March 2, 2007

ARMENIA: PROGRAMMATIC PUBLIC EXPENDITURE REVIEW
RAISING EFFICIENCY IN INFRASTRUCTURE SERVICES

Summary

In Armenia considerable progress has been made in bringing infrastructure services up to economically efficient levels. But major challenges remain concerning service quality, sustainability and adequacy of development to meet demand. The government faces three challenging issues in respect of infrastructure:-

- the desirability of policy settings consistent with sustained high rates of growth
- improving the stewardship of state infrastructure assets
- making effective use of future investments, particularly those arising from donor contributions such as the Millennium Challenge Corporation along with funds from customers.

Given this it is important that the government, in making its regulatory and budgetary decisions, has the best possible and focused information at the right times, proceeded by necessary policy development process. In the absence of on-going international transfers, funding for infrastructure ultimately comes from customers and/or taxpayers: debt or equity finance eventually has to be re-paid/remunerated. In infrastructure, policy options include the maximum possible role for private sector provision of desired services within an effective pro-competitive regulatory environment along with the importance of cost-related charging for services where such charges are economically possible. Improving the efficiency of government service providers via pricing, governance, incentive and accountability reforms are important as are supportive regulatory improvements. Effective use of concessional donor funds is important so that sustainable improvements in service delivery occur when projects are justified by national cost-benefit analysis.

As recommendations, this module of the programmatic public expenditure review suggests policy focus on

- developing advisory capacity within the government with respect to the best possible structure of markets including the removal, and avoidance, of government imposed economic entry barriers (de-regulation) including in infrastructure markets;
- giving infrastructure service providers prime responsibility for pricing their services and, where external price control exists, consider options for credibly moving price control from traditional cost-of-service regulation to medium term price cap regimes more consistent with improving investment incentives and efficiency (incentive regulation);
• where pricing of infrastructure services exists, reforming the government service provision arrangements consistent with best-practice state-owned enterprise (SOE) policy;
• Improvements in road maintenance funding being sustained at central and sub-national levels, allocated to highest yielding use, spent efficiently and the government advised of any economic shortfalls.

Abbreviations

MTEF: Medium term expenditure framework  
ISP: infrastructure service provider  
MCC/MCA: Millennium Challenge Corporation/Account  
PSRC: Public Services Regulatory Commission  
WUA: Water Users Association  
SWC: State Water Committee  
JSC: Joint Stock Company  
KfW: Kreditanstahlt fur Wiederaufbau  
MARA: Armenian Roads  
MOTC: Ministry of Transport and Communication  
MoFE: Ministry of Finance and Economy  
PSP: Private sector participation  
PRSP: Poverty reduction strategy plan  
SOE: state owned enterprise  
RB: Regulatory Board (water economy)

Introduction

A multi-year programmatic public expenditure review (PER) is being prepared for Armenia with an initial focus on health and infrastructure, within the framework of an integrated public sector financial management reform program. In respect of infrastructure, following agreement of the Bank’s concept note, Armenian consultants (Aucon) were employed to undertake the work on infrastructure in close liaison with an inter-governmental task force chaired by the Ministry of Finance and Economy. The first phase of the work, the problem definition phase, focused on irrigation, drinking water and sanitation and roads as these represent the bigger medium term fiscal issues and problems. The results of the first phase were presented to the government in 2005 and a very useful workshop convened by Deputy Finance Minister Atoyan where the conclusions were discussed between officials and the consultants with Bank staff in attendance.

The second phase of the consultant’s work focused on addressing the specific policy issues identified in the first phase with proposed policy solutions that can be implemented to address the problems. The terms of reference are attached. These reports have been
provided to the government and a process of dialogue has taken place. A separate consultancy (with another local firm, Avag) was let to assist the government with decision-making in terms of government fiscal assistance to the irrigation sector via the development of adequate economic and financial models.

This module draws upon the work of the local consultants together with the Avag report on irrigation and a study on the specific problems in rural infrastructure. It aims to given a broad overview of infrastructure problems, the outlook given public policy objectives, a suggested public policy framework and proposes medium term policy, structural, governance and regulatory improvements in the sector. Consistent with the terms of reference the chapter does not intend to provide a complete survey of the infrastructure sector. It is inherently focused on selected key economic and fiscal problems that we consider the government faces or will face together with feasible implementable policy options including an assessment of their implementation and sustainability risks.

**The objectives**

Consistent with implementation of the Government’s growth and poverty alleviation strategy and related policy settings supportive of the continuation of rapid economic growth including high rates of private investment, we suggest that the **over-arching objective in respect of physical infrastructure is the delivery of cost-effective infrastructure services** that users and/or customers value, now and in the future. This is inherently a national strategic economic objective. Government infrastructure policy including market structure, fiscal, ownership and regulatory aspects should be seen within a broad national economic framework. In evaluating options to improve on current policies, implementation and sustainability risks of each policy package needs to be taken into account. Robust financial as well as national economic analysis is needed by the government so that it can be assured that the policy package it chooses is most likely to achieve the objective in reality, given the long term nature of quality physical infrastructure and competing demands for scarce government resources.

Where the government has a major ownership and/or fiscal role infrastructure markets, as is the case in Armenia, any requirements arising from these roles also will and need to be consistent with overall fiscal policy objectives including fiscal risk management policy. For example, state businesses carry with them risks and even well performing state owned businesses need the ability to access to equity injections from its owner.

**The problems**

Considerable efforts have been made to address infrastructure service provision problems in Armenia, including price reforms, metering, measures to increase billing collection, the transfer of ownership of major infrastructure assets from the government and the development of specialist regulatory regimes and institutions. For example, the sale of electricity generation and distribution assets and the granting of concessions for Yerevan Water and Sanitation and Zvartnots airport to private firms. The government’s policy and strategy gives considerable priority to improving public infrastructure. Generally, in spite
of these considerable recent efforts and improvements, overall, Armenia’s physical infrastructure is delivering poorer services than customers want and value. The problems vary from market to market and area to area. But, perhaps with the exception of telecommunications and aviation, the general problem is that the infrastructure stock and its stewardship is sub-optimal and current policy, regulatory and infrastructure service governance settings are not likely to generate the desired and sustainable improvement over the medium to longer term to achieve the objective.

This is a particular problem if the government wishes to have policy settings that would be consistent with continued high rates of economic growth. Internationally, physical infrastructure constraints have become impediments to continued economic development in both developed and developing countries e.g. US and India respectively\(^1\). Government policy contributes to this problem and government policy thus must contribute to the solution.

Specifically, a high proportion of roads are of a lower-than-desired quality with adverse effects on transport costs and economic development. There is a substantial back-log of road maintenance and rehabilitation work particularly in rural and urban areas. There is a broadly similar situation in irrigation, drinking water supply and sanitation with high leakage rates\(^2\). A large number of communities are poorly served by network drinking water and sanitation systems. The comparative situation in the Bank’s Europe and Central Asia region is illustrated in the figure below.

![Diagram](image)

Considerable effort has been focused on the critical problems of metering, billing and collections in respect of electricity and drinking water. There continue to be problems

\(^1\) US: problems in inter-state electricity transmission, India: roads, ports and airports.

\(^2\) www.ecadata-wb.org
of accumulating aggregate accounts receivables in **irrigation** water user associations (see table 3 below).

The **electricity** system has been vertically separated: horizontally also for generation and high voltage transmission. While there is significant government ownership in generation and high voltage transmission the national electricity distribution system has been privatized. The gas system is partially privatized. Efficiencies have been generated while service quality has been brought closer to customer requirements but the government considers that considerable investment is necessary to adequately rehabilitate and enhance the systems to meet reasonably expected growth in demand and address security of supply issues. This is particularly the case with the planned de-commissioning of the nuclear power plant in the next decade. There are weaknesses in the institutional governance arrangements for state service providers: an inefficient balance of service provider autonomy and accountability with weak incentives.

In **telecommunications** in an effort to encourage investment, along with a number of other governments, the government gave an exclusive long term franchise (currently until 2013) to Armentel, 90% privately owned. In line with international experience with such arrangements performance has been poor. It has been noteworthy that the entry of a new mobile operator, in competition with Armentel, has resulted in increased investment, better services to customers and lower prices where competition has occurred. Virtually all households including those in rural communities are now within the signal “footprint” of the mobile systems. Generally, however, telecommunications services are expensive where Armentel is not subject to competition e.g. internet and international services. The PSRC estimates that there is un-met demand for some 70,000 land lines in Yerevan alone. Efforts continue to be made to liberalise telecommunication markets.

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<tr>
<th>Tariff</th>
<th>January 2007</th>
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<tbody>
<tr>
<td>Russia</td>
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<tr>
<td>Georgia</td>
<td>0.12</td>
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<tr>
<td>Europe</td>
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<td>USA</td>
<td>0.12</td>
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<td>Iran</td>
<td>0.50</td>
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The government also, probably for similar reasons, gave an exclusive franchise within a generally restrictive policy regime for Armenian **international air service** “rights” to privately owned Armavia. Armavia could be regarded as the replacement for state-owned Armenian Airlines that was liquidated. Again, the results have been air services being

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4 [www.aviation.am](http://www.aviation.am)  
5 Actually restrictions agreed between pairs of governments. The current Armenian regime is highly restrictive e.g. services between Germany and Armenia are limited to no more than four flights per week each by Lufthansa and any airline designated by Armenia.
delivered that are arguably as being costly and less services provided than would probably be efficient from an economy-wide perspective. For an economy growing at high rates it is noteworthy that air services growth has been modest. Yerevan’s Zvarnots airport has been made subject of a thirty year concession to a private operator. Substantial private investment has been undertaken in a new terminal (some US$50m to the end of 2006) but there is concern over the recovery of costs given air services volumes and hence charges to users. There is also an un-used new air cargo facility at the airport built at the cost of $30m with EBRD financing.

Armenian Rail is in a weak financial condition with its assets running-down. Cash generated from freight services is used to cover the costs of passenger services. Longer term sustainability is questionable given competition from trucking.

