent (as the second pie-chart shows), still very different from a typical majority state finance case.

Sources of repayment for the PHARE and the bank loan will be in part a portion of the user fee, and in part, a rental fee paid by the utility company to the local government. The rental fee

will include depreciation, interest and principal repayment, so in essence, the operating company also contributes to repaying the municipal loan[2].

Public-Private Partnerships

Partnerships in this context mean a cooperative and a non-cooperative involvement of large commercial and industrial polluters in the financing of wastewater facilities. In the cooperative case, the local government and large users jointly planned, discussed, and implemented the project that resulted in significant benefits for both parties. In the non-cooperative case, the local government often needed to coerce the polluter into contributing to the project under construction.

Cooperative Involvement of Large Users in City DH

DH, a well located city of 15,000 inhabitants decided to develop an industrial park at its periphery in 1993. Tax breaks and good infrastructure soon attracted a major multinational as an anchor tenant to the park who desperately needed sewage treatment capacity in order to obtain an operating license on short notice. The large user had several options: (i) it could purchase additional land and build its own treatment plant; (ii) it could wait for the city to build a municipal plant; (c) it could jointly build a plant with the city, agreeing to purchase a portion of treatment capacity. An important feature of course was timeliness since any delay in plant operations would cause significant losses for the large user.

[2] Despite success at obtaining a cheap PHARE loan, the city had to wait for two years for the PHARE decision, which delayed the project seriously.

Chart 3 Financing Sewage Development in Cooperation with a Large User in City DH

Source: Municipality of DH

The local government had a vested interest in helping the multinational investor solve its problem partly because it was already thinking about the municipal sewage program due to favorable grants, partly because the local government knew that infrastructure was also needed for attracting further tenants to its industrial park. The local government involved the multinational company from the planning stage forward, and the planned investment was only the treatment plant, with the collection system to follow. The parties agreed to build the plant and completed it in early 1998.

The cost of the joint treatment plant was HUF800 million. The local government applied for and received a targeted grant of HUF200 million. The large user through a series of financial transactions provided the balance of HUF600 million. The municipally owned utility issued a 20-year, non-interest-bearing bond to the large user. The local government managed the construction and the treatment plant became its property; however, the large user also signed a 20-year contract to use 80 percent of the built capacity of the plant with a fee to cover not only operations, but capital and financial expenses alike. Thus the large user got access to a sewer and essentially became the prime source of repayment of its own loan to the municipality.

The vendor, who wanted the plant to get done as soon as possible issued a HUF200 million 3 year zero interest loan to the local government, whereas the source of repayment was the capital grant drawn down over three years. In 1999, the State Audit Office put a question mark on this economically impressive financing scheme; its view was that the state grants should not be used for debt repayment but exclusively for direct financing of the investment. Hence the bridge loan became retrospectively illegal and the municipality had to repay one third of the state grant that was disbursed after the investment was fully completed.

By calculating the net present values, we could compare the three alternatives. Option one. The large user, if it decided to go alone, would have to build a plant costing at least 80 percent of the HUF800 million, or HUF640 million plus HUF100 million price for a piece of land; a total HUF740 million. *Option two.* By relying solely on the local government for construction financing, the large user would have paid capacity and hookup charges of about HUF200 million. To this, one would add user charges over 20 years, which would come out to HUF198 million in net present value; HUF398 million altogether. The cost of waiting three years for the plant to be finished was obviously large enough to convince the investor not to choose this option. *Option three.* The large user and the local government jointly financed the treatment system, and completed it in 8 months. The net present value of the large users' total contribution[3] was HUF467 million, including the user fees paid, the hook up charges and the net present value of the bridge loan from large user.

The local government enjoyed several advantages from the participation of the large user in planning and financing the project. For its own purposes only, the local government would have

[3] The large user provided a one-time loan of HUF800 million to the local government. By deducting the present value of the stream of loan repayments from the HUF800 million, we arrived at the net present value of the large user's contribution. The present value of the 20 year, non-interest-bearing bond is HUF199 million. The three-year bridge loan at zero interest equals with a present value of 134 million. By deducting 199 and 134 million from the 800 million cash loaned to the project, the large

built a HUF200 million sewage treatment plant. This would have called for at least HUF100 million in cash from the local government. In contrast, a much larger plant was built without any local government cash outlay, and the plant became the exclusive property of the municipality.