Rural infrastructure

Rural Armenia has particular problems. A Bank study on rural infrastructure in Armenia noted that about one third of the population lives in rural areas, of which over 45 percent are poor. Out of a total of 934 communities in the country, 871 are located in rural areas. This study provides an inventory of transportation, gas, electricity, telecommunications, piped water, and sewerage infrastructure and condition in 871 rural communities in Armenia. In general, there is a large amount of infrastructure but most is severely degraded. This imposes high costs on the rural population. For example, 61 percent of rural roads are in poor or very poor condition: only 16 percent are fully passable during the winter. Similarly, about 12 percent of communities do not have access to piped drinking water, 51 percent of households have home taps, and water quality is poor.

The report considers that the degradation is due to a combination of historical factors compounded by institutional arrangements and lack of donor coordination. The Soviet legacy left Armenia with an over supply of rural infrastructure, which was expensive to maintain. The collapse of the Soviet Union led to a fifteen-year break in maintenance. Compounding the problem are opaque institutional arrangements that complicate ownership and maintenance responsibilities for the local infrastructure, such as roads, water, and irrigation. Also there are the likely effects on rural communities from economic re-structuring which may result in a rural to urban migration. Despite receiving substantial financing from donors, there is a high rate of failure among rural infrastructure projects. This is because they are generally implemented at a local level, independently from similar, or previous, initiatives in the same or other areas of the country.

The report estimates that addressing basic minimum infrastructure needs will require about US$300 million of investment. This includes US$90 million for the rehabilitation of lifeline roads connecting communities with the core network, US$50 million for gas supply, US$42 million for telephony, US$43 million for potable water, and US$75 million for irrigation. Provisional estimates for maintaining and operating this infrastructure suggest an additional requirement of US$25-30 million annually. For most

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6 “Rural infrastructure in Armenia” World Bank September 2004
of the infrastructure services these operating costs are already covered by existing tariffs. For irrigation further adjustment is necessary. The same report indicated that citizens expressed a relative preference for better services in energy and drinking water compared to roads and telecommunications.

Cross-sectoral policy implications

**Medium to longer term sustainability of desired infrastructure capacity** raises questions about the **level and allocation of government revenue, the institutional/governance ability of service providers** to efficiently and effectively handle both “one-off” injections of financial resources (e.g. via the MCA\(^7\)) and any increased on-going resourcing from user-charges.

For example, business-like ISPs able to collect charges that fully cover costs, including appropriate capital costs, will be building up cash reserves in periods of low investment. ISP institutional governance needs to be able to ensure that such financial resources are put to their best use. In such situations in the private sector debt is reduced and/or dividends to owners increased with the position being reversed when investment requirements increase. It is widely observed that governments, as owners, have difficulty in implementing this ownership policy e.g. as evidenced in the U.K. recently in the latest annual report of the government’s Shareholder Executive\(^8\), the agency that manages the government’s remaining ownership interests in commercial enterprises e.g. air traffic control. The Executive in commenting on the low dividend pay out rate from its portfolio suggested that government owned firms did not believe that they can get equity injections when justified and hence preferred to retain the funds rather than pay out dividends.

Ensuring effective stewardship of physical and financial assets via legally separate entities such as the state owned joint stock companies (JSC) used in Armenia is potentially risky where corruption is a problem. Substantial resources flow in and out of the entities. The entities often have ownership and control of assets that can be disposed of or otherwise made available, inconsistent with the objectives of the entity and the government, as owner. These decisions are usually delegated, to a greater or lesser degree, to the entity, reducing direct government control over both the resource flows and stocks. While the government owns these entities it could operate its “ownership” policy to strictly constrain the level of delegation to these state owned entities. Such controls would normally reduce the performance benefits from use of corporate structures in the public sector and would raise the question about the wisdom of the use of separate legal entities in the provision of infrastructure services.

Converting the businesses back into government departments is always an option to give greater control and accountability to the government but this may make adequate on-going resourcing for the services provided by these businesses more problematic even

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7 The agreed MCA assistance would substantially increase public spending on infrastructure over the next four years. See attachment 3 for details.

8 [www.shareholderexecutive.gov.uk](http://www.shareholderexecutive.gov.uk)
when customers are willing to pay for the services and financiers are willing to finance
the businesses including for investment. Infrastructure tariffs would become merely a
subset of public sector revenue policy weakly connected to the economic benefits of such
tariffs in terms of demand signals (e.g. water conservation) and supply signals (better
focus of investment and dedicated funding streams for on-going operation). Working to
improve the effectiveness of state enterprise governance, transparency and accountability
is the other principal option for existing state JSCs. This is broadly pursued here.

In terms of fiscal flows the focus in this chapter will be primarily on irrigation and
roads as the major fiscal expenditures on infrastructure currently relate to policies in
these areas. Fiscal assistance to irrigation in particular continues to a major issue with
policies to move the sector to effective full cost-recovery not being able to be delivered in
practice and substantial funding being made in excess of that budgeted. See Table 2
below.

<table>
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<tr>
<th>Table 2 Revenues, expenditures and financial deficit of WUAs in 2004 – 2005</th>
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<tr>
<td><strong>2004</strong></td>
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<td>Budgeted</td>
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<td>Total revenues*</td>
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<td>Total expenditures*</td>
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<td>Balance</td>
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<td>Subsidies from the state budget**</td>
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<td>Other financing sources</td>
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<td><strong>2005</strong></td>
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<td>Budgeted</td>
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<td>Total revenues*</td>
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Memorandum items |
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<td>Balance after financing</td>
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<td>Changes in the stock of accounts receivable***</td>
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<td>Changes in the stock of accounts payable***</td>
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* Revenues and expenditures include value added tax.
** Budgeted indicators for subsidies in 2004 and 2005 correspond to the relevant indicators approved by
the Law on 2004 State Budget (including amendments) and the Law on 2005 State Budget (without
amendments).
*** (-) indicates increase, and (+) indicates reduction.
Source: Avag Part B.

Road funding has steadily increased at the national level. The substantial funds that are
planned to be provided by the MCC particularly in respect of rural roads and irrigation is
likely to change and dictate the government’s fiscal priorities in respect of these activities
over the medium term so much of the analysis and recommendations here takes this as a given and will focus on the longer term policies and institutions.

In terms of fiscal “stocks”, **government owned infrastructure assets (and liabilities)**, the government has a substantial ownership interests in infrastructure with the following ISP entities state-owned, in addition to the road system:-

- “Yerevan Water and Sewerage” CJSC, (concessioned)
- “Armenian Water and Sewerage” CJSC, (management contract)
- “Irrigation” CJSC,
- “Irrigation - Water Abstraction” CJSC,
- “Electro Power System Operator” CJSC,
- “Settlement Center” CJSC,
- “High Voltage Electric Networks” CJSC,
- “Vorotan Cascade of HPPs” CJSC
- “Armenian Nuclear Power Plant” CJSC,
- “Yerevan TPP” CJSC,
- 45% of the shares of “ArmRusGasArd”
- “Yerevan Subway after Karen Demirchyan” CJSC
- “Armenian Railways”
- Shares in other municipal water service businesses

There are also Zvartnots (concessioned) and other airports, the air traffic control business and postal services owned by the state as well as the residual shareholding in Armentel. The government has created 54 (now 53) water user associations (WUAs) to manage the tertiary irrigation canals providing water to farmers but we understand that the government retains ownership of the underlying irrigation assets. The financial behaviour described above suggests that the government acts as the residual “risk taker” for WUAs.

In aggregate there is a considerable amount of economic services provided by these state owned entities. **Generally these entities have strong market power with weak competition resulting from their network and cost characteristics.** Their performance in service delivery as well as their efficiency is thus very important as customers have few alternatives. **The existence and operation of these businesses also generates risks for the government (and taxpayers) as owner(s).** The government’s investment in these entities has “opportunity costs” in that the ownership of the assets could be divested and funds raised by the government from doing so used elsewhere. Applying the national economic framework suggested earlier the contribution to the government’s development strategy from each of these entities depends on the extent to which it is providing and will provide services to the point that

- (marginal) benefits to customers are in line with (marginal) costs and
- costs are minimized.
Looking ahead, the contribution also depends on each of the entity’s being able to cost-effectively **invest in new capacity or re-habilitating existing capacity** where benefits exceed costs. Taken together the economic contribution of an entity is whether it is able to create net economic value to the resources it controls. This is the core objective of corporate governance from a public policy perspective. This approach is also used by leaders in the private sector\(^9\).

Net economic value includes the entity earning an economic return on the (economic) value of the assets invested in it. Information on the government’s cost-of-capital is thin but we note that the airport concession entered into by the government provides for the concessionaire to earn a 20% rate of return per annum on its investment in the airport. We understand that lower rates of return are in the electricity distribution and telecommunication licenses. International evidence would suggest that the cost of equity financed investment for average market risk would be in the range of 4%- 8% p.a. in real post-tax terms\(^10\). Given the openness of the Armenian economy in terms of capital flows this could be regarded as the applicable range for investment in Armenian assets in the absence of evidence to the contrary e.g. a very high cost of government debt in real terms reflecting a country risk premium\(^11\).

Illustratively, if the government has say $1 billion invested in its SOE portfolio then the SOEs should be earning an average of $80 million in profits\(^12\), post-tax, p.a. in real terms in aggregate. This is taking a cost of capital at the top of the range above. This is in addition to corporate tax receipts. What the government actually receives as receipts will depend on its dividend policy for SOEs. If SOEs have highly profitable re-investment opportunities, vis-a-vis the cost of capital, low dividend pay out policies may be justified and vice versa. The government’s view on the cost of capital is obviously central to the dividend decision.

Generally, the economic performance of the government’s ISP portfolio is likely to be well short of achieving the benchmark of at least earning the government’s cost of capital over the medium term. Information on the performance, risk and outlook for the government’s business portfolio against the government’s policy objectives should be publicly available on a timely basis so that the extent of any performance shortfall along side out-performance can be readily assessed. We understand that this is currently lacking.

*The public policy framework*

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\(^9\) See for example, J Roberts “The Modern firm” 2005

\(^10\) For example, Smithers and Co “Inquiry into certain aspects of the cost of capital” [www.ofgem.gov.uk](http://www.ofgem.gov.uk) 2003. Governments often set the public sector discount rate lower than indicated by this range, e.g. UK H.M Treasury Green Book [www.hm-treasury.gov.uk](http://www.hm-treasury.gov.uk), but usually ration investment funds in response to the resulting excess demand for limited funds.

\(^11\) US/UK evidence suggest the real cost of government debt as being in the 1.5%-2.5% p.a. rate, a rate reflected in the above cost of equity.

\(^12\) Profits here includes net increases in business value
Traditionally, the distinguishing characteristic of infrastructure was thought to be its relatively high fixed (and sunk\textsuperscript{13}) costs and relatively low variable costs making textbook efficient marginal cost-based pricing suggested above\textsuperscript{14} difficult. However, major investments in infrastructure have occurred, by the private sector (rail, canals, toll roads) as well as the public sector. A variety of cost recovery mechanisms have been used.

Once investments have been made governments have found it tempting to intervene to regulate any charges to a level that merely cover ISPs\textsuperscript{1} variable costs at the most. Even maintenance is often squeezed to maintain excess staffing in the ISP. Avag’s work suggests this might be the case for a number of WUAs. Private sector ownership of ISPs is obviously not sustainable in this situation unless credible contracts that allow a return on and a return of their investment are entered into. Even then, the investment in new assets is less likely to achieve the policy objective suggested above in a timely manner. Innovation and risk-taking will certainly be low. Governments have found the alternative of government provision problematic also. The result is the rundown in infrastructural networks together with inefficient operation observed widely internationally. When problems become sufficiently great political intervention occurs with new investment often resulting. But because of the policy and institutional weaknesses the resulting assets may be of poor economic quality, e.g. the airport cargo, terminal and/or not sustained, e.g. road rehabilitation.

Theoretically, efficiently charging users for infrastructure services is not straight-forward given its quasi-public good characteristics\textsuperscript{15}. “Outputs” or services desired by citizens and other users from infrastructure are generally not easy to identify let alone measure and price. This is evidenced by the growth in concern over service quality in infrastructure services markets often when private sector participation has been introduced e.g. unscheduled electricity outages. If the output specification issues had been adequately addressed then service quality would have been also as the latter can be regarded as the “mirror” for the former. For example, electricity users value some (high), albeit varying between customers, level of service continuity assurance as an inherent part of the service. Many regulators address this issue as one of service quality. Certainly, existing usage charges and prices for infrastructure services are often only weakly linked either to the relevant marginal costs or marginal customer benefits e.g. the use of on-going connection charges.

However, both historic\textsuperscript{16} and recent experience shows that most infrastructural services can be adequately\textsuperscript{17} and efficiently charged for, with roads outside very dense large urban areas being the outstanding exception. If the charges are structured as efficiently as possible and set at broadly cost-recovery levels including the critical capital costs then

\textsuperscript{13} Non-recoverable costs
\textsuperscript{14} Typically regarded as marginal cost pricing.
\textsuperscript{15} Public goods are those where one person’s consumption does not affect any other person’s and it is un-economic to exclude a consumer from consuming the good (service) e.g. empty roads..
\textsuperscript{16} Toll roads (turn pikes) in Europe for examples
\textsuperscript{17} Marginal cost pricing often has limited meaning in infrastructure but a range of pricing mechanisms have been developed that allow cost-recovery and adequate incentives without significant distortions compared to the alternative of un-priced provision and its reliance of tax-based financing.
the cash flow generated can fund the sustained on-going provision of the services as well as provide for the future. If financiers such as banks and equity investors can be assured that cost-related charges can be expected to prevail over the long term then commercial financing of development as well as operation becomes a possibility. This brings the advantage of the more efficient operation associated with the stronger incentives faced by managers under commercial ownership. It also has the real advantage of distancing infrastructure services from short term government budget constraints. This approach could include state owned enterprises such as the air traffic control business even with its statutory monopoly position as well as a range of private sector participation models as illustrated by the privatization of Armentel and electricity distribution, the concessioning of Yerevan Water and Sanitation and Zvartnots airport. In the longer term if the institutional development is successful some of the water user associations may be sufficiently robust to be able to access capital markets in their own right, based on full cost-recovery based cash flows from their farmer-members.

If state provision of infrastructure services is the preferred service delivery route then appropriate user-charges potentially can justify government borrowing for financially viable projects and/or businesses consistent with overall long term fiscal stability and overall fiscal policy.

In the absence of cost-recovery charges directly paid by customers for the services, the use of funding out of general tax revenue, centrally and sub-nationally, possibly supplemented by donor contributions is considered the main option. Taxes on fuel and vehicles, often associated with providing funds for roads, are still taxes. Commercial provision of the services is still an option but via contracts entered into by the government. If state provision of the service is the chosen option then the challenge is ensuring that the service provider operates efficiently and effectively and is able to access funding from the government when it has economically profitable projects. Effective governance, including accountability, of the service providers is important in the sense of ensuring that the resources controlled by the service provider are used to create net value when the opportunity costs of the resources including the asset endowment is taken into account. Getting governments in their ownership function to focus consistently and sustainably on achieving this objective is challenging as international experience shows.

Where the government decides that continued state provision is necessary or desirable, deciding on the best allocation of available government revenues between competing “bids” becomes the challenge e.g. road funding versus irrigation subsidies, equity injections into electricity versus water supply and sanitation expansions. Perhaps more difficult is judging between spending on infrastructure against education and health outputs, for example. It is interesting to note that the government is projecting a declining share of government spending on capital formation as the table below indicates.

18 “The modern firm” J Roberts 2004
Table 3 PRSP deficit, revenue and expenditure goals (as % of GDP)

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<tr>
<td><strong>Government deficit</strong> (calculated on accrual basis)</td>
<td>2.5</td>
<td>2.6</td>
<td>2.2</td>
<td>2.0</td>
<td>2.0</td>
<td>1.9</td>
<td>1.6</td>
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<tr>
<td><strong>Total revenue and grants</strong></td>
<td>19.5</td>
<td>17.8</td>
<td>18.1</td>
<td>18.2</td>
<td>18.7</td>
<td>19.4</td>
<td>19.9</td>
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<tr>
<td><strong>Tax revenues</strong></td>
<td>15.0</td>
<td>15.3</td>
<td>15.7</td>
<td>16.2</td>
<td>17.3</td>
<td>18.1</td>
<td>18.7</td>
</tr>
<tr>
<td><strong>Total expenditure</strong></td>
<td>21.8</td>
<td>20.4</td>
<td>20.3</td>
<td>20.2</td>
<td>20.8</td>
<td>21.4</td>
<td>21.4</td>
</tr>
<tr>
<td><strong>Current expenditure</strong></td>
<td>15.3</td>
<td>14.7</td>
<td>15.5</td>
<td>15.4</td>
<td>16.1</td>
<td>16.9</td>
<td>17.2</td>
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<tr>
<td><strong>Capital expenditure</strong></td>
<td>6.7</td>
<td>5.3</td>
<td>4.3</td>
<td>4.3</td>
<td>4.2</td>
<td>4.0</td>
<td>3.9</td>
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To ensure that the government and Parliament makes the best possible decisions on resource allocation the **quality of the budget process**, the relevance and quality of the information provided and the credibility of the service provision institutions are the central factors in the performance of infrastructure services in terms of the above objective.

Active, targeted use of professionally undertaken national **cost-benefit analysis**, in addition to **“life-cycle” government financial analysis**, of competing proposals for available funds can make an important contribution to the decision-making process in the MTEF/budget processes given the objective suggested in this chapter. Measures to improve the efficiency of service providers frees up resources as does improved revenue from customers consistent with improving cost recovery to economically efficient levels.

**International experience**

There has been considerable international focus over the last twenty five years on addressing these problems along with identifying the option that would best solve the problems given each nation’s circumstances. The international experience to date shows that Armenia was not alone in implementing far-reaching structural, regulatory and ownership reforms to address performance problems in infrastructure. De-regulation has contributed to encouraging technical and commercial innovation that have virtually eliminated dominate market positions in areas that were previously considered natural monopolies e.g. telecommunications. While experience varies widely these reforms have generally generated net benefits\(^{20}\). This confirms expectations that where private incentives are adequately aligned by competition, contracts and regulation with the public interest, de-centralised market orientated decision-making offers a better prospect of finding and implementing innovative solutions to the problems in infrastructure services. The removal of regulatory impediments to market entry has resulted in new opportunities

\(^{20}\) A recent summary of the evidence is contained in the paper by Popov, Gassner and Puspak. (forthcoming).
for innovation by new entrants and the delivery of new and/or more cost-effective products that customers value.

As with any other market processes, there have been failures. There have been losers. Employees in previously protected positions in SOEs have often lost out. Existing customers have often been faced with anti-theft measures, better billing and collections. These failures have resulted in political backlashes in a number of countries, often in spite of evidence of better economic performance. Armenia has had considerable experience in instituting such reforms. It can draw on this experience as well as international experience in designing future reforms. This chapter aims to contribute to this process. Careful specification of policy objectives, problem definition, policy options and a sound public policy framework will assist as will process transparency, public communication, consultation and clear accountabilities.

**High level diagnosis**

Telecommunications, (much) energy as well as rail and air services clearly fall into the category of potential commercial provision; and substantial private sector participation in the provision of those services has eventuated in Armenia. The experience with telecommunications (and air services) in respect of the government creating undesirable regulatory entry barriers to potential competition emphasizes the importance of sound policy and regulatory environments consistent with the government’s overall development strategy.

In air and telecommunications the government chose private firms to takeover dominant market positions from state firms with clear legal economic limits on the entry of competitors until the next decade.

While fiscal benefits were generated (and continue to be generated in the case of the Armavia agreement) the economic costs to the country are generally considered to more than outweigh them. Preliminary assessment suggests the fiscal cost of negotiating the elimination of the telecommunication monopoly would have been high and Bank work has focused on assisting the government to prepare early for the maximum possible liberalization of the market given the rights in the licence and improving regulation. Armentel has agreed to the licensing of a further mobile operator with effect 1 January 2009 and tighter regulation is being implemented, via the regulatory responsibility having been transferred to the specialist economic regulator, the Public Service Regulatory Commission, PSRC.

The experiences with telecommunications and air service suggest the importance of public policy including fiscal policy having an over-arching economic efficiency perspective. A focus on a clear policy of eliminating government-imposed economic entry barriers and maximizing the role of competition comes from such an approach. In telecommunications and aviation, for example, this would mean that if the Armentel

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21 The new owners of Armentel have indicated a willingness to see Armentel’s legal exclusivity to be eliminated earlier than previously agreed.
and Armavia agreements permitted it, any firm could enter the respective markets if they satisfied technical and safety requirements respectively. The number and size of firms in any market would be entirely based on commercial decisions by individual firms regulated by normal competition law. In telecommunications the only issue might be the access to radio frequency spectrum. If there is excess demand for available spectrum, auctions should be held so that scarce frequencies can be allocated to the firms that can use the resource the highest.