Based upon an HUF800 million project cost, the local government gained a VAT refund of HUF160 million within 8 months. So this alternative even generated a sizable positive cash flow for the municipality. Chousing this option, the municipality of DH essentially financed the investments with a virtual revenue bond.

Non-cooperative Partnership in City G

City G is a medium size settlement in a less developed area of Hungary and a home to several sizable food processor companies. The municipality has a relatively large budget for its 36,000-population, but only 5 percent of the HUF3,500 million budget come from local taxes. Unlike several previous examples, the local government did not negotiate with large users prior to the sewage development decision in 1997. The availability of state grants motivated the city management to quickly develop a plan for a new[4] treatment facility (HUF560 million total budget) and to apply for grants. As a result, the issue of optimal capacity and the fluctuating discharge quality was totally ignored, although that would justify a timely and close cooperative effort with the largest users.

The construction cost for the city's sewage project was calculated on the basis of benchmark unit costs mentioned before (see Box 1). Likewise, the city assumed it could receive up to 50 percent in targeted grants. Detailed planning began with these parameters pre-determined, now involving the large users who accounted for over two thirds of the total sewage load.

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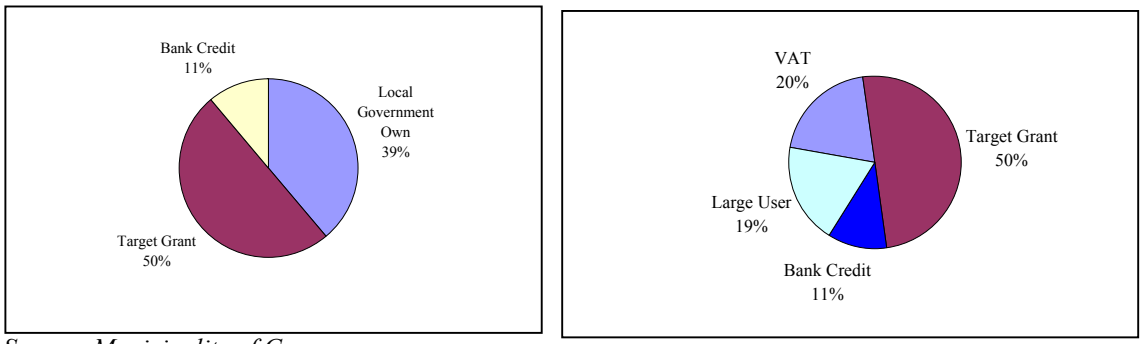
user's contribution equals HUF467 million in net present value term.

[4] Prior to this investment, sewage treatment was provided by a wetland-type facility and over 65 percent of the homes were connected already to the sewer system.

The remaining key question regarding financing was about who is to cover 50 percent of the capital costs. Of the missing HUF280 million, 120 million could be recouped through VAT refunds, leaving only HUF160 million of own source funds to identify. The city decided to obtain these funds from the large users in a confrontational manner. Initially, the city decided to set the large users' hookup fee to collect exactly HUF160 million. When the large users refused to pay this hookup fee, the city threatened to impose environmental fines in the same amounts. In the end they agreed in the bond format - "this was necessary due to lack of trust"-as the large users expressed. The city issued a private placement bond to the large users, paying no interest with a 10-year maturity and a face value of HUF100 million. The municipally owned operating company borrowed the remaining HUF60 million backed by mortgages on municipal property completely unrelated to this project.

Chart 4 Financing Sewage Development in Non-cooperative Partnership in City G



Source: Municipality of G

The above scheme forced the municipality into a liquidity trap since state grants were only paid against invoices, and VAT refunds similarly required that cash be used to pay invoices that were reimbursed with a time lag. In this project the interest-free bond provided the only liquidity besides another interest-free loan from the prime contractor, who asked for mortgages on municipal property and agreed to buy, then sell back, a piece of forest. Repayment of the loans and of the bonds is expected from user fees, when three quarters of the user fees are to be paid by

the largest users themselves. So the solvency of the treatment plant depends on the ability and willingness of the largest users to pay far into the future.