A cost-effective and effective State Commission on the Economic Protection of Competition, Armenia’s competition agency, applying a best practice competition regime, should have an important role in protecting the competitive process under its legislation, but not protecting incumbents or particular competitors.

Fundamentally, the government decides on policy and its expression, subject to legislative enactment, via the legislative and regulatory framework and institutions. The government should have access to good quality neutral advice as it considers the best policy options to achieve its development objectives. This should allow the government to have in front of it in the future dispassionate assessments of specific proposals such as the market foreclosure ones discussed here as well as the presentation/evaluation of alternative policy options available to the government. The appropriate evaluation framework should be based on an assessment of national economic costs and benefits.

The electricity industry has gone through a re-structuring process with a view to maximizing potential competition in generation. Electricity currently has a mix of state owned and privately owned generation, state owned dispatch and transmission and privately owned distribution. In respect of generation it is understood that it is planned to eventually divest part of the remaining state owned generation assets. The work of Aucon suggests that the governance of the state owned businesses appears poor compared to the governance practices apparent in comparable privately owned firms, particularly the concessionaire running the Yerevan Water and Sanitation and emerging practice in the financial sector.

The government has recently formulated an energy strategy that aims to meet increasing demand while insuring security of supply. This is comprised of a number of specific projects with a total indicative investment cost over twenty years of over $4 billion. **It is not clear that the investment program is optimized with individual projects chosen following a cost-benefit analysis.** Funding for the program is envisaged as a mix of private sector, donor and government, with projects categorized between private, state-assisted and state. State assistance is apparently considered to be delivered via guarantees and otherwise concessional finance.

**It is not evident that current policy is being driven by the strategy document.** For example, if generation investment is to be privately funded, then either the private developers decide on the investment (timing, scale, location and technology etc) after taking a view on demand, expected revenue and risks or the government contracts for the new capacity. In the former case the government strategy and program in respect of
generation would seem largely irrelevant. In the latter case the private developer would still normally decide on the least-cost option for meeting government capacity and energy requirements. The government would also need some arrangement for dealing with the outputs from the contracts e.g. back-to-back contracts with the electricity distributor as well as having a risk mitigation strategy to deal with the likely un-covered position resulting from the government intervention.

This situation would also apply if the government had fully instituted a state-own enterprise policy where its generation enterprises were primarily responsible for investment decisions (see below).

The government could offer subsidies to private developers, in respect of either output or input but again the specific projects that eventually emerge will depend on private sector decisions. Subsidies via the use of guarantees and/or the provision of concessional capital risks distorting important investment decisions and require very careful assessment and subsequent management to mitigate government risk. Not only are input decisions by project developers biased by such interventions but perhaps more importantly the prospects for full private sector participation in generation where the developer carries both the demand and cost risks is compromised: any prospects of a “level playing field” is reduced. Clear government policy is important one way or another, particularly if the government sees the private sector as having a major risk-bearing role together with investment.

The sustainable long term development of the sector is primarily reliant on electricity charges that can be expected to fully cover the system’s costs. The PSRC is generally following a policy of setting electricity charges that cover costs including depreciation and a return on the assets invested. If properly and consistently implemented e.g. appropriately adjusting for inflation, this allows private investment. As with any price control policy, the effects on investment incentives are ambiguous in terms of the overall policy goal of contributing to economic efficiency. Rate of return regulation is often as seen as encouraging even over-investment, planned and actual, provided the cost-of-capital allowed by the regulator is higher than the firm’s true cost-of-capital. Incentives for innovation and efficiency are certainly reduced under this approach, if it is profitable for the ISP to push for higher prices.

Price cap regulation, taken with the weak links between charges and outputs, has been observed to result in regulated firm’s under-delivering investment against plans. The plans themselves might be similar to those developed under rate-of-return regulation. Some of the under-delivery may be efficient: new capacity being delivered more cheaply given the incentives given by price caps. However, some of the under-spend may be inefficient in that valuable new capacity is not being delivered. We return to this problem below.

To date the capital cost of major rehabilitation and new investment in generation and transmission has generally been handled via ad hoc concessional assistance. This raises the policy issue of **how the government should generally handle such donor**
assistance consistent with its long term growth strategy. The “first best” situation would have the government ensuring that service providers, state or private, are charged for any capital funds the capital cost at the true economic opportunity cost with the government “extracting” any subsidy, provided this did not alter the donor policy. This would mean that service providers face the proper cost of each resource. Providers then would have a better chance of making the most efficient decisions in respect of operation and development in a competitive environment. This would provide the basis for a more sustainable development. It would also be important if and when the government implemented a formal state-own enterprise policy discussed below.

Electricity tariffs have risen considerably to allow full cost recovery by commercial firms and may now be close to levels to allow major private investment in new capacity when justified by demand.

State owned service providers need to have the clear responsibility for seeking charges that would at least cover the full costs of their operation on a forward-looking basis. The policy outlined below would increase the incentives on such providers to seek charges that would fully recover the firm’s costs. In the absence of subsidies private developers will only invest in new capacity if expected tariffs can be expected to cover the full costs including the cost of capital over the life of the assets. Issues related to the regulatory regime in terms of incentives for efficiency and investment are addressed further below.

More generally, the electricity market discussion suggests several issues that need addressing:-

- Sector policy
- Regulatory law and policy e.g. constraints on pricing freedom
- Governance of government electricity assets

The governance issues relate to the continue operation and subsequent decommissioning of the nuclear generator, managing the government’s ownership interest in generation assets and managing any government rights and obligations under contracts with private sector firms in energy generation. In respect of the high voltage transmission and system dispatch the issues will be ensuring efficient and effective operation and development of the services. There will be issues about possible substitution between transmission and generation investments. The more general governance issues associated with state owned businesses are discussed below.

In respect of the privatized electricity distribution system the public policy issue relates to the performance of the regulatory regime in creating the best incentives for efficient operation and development of the distribution system in line with customer expectations over the long term via allowing credible cost-reflective pricing. The PSRC sets these prices in terms of the distributor’s license and accordingly is a key institution for infrastructure development. The PSRC is a well developed institution by ECA standards (see table 5). Accordingly the Commission has been given increased responsibilities.
Table 4: Progress in utility regulatory reform by end 2004

<table>
<thead>
<tr>
<th>Countries where independent regulators have been established</th>
<th>Albania, Armenia, Bosnia, Latvia, Lithuania, Macedonia, Moldova, Montenegro, Poland, Slovenia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Countries where separate regulatory bodies have been established</td>
<td>Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kosovo, Romania, Russia, Ukraine,</td>
</tr>
<tr>
<td>Countries where regulation remains with the relevant ministry (energy or economy)</td>
<td>Azerbaijan, Belarus, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan</td>
</tr>
</tbody>
</table>

Experience has shown that irrigation and urban water where usage is metered can also be organized on a commercial basis. In Armenia metering is only widely used in Yerevan although the introduction of metering is underway in several other cities.

In respect of irrigation, state own enterprises (SOE) operate the up-stream assets, providing water to the downstream irrigation infrastructure. The level of cost recovery has steadily improved. Operating costs are probably covered but there is no contribution to the critically important capital costs yet. We have not been able to identify any incentives that are applied to improve the efficiency of the SOEs. The PSRC sets the maximum level of the charge to the downstream customers (WUAs). These have been increased to a level that broadly recover the up-stream system operating but not capital costs.

As is mentioned above the retail water irrigation system is split across 53 WUAs, co-operative-type organisations. These are relatively new structures as well as having the usual potential strengths and weaknesses of co-operatives. A regulatory board (RB) established by the government plays a major role in the management and operation of WUAs. The RB membership is predominantly government appointed with only minority representation by people from WUAs. The RB effectively approve WUA budgets and the tariff level. The tariff level is uniform across the country in spite of variation in costs e.g. energy costs for pumping and demands. The tariff is also crude in that the charge is set on an irrigated-area basis rather than measured water flows. Yet costs, even in the short term, do vary to a greater or lesser degree with water flows not only because of maintenance costs but also the pumping costs.

A property rights issue arises whereby the state retains ownership of the irrigation channels even though the secondary and tertiary channels are leased to local WUAs for 25 years. WUAs members are local farmers served by the local irrigation network. WUAs have been given responsibility for the management and operation of the “downstream” irrigation system. Ensuring clear allocation of responsibility for the long term stewardship of these assets together with commensurate resourcing is important.

In aggregate, WUAs have been able to increase the revenue from the farmers within their areas but WUA revenue self-generation covers only small part of total costs. The revenue represent a very small part of total agricultural value added as the below table shows.
Table 5. Balance of revenues and expenditures of WUAs in 2004 - 2005

<table>
<thead>
<tr>
<th></th>
<th>2004 Budgeted</th>
<th>2004 Actual, on a cash basis</th>
<th>2004 Actual, on a commitment basis</th>
<th>2005 Budgeted</th>
<th>2005 Actual, on a cash basis</th>
<th>2005 Actual, on a commitment basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues*</td>
<td>4,680</td>
<td>2,576</td>
<td>5,053</td>
<td>5,741</td>
<td>2,976</td>
<td>4,699</td>
</tr>
<tr>
<td>Expenditures*</td>
<td>9,054</td>
<td>6,812</td>
<td>7,832</td>
<td>9,502</td>
<td>8,007</td>
<td>7,921</td>
</tr>
<tr>
<td>Balance (financial gap)</td>
<td>-4,374</td>
<td>-4,236</td>
<td>-2,779</td>
<td>-5,256</td>
<td>-3,761</td>
<td>-3,222</td>
</tr>
<tr>
<td>Subsidy from the state budget**</td>
<td>4,403</td>
<td>4,262</td>
<td>4,262</td>
<td>3,720</td>
<td>5,003</td>
<td>5,003</td>
</tr>
<tr>
<td>Other financial sources</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td>0</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>Balance after financing</td>
<td>29</td>
<td>26</td>
<td>1,483</td>
<td>-994</td>
<td>-41</td>
<td>225</td>
</tr>
</tbody>
</table>

Memorandum items

<p>| | | | | | | |</p>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Financial gap</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of value added in agricultural sector</td>
<td>...</td>
<td>0.98%</td>
<td>0.65%</td>
<td>1.22%</td>
<td>...</td>
<td>1.20%</td>
</tr>
<tr>
<td>dramas per cubic meter of water delivery</td>
<td>6.2</td>
<td>6.2</td>
<td>4.1</td>
<td>7.7</td>
<td>5.2</td>
<td>8.4</td>
</tr>
<tr>
<td>dramas per hectare</td>
<td>33,058</td>
<td>37,286</td>
<td>24,460</td>
<td>46,263</td>
<td>29,490</td>
<td>40,043</td>
</tr>
</tbody>
</table>

Subsidy from the state budget

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>% GDP</td>
<td>0.26%</td>
<td>0.22%</td>
<td>0.22%</td>
<td>0.22%</td>
<td>0.18%</td>
<td>0.22%</td>
</tr>
<tr>
<td>% of value added in agricultural sector</td>
<td>...</td>
<td>0.99%</td>
<td>0.99%</td>
<td>0.99%</td>
<td>...</td>
<td>1.19%</td>
</tr>
<tr>
<td>dramas per cubic meter of water delivery</td>
<td>6.2</td>
<td>6.2</td>
<td>6.2</td>
<td>6.2</td>
<td>5.1</td>
<td>8.4</td>
</tr>
<tr>
<td>dramas per hectare</td>
<td>33,278</td>
<td>37,516</td>
<td>37,516</td>
<td>37,516</td>
<td>29,169</td>
<td>39,814</td>
</tr>
</tbody>
</table>

* Revenues and expenditures include value added tax.
** Budgeted indicators for subsidies in 2004 and 2005 correspond to the relevant indicators approved by the Law on 2004 State Budget (including amendments) and the Law on 2005 State Budget (without amendments), respectively .
Source: Avag Report A, p42

Table 6 Irrigation assistance: Budget versus MTEF

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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>MTEF 2006-08</td>
<td>3720.10</td>
<td>2929.30</td>
<td>3220.00</td>
<td>2377.20</td>
<td>2720.00</td>
<td>2220.00</td>
<td></td>
</tr>
</tbody>
</table>

Source: MTEFs and Budgets

From an overall development perspective requiring and allowing water charges to move up to full cost recovery levels (including justified capital costs) is important in terms of giving proper signals to both the up-stream and downstream markets. It is accepted that
governance improvements in up-stream and downstream institutions are an important parallel reform to ensure that the signals are responded to appropriately and efforts are made to reduce costs. Agricultural input subsidies such as under-pricing irrigation water distorts the development of the primary production sector e.g. insufficient consideration of dry land farming models both in terms of products and production methods. In addition the water charging regime obviously should be specific to each WUA and cost-related to the extent feasible. Significant donor assistance is envisaged for the rehabilitation of the irrigation infrastructure.

Continuing to assist the development of WUA institutional capacity is a priority. The State Water Committee is actively engaged in assisting WUAs and has a long term strategy to this end. Aucon has developed a suggested action plan for assisting the WUAs for the government’s consideration. Moving the RB into an advisory role and allowing individual WUAs to increasingly develop their own plans, set their own budgets and charges would seem to be obvious developments. For example, WUAs are unlikely to decide on excessive prices to be levied on their farmer-members, at least on average. The more likely problems relate to inefficient cost-recovery distribution between members of the WUAs. Provided that WUAs corporate governance arrangements are clear, disputes can be taken to courts and that WUAs are subject to competition law this additional layer of control seems unnecessary. More fundamentally, one way or another, responsibilities for asset stewardship and operational decisions in respect of the downstream irrigation system need to be clearly allocated with commensurate accountability.

WUAs are established under special legislation. As is mentioned above a co-operative approach to managing the local irrigation systems has strengths in reducing the risk of abuse but also has weaknesses in the form of poor governance and management. This is because no individual farmer/member may have a sufficient interest in closely monitoring WUA management performance and even if they did, enforcing the need for improvement may not be straightforward. Local consultants note that some of the WUAs are very large. Fiduciary duties that have developed under corporate law would be relevant to require WUA office holders and managers to act in the interest of the WUA rather than pursuing their self interest. Consideration could be given to finding a mechanism whereby WUA directors would be subject to the generally rising fiduciary requirements and practices in the general commercial sector where management behaviour is under much greater continuous scrutiny by owners, their agents, regulators and international connections are strong. Permitting the incorporation of WUAs under general corporate law may be an option provided it allowed the WUAs to pursue their interests co-operatively.

In respect of drinking water and sanitation the critical issues are improving the efficiency of current systems, pre-dominantly urban, their rehabilitation and the challenge of improving services to poorly covered areas. Yerevan Water and Sanitation supplies water to Yerevan and some 30 adjacent communities. Armenian Water and Sanitation supplies services to some 300 communities in total. These two entities have been subject of World Bank projects. The underlying assets are owned by JSCs, the shares in each owned on behalf of the government by the SWC.
Under donor assistance the systems for the cities of Shirak, Lori and Nor-Akunq have been separated out from Armenian Water and Sanitation. These are set up as separate JSCs, each with 51% of the shares owned by the government, 49% by the relevant community. Each of the businesses is receiving assistance from the German donor, KfW. A further some 600 rural communities are responsible for their own water and sanitation systems outside of the above companies. Aucon assesses these communities as generally having weak capacity and have received little assistance. We understand that a recent study on the investment requirements of these systems has been recently undertaken, funded by the Japanese International Co-operation Agency.

Over the medium term, **pricing for full cost recovery**, again, is key and the main institution in this respect is, again, the PSRC which sets the main drinking water charges. A range of service provision options exist or are evolving in Armenia including private participation, for example, Yerevan Water and Sanitation where a ten year lease arrangement has been negotiated following an initial period of operation under a management contract. Price adjustment provisions are incorporated in the lease agreement with the PSRC having been given responsibility for managing the lease on behalf of the government. This has and is generating useful experience with private sector governance norms and the effect/importance of incentives.

Following the experience of Yerevan, the operation of Armenian Water and Sanitation has now also been made subject of a **management contract**. Our analysis suggests that the incentives on the other water and sanitation system managers to improve performance are not strong and corporate governance is weak relative to the levels achieved in Yerevan. Generally, performance indicators such as leakage rates indicate poor performance with only slow improvement achieved and expected.

Longer term ultimate ownership of the assets lies with the government and/or communities. Managing the significant government “ownership” interest in these areas to ensure efficient and effective operation and development of infrastructure assets over the medium to long term is the challenge. Of particular concern with concessions/leases is ensuring that the concessionaire/leasee is appropriately incentivised to take a long term view. Privatisation or devolution of the systems to the relevant communities is an option. This would allow government focus and resources to shift to the less well served areas.

**Roads**, in the absence of proper road pricing, fall into the state funding category. The roads are provided by the state at the central government and community levels with Yerevan being responsible for most of the roads in its metropolitan area. The government decision-makers need expert advice on the current and expected demands on the road system, the technical and economic requirements of the system, the funding implications including the economic returns (in terms of time and vehicle cost saving) on incremental allocations of government funds including on rehabilitation and subsequent maintenance of rural roads. The latter is a major focus of donor assistance.

22 [www.eca-wb.org/data](http://www.eca-wb.org/data)
The government in formulating its long term development strategy\textsuperscript{23} articulated a need to substantially increase in road funding as laid out in the table below. Government road funding has increased rapidly in recent years but even the recent budgeted increases still fall short of the levels signaled in the PRSP. Road experts consider that the demands are high and the rehabilitation/maintenance back-log large, particularly with fast growth in road use. There would seem to be strong case for continued provision for road funding at the levels provided in 2006 provided that the government is assured that

- the road budget overall is optimized,
- that incremental resourcing can be demonstrated to deliver high economic returns and
- costs are minimised.

Providing this level of assurance to the government will place heavy demands on the government professional advisers, the MoTC and MARA.

Table 7– Comparative analysis between PRSP, MTEF and the Annual Budget in the Road sector (AMD billion)

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Spendings planned in PRSP</td>
<td>17.7</td>
<td>20.2</td>
<td>23</td>
<td>-</td>
<td>32.3</td>
<td>37.7</td>
<td>43.7</td>
</tr>
<tr>
<td>Spendings planned in MTEF</td>
<td>17.3</td>
<td>14.8</td>
<td>15.8</td>
<td>19.0</td>
<td>18.2</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spendings planned/fulfilled in the Annual Budget</td>
<td>14.8</td>
<td>17.9</td>
<td>18.1</td>
<td>16.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table 8 Road funding: Budget versus MTEF (AMD billion)

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>01. Capital repair of state importance motor roads</td>
<td>12 617 400.0</td>
<td>6000.0</td>
<td>9267.4</td>
<td>6000.0</td>
<td>6000.0</td>
<td>7000.0</td>
</tr>
<tr>
<td>02. Maintenance and operation of state importance motor roads</td>
<td>5 054 781</td>
<td>5164.2</td>
<td>3938.3</td>
<td>5164.2</td>
<td>3938.3</td>
<td>3938.3</td>
</tr>
<tr>
<td>03. Maintenance and operation (including winter maintenance) of local (regional) importance motor roads</td>
<td>489 407.0</td>
<td>0.0</td>
<td>940.2</td>
<td>0.0</td>
<td>940.2</td>
<td>940.2</td>
</tr>
<tr>
<td>04. Capital renovation of transportation infrastructure</td>
<td>1 553 400.0</td>
<td>530.4</td>
<td>530.4</td>
<td>530.4</td>
<td>530.4</td>
<td>600.0</td>
</tr>
<tr>
<td>05. Provision of subventions to communities for maintenance and operation of community importance motor roads</td>
<td>0.0</td>
<td>0.0</td>
<td>285.7</td>
<td>0.0</td>
<td>285.7</td>
<td>285.7</td>
</tr>
</tbody>
</table>

The up-dated information from the 2007 Budget is below.

Table 8A  Road funding: 2007-09 MTEF and 2007 Budget (AMD billion)

<table>
<thead>
<tr>
<th>Functional Classification</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
</table>

\textsuperscript{23} PRSP 2003
The movements from MTEF-planned to budgeted funding pattern indicated below suggests that the government is still coming to grips with being able to deliver firm and deliverable funding. For example, the more than doubling of funding in the budget in 2006 from the amounts indicated in the MTEF 2005-2007 for 2006.