This conflict-full case illustrates the need for good communication even in the conceptual stage of a planned project to prevent costly capital projects from getting out of control. The large users need to be involved at the conceptual stage, since they have precise data on wastewater parameters, and prospective data on future flows. Involving their sewage plant specialists would enable precise planning and appropriately sized projects to take place.

In this specific case, a smaller and less expensive option would have been optimal had large users been involved from the outset. The professional opinions were confronted only after the development decision. One option was to build a small biological plant with a HUF100 million cost without state grants that would not offer a long-term solution. However this plant could have provided adequate treatment if one of the foreign-owned dairies had been consulted about pre-treatment experiences they have had abroad in similar situations

Mutual distrust and miscommunication cause bad relations. Given their deep and long-standing presence in the community the management of the user companies could have sought out city officials on an informal basis as technical problems emerged. Operation started in 1998, but mistrust continued and the treatment facility still runs in a sub-optimal manner.

Lessons from the Public-Private Partnership

The unit cost ceilings set by the Water Ministry do not reflect the geographic and technical diversity of real construction costs. These unit cost ceilings are maximums, and the rational local government "tunes up" project size and cost to obtain the maximum amount of cash flow, regardless of the availability of lower cost technologies. Naturally since capital costs are matched to maximize available funding programs, operational expenses and depreciation costs are not optimal, causing sewer charges to be much higher in some cases than would be otherwise justified.

Box 1 The centrally set unit cost ceilings

The Ministry of Water, Transport and Telecom (MWTT) in the Official Gazette published the centrally set unit costs ceilings for sewage developments in 1996. These have been introduced with the forward-looking intention of providing a basis for comparability and cost effectiveness. The unit costs are given along technical measures in the following format: for pipelines according to size of pipe, for machinery for transfer of sewage according to performance measured in cubic meter per day (m3/day), and in similar ways for other equipment to be built into treatment facilities. Some examples:

Pipe size (mm)	Unit cost (HUF/m)	Performance (m3/day)	Unit cost (HUF/ m3)
40	3500	0-100	120000
110	8000	101-300	80000
250	20500	301-600	65000

However according to several expert and local government opinions these unit costs are not diversified enough to mirror differences in geographic, water-base, and other characteristics. Moreover, although originally intended as maximum allowable unit costs, these unit costs are used by local governments as benchmark numbers orienting budget calculations in grant application, and also accepted by grantor agencies as such.

Thus central budget pays high amounts of subsidies for developments in areas where due to soil quality or other features such investments can be constructed with unit costs lower than those centrally set. Local governments as investors can save significant amounts and use them for other purposes, which in practice, due to the lack of proper monitoring, might stay unnoticed. In a recent report the State Audit Office dealt with this problematic issue, and wrote the following: "Real unit costs of certain technical solutions (e.g. sewage network construction) are lower than those published (prime contractors chosen by public procurement could make offers of 15-30 percent less costs) whereas in other cases (e.g. the transferring machinery) the Ministry's unit costs are underestimating real costs." [SAO 1997]

In our opinion this system needs improvement since it provides no incentives to find cost-efficient technical solution and thus results in overspending of public money.

From an economic perspective, it is not justified to involve municipal assets such as real estate (forest) not related to a specific service, as collateral in loans to municipal infrastructure projects. The municipality bears the opportunity cost of mortgaging assets better suited for other projects, and these pledges also remove the direct need for the project itself to generate or provide the asset-based or revenue based security for loan repayment. These hidden opportunity

costs and guarantees do not show up as operational or capital cost in project budgets, distorting project financial projections and decision-making processes.

Vendor-based financing

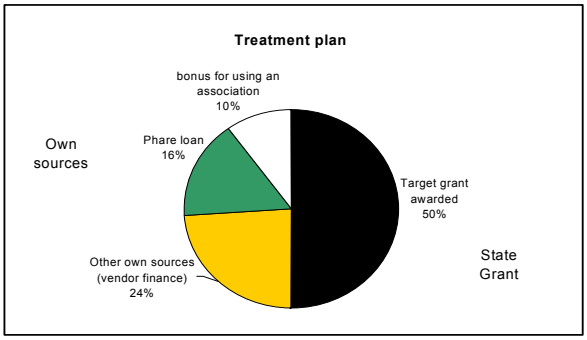
Background and description:

In 1992, 4 neighboring municipalities in central Hungary agreed to pursue a grant from a foreign donor to finance up to 50 percent of the costs of a preliminary operating permit to build a wastewater reuse system. They subsequently created a regional wastewater association (Association) to build the system, included eventually additional 4 municipalities, successfully applied for state grants and the construction started included in 1996. The treatment system began operations in May 1998, the collection system was completed in 1999.