The PER chapter on public sector financial management shows that the actual spending pattern within a budget year continues to be disproportionately in the last quarter. This can cause problems for road maintenance and development, in particular. 2003 data on quarterly disbursement and procurement performance in Armenia suggests problems with final quarter bunching as well as weak early quarter performance, and the inefficiencies associated with both. The following table repeated from the other chapter shows quarterly disbursement performance against planned disbursement (by economic item). According to this data, disbursements (by economic item) tended to fall between 10 and 20% below plan for the first three quarters of the year, leading to bunching in the last quarter of the year—a case where more money is allocated than planned to ensure that the full budget allocation is disbursed. The problem is particularly marked in the case of capital expenditures.

### Table 9 Selected Budget disbursements against plan, 2003—by year and quarter

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>01. Capital repair of state importance motor roads</td>
<td>11,000</td>
<td>11,000.0</td>
<td>11,000.0</td>
<td>13,000.0</td>
</tr>
<tr>
<td>02. Maintenance and operation of state importance motor roads</td>
<td>4,694.7</td>
<td>4,694.7</td>
<td>4,694.7</td>
<td>4,694.7</td>
</tr>
<tr>
<td>03. Maintenance and operation (including winter maintenance) of local (regional) importance motor roads</td>
<td>469.4</td>
<td>469.4</td>
<td>469.4</td>
<td>469.4</td>
</tr>
<tr>
<td>04. Capital renovation of transportation infrastructure</td>
<td>1,181.4</td>
<td>1,181.4</td>
<td>681.4</td>
<td>500.0</td>
</tr>
<tr>
<td>05. Provision of subventions to communities for maintenance and operation of community importance motor roads</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>
The problem was also apparent in the data for the first half of fiscal year 2005.

Road decisions are among some of the most strategic governments make. While clearly, road investments can be economically unsuccessful, major road decisions can result in a relocation of significant economic activity, well beyond the normal efficiency gains identified in the standard technical and economic assessment of the benefits. For example state investment in motorways in US has encouraged the possibly excessive dispersion and de-centralisation of economic activity, probably reducing economic efficiency. This was not taken into account in the original analyses24. **The government does need to set a strategic framework for road maintenance and development linked to its vision for economic development of the country.** Sound investment analysis of spending proposals remains critical however and the government has already developed good capacity in this area. Service quality of the road system including road safety and environmental externalities, particularly in urban areas, will become increasingly important issues and it is desirable that the government is pro-active in handling these issues.

This should start from an assessment of what is needed to maintain the existing stock of infrastructure assets and services. A sound process would produce options for the government that involve investing money to produce more cost-effective sustainable infrastructure e.g. gravel roads to replace low use tarmac roads alongside options that re-establish or improve on the status quo. Clearly allocating responsibility to the entity best able to make and implement efficient decisions is another outcome of a sound process.

As available funds are limited rigorous and hard headed prioritisation is important. Mistakes in government investment projects can be very costly but one cannot know with certainty the outcome of an investment project. The usual methods for dealing with this uncertainty include biasing the choice in favor of multipurpose investment projects and finding ways of diversifying risk. Infrastructure investments are location-specific, but their returns are not specific to a particular activity. For example, a road built in a region with good tourism potential will increase economic activity in this sector, but will not only be used by the tourism industry but by others. It remains risky however and careful analysis is necessary alongside other uses for government funds. The same is true of environmental protection projects. Human capital investments are multi-purpose in the sense that they are neither activity- nor location-specific. Most of the successful examples of regional development (for example Ireland, the United States) result from exceptional emphasis on human capital development.

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If well planned and implemented, public infrastructure stimulates economic activity, by lowering costs, augmenting the productivity of private inputs. Furthermore, by enhancing a region’s amenities, public infrastructure may also attract households and firms, which further contributes to an area’s growth. In underdeveloped regions, infrastructure is needed to generate the minimum critical size of urbanization that can serve as a base for economic development but can lead to unexpected adverse outcomes depending on the type of infrastructure.

Government investment in infrastructure that facilitates transactions within a lagging region contributes to regional income convergence. Inter-regional infrastructure investments have had a significant impact on productivity, but a limited role in inducing development in lagging areas. In addition, inter-regional infrastructure, without complementary investments in local infrastructure and public services may in fact worsen performance in lagging regions. Infrastructure investment that facilitates inter-regional trade can have an unwanted effect of attracting firms from poor to rich regions. These important effects have not been picked up in traditional cost-benefit analysis but it is important that advisors to the government explicitly incorporate these factors in their advice to government.

Institutionally, considerable reform work has been undertaken in respect of roads. The work by Aucon suggests further reforms to improve the institutional structure in respect of policy advice to the government and implementation of government policy and budget. The key suggestions are that:-

- the Ministry of Transport and Communications (MoTC) focuses on being the government policy agency including in respect of roads, delegating all operational functions in roads, and;

- MARA be the government’s expert road adviser, via MoTC, and be responsible for the government’s road network and assets, its maintenance and development given the budget allocated by Parliament.

MARA, in close co-operation with MoTC and MoFE, needs to maintain adequate information on the costs of road maintenance and development (including safety aspects) attributable to different types and volumes of road users (including relevant externalities) so that the government in setting the MTEF/budget has adequate information on the maintenance and rehabilitation spending technically and economically justified, the appropriate minimum levels of road user charges that would be justified by attributable costs and how road taxes and charges, fixed and variable, could be best used to fund budgeted road expenditures.

It is likely that the MARA draft plan would suggest considerably higher annual spending and probably higher charges on road users. The government would or may take a different view on the level and allocation of spending reflecting other views, competing priorities (even if it appeared that higher user charges or taxes were justified and viable), judgments on the ability of the sector to be able to effectively handle higher spending and
the optimism “bias” of sector agencies. But developing and sustaining a longer term view of road management and development by the government, together with associated funding policy, would be desirable. The government should make clear the implications of funding decided on being different than that proposed by MARA and the MoTC in terms of reasons such as expecting more efficient operation of MARA, slower improvement in service quality and/or capacity enhancements or greater devolution of responsibilities to sub-national governments.

The outcome of this process should be an annually up-dated government long term plan for the operation and development of roads, reflecting the government decisions legislated by Parliament. MARA should be accountable for implementing that plan and reporting annually on performance via the Ministry.

As Yerevan and other urban areas develop and grow road quality and congestion may become more important. There is evidence that the concentration of economic activity in urban areas such as Yerevan can boost overall productivity if significant congestion is avoided. As the Municipality has responsibility for urban roads the government would want to be assured that the city is able to consider this issue pro-actively and has adequate capability and resources to maintain, manage and develop its road infrastructure in line with the likely demands of road users and the community generally (in respect of safety and pollution for example).

The forgoing high level diagnosis based on the work by Aucon leads to several suggested policy reforms, some specifically related to significant fiscal issues, others longer term institutional reforms aimed at removing possible infrastructure impediments for continued high rates of economic growth. Because of the design and focus of the US MCA funding on roads and irrigation in particular is likely to dominate fiscal issues in these areas over the medium term the usual fiscal flow issues are perhaps less likely to receive the otherwise usual focus. Accordingly broader market, competition, pricing and governance issues are given more attention.

**Suggested lines of policy development**

1. **Eliminate economic subsidies to irrigation**

This is current government policy but implementation has been uneven and needs to be extended to allow the recovery of the capital costs of valuable irrigation assets also, at least to the extent of ensuring long term system sustainability. There are efficiency costs resulting from such low levels of cost recovery and the continued use of the funds this way represent poor value for money given other priorities, including those outlined below. This policy reform should be presented as part of a package:-

- clear medium term pricing policy by the government-owned JSCs operating the up-stream irrigation assets, taking account of efficiency gains, but seeking an


26 “Infrastructure and development” R Prud’homme 2005 World Bank
economic return on the value of the capital invested at least to the point that investment requirements are met;

- PSRC is both able to and required to allow maximum charges that cover all costs including capital requirements\(^{27}\);
- greater autonomy to individual WUAs in respect of operations, budgets and cost-recovery;
- government assistance to WUAs to build their governance capacities.

The likely increase in irrigation charges from the changes suggested here will have distributional effects. While there is evidence that the benefits to farmers from irrigation services are high in relation to irrigation costs (table 5 above) a number of farming households are very poor. Irrigation subsidies from the government have been a major fiscal issue in recent years. Targeted assistance to low income farmers, indeed households generally consistently experiencing poverty, rather than keeping charges below costs, would be the preferred intervention to at least partially compensate for the increase in water charges until farmers have been able to realize the benefits of better water supply through higher farm incomes and/or pursue alternative economic opportunities. An alternative less preferred alternative would be a government subsidy regime that encourages revenue collection and cost effective operation by each WUA. The outline package above obviously should generate revenue to the government via its SOEs. This should contribute to fiscal space for the government to decide on appropriate assistance to households in poverty taking account of policy reforms such as this.

2. Developing the government’s strategic/analytical advisory capacity

Experience in telecommunications (and aviation)\(^{28}\) have indicated perhaps for historical reasons a tendency for the government to enter into exclusive arrangements with particular firms to provide key services. Market foreclosure and reduced competition has resulted along with fiscal benefits. The costs in terms of adverse effects on output and growth become evident through time and have proven to be very large. Re-negotiation has proven necessary.

Consistent with its economic development and poverty reduction strategy, we consider that the government needs to ensure that it has dedicated advice available on micro-economic policy to counter-veil the strong pressures for pragmatic (but often short term) problem solving solutions usually initiated by private sector or bureaucratic interests. Central agencies such as the Office of the Prime Minister or the Ministry of Finance and Economy could ensure that they have this capability and the government could undertake that this advice is received before future decisions in respect of the continuation or imposition of regulatory entry barriers or the entering into of commercial contracts/subsidies are made. A successful capability of this type could introduce a more pro-competitive stance to public policy consideration, development and implementation.

\(^{27}\) It is noted that the Avag report appears to assume an un-changed water charge to WUAs for wholesale irrigation water over the 2007-11 period. Avag Report B p.9

\(^{28}\) World Bank Armenia Country Economic Memorandum” June 2005, Volume 2
The analysis of major proposals could be contracted to outside firms to address “peak load” problems.