Treatment and Collection System Construction Finance

The design, financing, construction, and future operation of this wastewater collection and treatment project took place in essence with virtually no cash contribution on the part of the 8 members of the Association. This case demonstrates the state of the art in grant maximization and careful cash flow management (see Chart 5 and 6). The project needs, missing cash flow, and unique legal and tax situations prevalent in the early 1990s lead to the creation of a project manager limited liability company owned by the initial six communities involved.

Chart 5 Financing Sources of the Treatment Plant

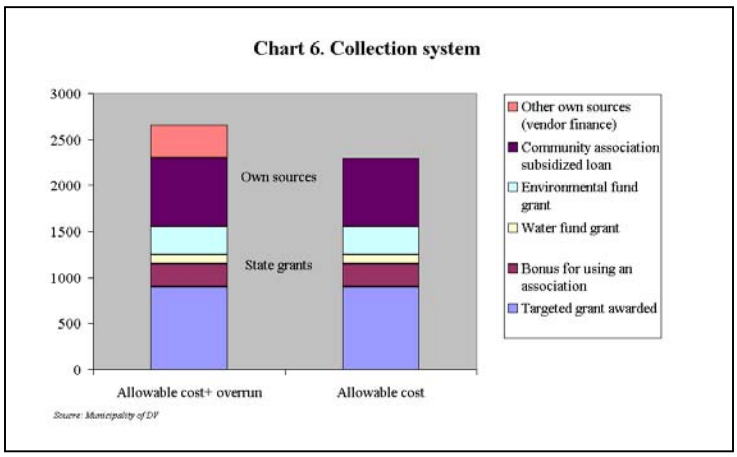


Source: Municipality of DV

The Association through its lead member applied for, and received the

maximum allowable targeted grants for both the treatment and collection systems. The Association assumed responsibility for coordination of what ultimately became an 8-village project. All regulatory liaison, negotiations with vendors, financiers, regulators, contractors, and state authorities were handled by the Association and its designated chairman, the mayor of the lead municipality.

Other grants were applied for by and awarded to the Association, one from the Water Fund and two from the Environmental Fund. All the grants were legally awarded to the Association but paid through the bank account of the lead village, which incurred all administrative, bank and other expenses that it could not recover from the other members.



In terms of financing the own source, or more precisely the non-state grant component of both the treatment and collection systems, several types of subsidized and vendor loans were involved.

The HUF133 million PHARE loan with zero interest and an initial three-year maturity was made to the Association with each community assuming responsibility in proportion to the number of hook-ups. In this case each community is assuming a portion of the liability for the one lump sum payment of principal due upon maturity, initially at the end of 1998, but was subsequently rescheduled to 2001. Two vendor loans, one for HUF199 million from the treatment plant general contractor, the other for HUF300 million from the collection system general contractor, covered the balance of own source funds. These two loans have unknown implicit interest rates. Overall, debt of all types

accounts for 39 percent of total project costs, including cost overruns, and for virtually all of non-grant own sources of construction funds.

In addition, a unique financing mechanism, a HUF711 million subsidized loan, was granted to the Community Water Association, which is a temporary financing association of the citizens of the involved municipalities to provide a down payment to the investment upon the valid signatures of 60 percent of the households of each community. CWA was used to generate funds for the collection system. This unique loan made through a commercial bank involved a highly subsidized interest rate, a 10-year maturity, and a guarantee of the municipalities in question.

Sources of repayment

This is an inverse BOT scheme in that the local governments obtained funds to build a system that was to become their property, only to seek a concessionaire for operating the system since the association members could not come up with their own sources of funds. In essence they lost the usual advantages of BOT during the construction process, but at the same time, they bore all financial risk of the development.