The infrastructure work provides several examples of where this capability could add value to government decision making. Scarce public resources such as elements of the radio frequency spectrum (and some water resources) may be subject to competing demands, now or in the future. This is best known in telecommunications where making available radio frequencies available on a permanent basis to the best and most efficient users, consistent with international treaty agreements and addressing any technical interference issues, via auctions is likely to contribute the development of a competitive and more efficient telecommunications market.

The linkage between clear property rights being allocated to the highest value uses and the removal of government imposed economic entry barriers is important. Governments are always under pressure to use its regulatory powers to erect or maintain entry barriers. Beyond the above scare property rights case this is very difficult to justify if the government has an economic efficiency/growth objective. High quality dedicated professional analysis and advice can help governments maintain this policy in the face of the inevitable pressures.

This capability may also be able to assist the government with judgments between fiscal and regulatory interventions when using the MTEF process, given the heavy pressure on existing government advisers currently.

The analytical capacity we consider that the government needs is not specific to infrastructure. It is a general microeconomic analytical capacity that is able to assist government decision-making in respect of the wide range of problems they will face. For example, ensuring that the cost-benefit analyses of policy options recommended here are of a sufficient quality. We suggest a focus on “quality” of the capability over “quantity” but while ensuring that there is sufficient critical mass in the function. Experience suggests that this could be achieved with a group of around five high quality analysts e.g. the same scale as the New Zealand Ministry of Economic Development’s strategy unit. The US President has a council of economic advisers which is also small – twenty five or so professionals.

3. Improving the efficiency and effectiveness of service providers

As is indicated above and after wide-ranging economic reform a considerable amount of Armenia’s infrastructure assets remain directly or indirectly in government ownership. With the exception of roads the assets are generally owned by government owned JSCs, formally legally separate from the government. While some electricity generation assets are planned for earlier privatization others may be in the state hands long term e.g. the high voltage electricity grid. If the government’s ambitious energy strategy is implemented using guarantees and capital subsidies government ownership interests and risks may actually increase. Water and irrigation assets are extensive as are those in the road system. To ensure that these assets make the maximum possible contribution to
Armenia’s development the government owned assets and related risks need to be managed well, utilized efficiently and effectively (including excess assets being disposed of and new investments made only when net value is created for Armenia), within a clear strategic and regulatory framework.

Strategically, the forgoing suggests that the government should consider developing an explicit policy for state owned ISPs which it considers most likely to deliver over the long term

- cost-reflective prices to customers,
- cash collection to ISPs in line with commercial norms and
- least cost operation of ISPs
- development, selection and implementation of development projects expected to be most consistent with the over-arching economic objective suggested above.

Armenia has delegated considerable power over ultimate prices and charges to the PSRC. This issue is covered in a separate section below. In making its decisions the PSRC must, in common with all regulators, rely on applications from price controlled ISPs, reflecting information held by ISPs on demand and costs. The service providers inevitably should have better information in each area than the regulator or government. This better information needs to be generated and utilized. ISP incentives play a role in this.

Government owned ISPs, in contrast to private controlled ISPs, need information on the cost of capital from the government as owner, including government expectations as to dividend policy given the latter’s impact on the firm’s liquidity and financial management. Often the problem with state owned ISPs is that the incentives to even identify true costs, including the critical capital costs, let alone to minimize them and then seek their recovery via user charges are weak. Thus, while assets are government owned, the fundamental issue is the state ISP governance policy.

A low risk but generally low performance approach to this policy is to handle ISPs as government departments with the government directly responsible for all ISPs decisions, input and output choices. The autonomy of ISP management is low. Incentives on ISP to make maximum effort on behalf of the ISP are weak. Accountability for ISP performance is diffuse, ultimately residing with the government along with that for many other problems such as national security and law and order. Customer-supplier inter-action is weak. Customers ultimately have to express grievances collectively and politically. We do not propose a move back from JSCs in respect of ISPs.

With the exception of roads Armenia has ISPs organized as JSCs suggesting a more de-centralised, commercial approach to ISP operation was envisaged. This allows stronger performance but carries higher risks as is discussed above, particularly where corruption is a problem. Based on the work by the local consultants, Aucon,
our judgment is that the current balance of autonomy and accountability for JSC ISPs is sub-optimal. The assumption normally implicit in moving state businesses to JSCs is that the policy is for them to be run as businesses, arms length from dat-to-day government management. There may be other reasons for the use of JSCs such as easy access by powerful actors to state assets and cash flows. One way or another the risks associated with the use of JSCs need to be explicitly addressed and the performance needed from the JSC-ISPs delivered. This requires both an explicit government policy and on-going government management of its investment in these JSCs consistent with the policy. Experience has shown that this has proven to be very difficult for governments internationally.

As noted above where the assets are in a business that provides priced services to customers that business can be organized “as if” it was privately owned and/or commercially run with the improvement in incentives and performance potentially available. An analogy can be drawn with the delegation of the implementation of monetary policy to an autonomous central bank. It is widely agreed that the bank can be given a clear objective function: price stability and held accountable for its performance against that objective. Devolving the responsibility for implementing the government’s price control policy to a legally separate agency like the PSRC is another example. A comparable objective for businesses exists: maximizing shareholder value or wealth. This is similar to the notion that the firm should add or create net value to the resources at its disposal, including the capital invested in the firm earning at least the owner’s cost of capital. This is consistent with private sector practice. For the policy to work, though, the government has to be confident, ideally with legislative support, that this objective for state owned firms is broadly sustainable and the firms will not be subject to conflicting objectives. Conflicts between commercial and non-commercial objectives have generally been the problem.

Non-commercial objectives important to the government previously handled by the business need to be and can be handled in other ways e.g. via explicit contracts including with alternative suppliers as is under consideration for rural telecommunications services.

The success of a state owned enterprise (SOE) policy and model drawing on the commercial analogy depends on efficient SOEs being able to charge (and collect the revenue) prices for their goods and services from third party customers that can be expected to cover full costs over the long term. Experience has shown the importance of sound pricing of goods and services from both a customer and a suppliers point of view. Liberalisation of pricing from central government control is usually a core part of any successful economic reform package. The corollary is that continued government setting of prices generally leads to financial viability and investment problems and hence poorer service delivery. Governments find it difficult to raise prices.

Thus giving SOEs prime responsibility for service delivery and the pricing thereof is core to the success of an integrated SOE policy. This can “distance” the government from the pricing decision.
In addition to these political reasons, passing prime price responsibility to SOEs has strong economic justification. This is for three main reasons. SOEs should be closer to its customers than governments and/or regulators. Specifically, they should have a better idea on customers’ willingness-to-pay including for critical price-quality trade-offs. Price innovations such as yield management in airlines and the wide range of pricing plans in telecommunications show what can happen where pricing responsibility is delegated to commercial firms, albeit subject to some competition. Also, well run SOEs should have better information on the costs of providing various services. Nevertheless, like with any firm, the government as owner would need to indicate its expectation to SOEs as to the desired rate of return on the capital invested: its cost of capital. Properly established SOEs should have incentives to supply customer demand where prices cover their full costs but also reduce supply where prices are less than costs. Experience also shows that SOEs are more effective at collecting billings compared to departmental ISPs.

Giving the SOE managers commercial levels of autonomy in respect of input choices has a similar justification. Properly skilled, incentivised and accountable SOE have better incentives and information to identify assets (develop and maintain asset registers), adjust assets (via investment, targeted asset rehabilitation and divestment of surplus assets) and employment to deliver desired services while minimising costs. Generally government businesses tend to have excess employment and inadequate productive capital. They often have excess but un-productive assets e.g. land and buildings unrelated to the SOE objective.

We see advantages in the government clarifying its policy for its JSCs including consideration of the option of running its enterprises on a more commercial basis to address the above problems. SOE managers inevitably have better information on the business fundamentals and choices compared to ministers and departmental officials. An SOE policy, drawing on the private sector analogy, aims to better use this informational advantage while addressing the resulting accountability problem from much more extensive delegation of decision making. Getting the best possible management teams is important and giving them appropriate incentives. Hiring, monitoring and firing the management team is usually seen as being the main role of corporate boards in Anglo-Saxon countries. Thus, the appointment of business-like boards is a core part of this policy. In addition to the board’s role in appointing the SOE management team a sound board has a potentially valuable role in insulating SOE management from the inevitable attempts by elements of the government to interfere in SOE management. Experience shows that these attempts occur for understandable short term reasons that are nonetheless inconsistent with the suggested SOE policy.

*Applying a best practice state-owned enterprise policy*

We suggest the government consider a formal policy with the following requirements on the government:-
• **separate any remaining non-commercial functions** from the SOEs e.g. regulatory functions and contracting for the delivery of non-commercial functions;

• give the SOEs a clear **commercial objective**, as if they were privately owned, e.g. of creating net value to the resources invested in the business;

• remove **government imposed competitive advantages and disadvantages** from the SOEs, including the imposition of a “hard” budget constraint for each SOE;

• ensure that each SOE has a proper **board of directors** with the board being given responsibility with appropriate autonomy to run the firm, particularly hiring, remunerating and firing of the management team;

• hold the board of directors **accountable** for the SOE’s performance.

Best practice management in such situations would generally see a move by SOE management to develop and implement a **multi-year business or economic plan** to guide the operation and development of the SOE. Such a plan could provide the basis for a more strategic agreement between the board and the government as owner on precise SOE objectives, autonomy and accountability given the government’s overall strategy and objectives. These agreements can range from formal contracts through to agreed statements. The former are generally called “performance agreements” and were used in Korea and India with mixed success. The latter approach has been used in New Zealand since the late 1980s with a degree of success. In New Zealand each SOE is required to have in place a “Statement of Corporate Intent” covering these issues.

As with private sector firms, SOEs would be expected to have information systems in place that would allow each SOE to be able report publicly on a timely basis on its performance against its business plan and any agreement with the government as owner. As the Aucon work points out the government is already considering reform in this area drawing on best practice in the private sector, locally and internationally. The plan would also provide the basis of any SOE submission to the PSRC in respect of price control policy, if relevant.

Candidates for inclusion in an SOE policy could include any business where its costs can be and are to be recovered from customers/users and, most importantly, that the government is willing to see the businesses run at arms length from it on a long term basis.