The population will directly repay the CWA loan in a special assessment as a part of the future sewer charge. The PHARE loan is an on-balance sheet item of each community, shall be repaid from general revenues, or will be included in a potential concession fee. The two-vendor loans (plus interest) totaled HUF499 million will be included in an up-front fee to be paid by the winning concessionaire. The eventual sewer charge is expected to include a capital charge to finance the up-front concession fee that essentially converts the debt of the eight municipalities into the debt of the selected concessionaire operating company.

Lessons Learned from the Vendor Finance Scheme

The two vendors have an uncertain source of repayment, since repayment or assumption of accumulated debt is a part of on-going negotiations with potential operator concessionaires. However, the Association's cash flow problems during construction were significant and illustrative. The Association as representative of the eight villages could only draw down the various forms of state grants if it could demonstrate a cash balance amounting to, on average, about 40 percent of the invoice. The state agency would pay its share of each invoice if the Association could show that it had the missing 40 percent of that particular invoice on hand. Several sources of liquidity were used.

The Association's members as mentioned created a project manager company (PMC), under the control by the member communities. The proceeds of various loans were used to provide the 40 percent own share in order to draw down the state grants. So the vendors loaned the association an amount that could cover 40 percent of the vendors' own invoice for services. But, the Association subcontracted management to its PMC. The PMC received loan proceeds as payment for services, and then the vendor invoiced the PMC. The advantage to this method was generating liquidity. Namely, the PMC was entitled to get VAT reimbursements for each invoice it paid to the vendor, and use those VAT refund proceeds as loans back to the Association, which then ordered the next round of services from the vendor through the PMC.

Of the HUF3,400 million all-inclusive costs, about 20 percent or HUF680 million in VAT was ultimately paid back to the state tax office. But using the VAT reimbursement method, the Association through the PMC used the refunds as temporary liquidity, in essence, not having to generate 40 percent of the VAT (272 million HUF) as an own source contribution. Thus,

realized interest earnings on this cash flow were also used as own source revenues for the project.

During the operational phase, the Association through its members will maintain ownership and the overall statutory service provision obligation. The Association and its members assume responsibility for repaying the PHARE and the CWA subsidized loans, with payment streams from general revenues, concession fees, and user fees. The two large vendor loans amounting to HUF500 million or 19 percent of the total project cost including the cost overrun, were a delicate part of negotiations with concessionaires operators. A key element of the concession fee was to repay the loans.

It is still possible for a group of communities to optimize the grant-driven infrastructure financing system without much cash of their own despite a high, 40 percent own source requirement. Nearly 85 percent of the total project cost was provided by soft money in terms of subsidized loans and grants. About 15 percent of the total cost came from vendor financing. The other important lesson demonstrated is that the excess profit or capacity that is included in a system subject to such a high level of grants is about 15-20 percent. In other words, the "hard loan" or "vendor finance" portion of this project not only provided much needed liquidity, it also provided a profit source to be financed through user fees and general revenues far into the future.

The key problem with this method is not the level of subsidies or subsidized loans, but the "unit cost ceiling". These figures are taken as givens, regardless of the genuine cost of construction. If the entire cost were hard money, or harder money, about a 20 percent cost savings could be extracted. There are reasons to believe that in this case the treatment system cost overrun was justified. But in the case of the collection system, the allowable cost (i.e. the 'project cost' calculated with the centrally set unit costs) was about 15-20 percent higher than the

lowest possible cost. In other words, the allowable cost figure is not accurate enough given competition among various technologies and construction firms, and the entire price could be biased upwards.

The soft money nature of the overall sources of revenue for projects like this provides a strong disincentive for value engineering. So capital cost is assumed to be bearable by the population far into the future if the concessionaire and the Association can set a sewer charge that is high enough, and extract up front payments or refinancing from the potential concessionaire.

Financing utility development with borrowing is a very natural form all-over the world. In this particular case, however, the associated municipalities heavily relied on vendor finance to overcome liquidity shortage and finally divested dominant stakes of the new utilities through a debt-equity swap they eventually agreed with the initial vendors. This inverse BoT required extraordinary efforts from the local governments particularly form the mayor and staff of the lead municipality. In two years of operation the Association had to create a concessionary arrangement in questionable conditions while as amateur developers assumed all the financial and human burden of a huge investment. A more liberalized investment finance framework would reduce moral hazard and transaction costs while would support standard BoT arrangements.

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