This is a different style of **public sector management**: clarifying objectives, being willing to contract for desired non-commercial services, giving commercial levels of autonomy to the board of directors to run the businesses in line with the objective, giving appropriate incentives and requiring commensurate accountability. A formal policy with the characteristics proposed above would have the benefit that subsequent sale of the shares in the JSCs by the government is relatively straight-forward. This is because the
businesses would be set up and run on a commercial basis. Government and Parliament need to endorse this change in public sector management philosophy. Legislation institutionalizing this policy is desirable to constrain governments from reversing the policy as short term pressures arise.

It is acknowledged that evidence suggests that governments in developing countries have generally found it difficult to sustain this policy approach over time even if it has been successfully implemented initially\(^\text{29}\). However while the government wishes to own businesses clarifying, formalizing and consistently applying its policy across the government portfolio, one way or another, would seem desirable. Otherwise greater use of departmental forms of running the ISPs may be less risky with clearer accountabilities although with less prospect of improved performance.

**Institutional innovations such as the UK Shareholding Executive which aims to insulate SOE directors from direct involvement with politicians and government officials is an option.** The Shareholding Executive is separate from sector ministries and is responsibility for managing the government equity holdings including in nuclear power. This includes the right to make board appointments where relevant.

But the reality is that while businesses are government owned politicians who want to interfere in SOE management will probably find a way to do so. SOE management will generally find it difficult to resist such pressure or, if they do, the management will steadily change until more accommodating personnel are in place.

Fundamentally, **the SOE policy outlined above is not and can not be a purely “hands off” policy for the government in any event.** Until the businesses and the underlying assets are sold the government can be regarded as being responsible for the stewardship of the assets on behalf of its citizens and taxpayers. In particular risks need to be identified, managed and mitigated where appropriate.

The **energy assets and the up-stream irrigation water system** are obvious candidates but all the businesses in the list above could be included in the suggested formal SOE policy. This would provide the right and necessary framework for the pricing of services moving to a full cost recovery basis whereby the SOE would receive charges based on not only the recovery of cash disbursements but also the “return of” (depreciation) and “return on” capital invested (profit). This would then provide the basis for the SOE, subject to the agreement of the government as owner and within an appropriate risk management strategy, accumulating funds and possibly borrowing funds to undertake profitable investment projects earlier than purely internally cash-flow financed investment would otherwise allow.

This approach creates the conditions for the more effective use of management contracts. Yerevan Water and Sanitation means that the government has had some experience with this technique. The progression to longer term arrangements with private sector managers such as leases and concessions still leaves ownership in the public sector. Where the

\(^{29}\) “Bureaucrats in business” World Bank 1995
government is wishing to limit the role of the private sector to the management of businesses while the underlying assets remain with the government there is a need for an on-going government asset management function. This would be to ensure the effective “stewardship” of these assets to ensure optimal long term development along with the effective management of the contracts/leases from the government’s perspective in addition to any role played by the PSRC in controlling tariffs. The SWC is playing this role in respect of Yerevan Water and Sanitation and the General Department of Civil Aviation in respect of the airport, for example.

A challenge in implementing a more commercial approach to the management and operation of state assets via SOEs is developing an effective interface with the government’s budget and balance sheet management processes. Setting the SOEs’ dividend policy is one issue. SOEs’ business plan mentioned above would provide the basis for this negotiation and a final government decision on the policy, if not the actual dividend decision itself. Dividend policy would remain the key fiscal “control” instrument for the government’s ownership interest, probably alongside agreed maximum debt or gearing levels for the SOEs as a risk management technique. Ideally, dividend policy should be set for a medium term period following assessment of the value of funds being retained in the SOE versus the value of the funds to the government.

The government has to decide whether to allow SOEs to borrow in their own name without recourse to the government. This option can be evaluated against the alternative of the government acting as ‘banker” to each SOE. Against this benchmark there are benefits and costs of allowing SOEs to borrow outside the government. The benefits are the effects of better monitoring of SOEs as lenders may be quite demanding in terms of information disclosure (and may require credit ratings) if they really believe the loans are non-recourse. The costs are that commercial financing will generally be at a margin over the rate at which the government can borrow. If the government does allow SOEs to borrow from private lenders it would want to put maximum limits of the level of debt in relation to business value consistent with commercial norms.

Dealing with any requests from the firms for capital injections (which can be regarded as “negative” dividends) ideally should be handled alongside other proposals for government investment e.g. roads, hospitals. As is noted above SOEs often are unwilling to pay dividends to governments because they consider their chance of getting equity injections from the government, even when the case is strong, is poor.

More problematic is the management of the fiscal risk that comes with more arm’s-length commercial management of major assets and associated resource flows. Poor decisions by state businesses may result in pressure on the government to intervene, often unexpectedly and at the expense of more pressing fiscal priorities and requirements. To some degree that risk is already present with the existence of major assets and cash flows being handled by JSCs on behalf of the government as the JSCs are separate legal entities from the government. We understand that this risk is managed by very close control over state owned JSCs operations, arguably at the cost of efficiency and performance. Clear policy for each SOE based on the government’s strategy for the business, the SOE’s
business plan and agreed risk management and accountability arrangements that are well communicated and consistently implemented, professional appointments to the boards and effective monitoring without inappropriate intervention is important.

**Accounting policy** for the public sector is likely, sooner or later, to involve the consolidation of gross financial stocks in and flows through SOEs into the public accounts. This should not and need not affect the substantive relationship expressed through the SOE policy outlined above.

We suggest that as part of the SOE policy the government publicly reports on in a timely and accessible manner on,

- the **resources invested** in the SOE portfolio, the government’s plans and performance expectations for its SOE portfolio including its management and risk mitigation strategy and

- the actual performance for each SOE and the portfolio as a whole, both returns and risks.

4. **Improving incentives delivered by price control:**

The previous section focused on the importance of pricing responsibility being delegated to the firms providing the services, whether privately or state owned. In market economies the presumption is that market pressures, from customers and competitors, within the framework of contract and competition law, adequately regulates the market process to generate net benefits to customers. With infrastructure services market power issues generally are thought to arise suggesting the need for external price control to reduce the risk of excess profits being earned from abusive prices. There are obvious exceptions such as Armenian Rail, generally subject to road competition, and in many cases services are being provided below economic costs e.g. irrigation in any event. It would be desirable to avoid an automatic assumption that all infrastructure service prices need to be controlled by the government or a government agency given the economic costs of price control. On the other hand, the political economy of successful economic reforms suggests the need for some political re-assurance against abuse where competition is expected to be weak even where entry is permitted.

We suggest that the government consider a **generic legislative formulation for the application of price control whereby the government could decide to place specific services, including those provided by SOEs, under price control and allocate the implementation of the price control to an appropriate autonomous but suitably accountable agency: the PSRC.**

Given this, it would be, first, desirable for a law authorizing price control particular services to be clear about the **process** for the government deciding on which services are to be price controlled, if any, and the **criteria** that the government should take into account before deciding whether or not to price control a particular service. The
should have in its core a “net benefits to Armenia” test i.e. before deciding to put a
service under price control, the government should need to satisfy itself that its citizens
would be better off with the service price controlled than if it wasn’t.

Price control should only be used sparingly and in situations where the harm to the
economy from excessive pricing resulting from a highly dominant firm will be serious
and ongoing. The microeconomic advisory capacity suggested above could provide
advice to the government along with other parties on the benefits and costs of options to
address concerns about market power.

The law should require the government to follow a transparent process and allowing
interested parties to make representations before coming to such a decision and also
require it to give full reasoning for its decision. The decision to subject a particular
service or charge to price control potentially compromises private property rights
particularly where private sector participation is involved meaning that such decisions
should not be undertaken lightly. It would be desirable that such price control decisions
are subject to automatic expiry dates, popularly labeled “sunset” provisions. We suggest
five or six years. The government would be accountable to the legislature for its decision.

The previous section emphasized that for a more commercial SOE approach to work for
ISPs the SOE directors/managers would want assurances that each SOE can at least levy
full cost-recovery tariffs for the services they provide.

The capital costs (asset value) of each SOE, along with the initial financial structure,
could be reviewed if necessary as the government develops its SOE policy. Freeing SOEs
from government control over tariffs is an important element in the reform process, as
important as freeing SOEs from detailed government control over input decisions.

A more commercial approach to ISP management under the SOE policy outlined above
raises the additional question of whether independent price control is absolutely
necessary for SOEs.

The conventional reason for introducing a price control function is related to the
introduction of PSP in service provision. ISP networks can be natural monopolies with
sole providers in particular markets giving rise to the (theoretical) economic but strong
political concern of insufficient supply and excessive prices if owner/shareholder wealth
maximization is the object of the service provider. State provision is one solution to the
natural monopoly problem, allowing the government to specify the objectives of the ISPs
e.g. meet all demands or the more commercial objective proposed in the SOE policy here.
Price control of various sorts of PSP is another policy response with “regulation by
contract” being a contractual variation whereby the pricing provisions are specified
contractually rather than by regulation. This is the case for Yerevan Water and Sanitation.

The key point is that price control can only keep prices down when service providers
wish to raise prices excessively above costs. If a regulator decided on a “high” price that

30 see for example “Market failure or government failure” Cliff Winston, Brookings 2006
the ISP decided not to implement, economic regulation would have no effect. If a firm
decided not to seek a price adjustment a regulator could do little. Under-pricing is the
problem in several sectors at this stage: this is often the situation for state ISPs.

Careful problem definition is therefore important before suggesting price control of SOE
charges. State provision of services, broadly in line with international experience, has the
problem of excessive costs, below-cost pricing and poor revenue recovery. Under-
provision of services comes from the excessive costs, inadequate generated and retained
revenue and poor governance. As is discussed above as the governments own these ISPs
they, in theory, can address this problem directly through governance reforms of the
types suggested here. Specifically, if governments can appoint the managers of the ISPs,
that is a very direct instrument to influence ISP behaviour, much more direct than
regulation. The problem is that governments may behave inconsistently over time
towards their “agents” such as managers of state entities. But this suggests that reform
should focus on governance of state providers as SOEs and the behaviour of the
government as owner as is proposed above.

These reforms don’t normally suggest price control of ISPs as an initial priority. The
careful case-by-case analysis of specific price control proposals suggested above would
be appropriate to address these issues. For example, the decision should depend on the
objectives given to SOE managers, the credibility of the objectives, the incentives on the
ISP managers and the likely effectiveness of the ISP governance regime. Taken together
would abusive prices result? Fundamentally, the incentives on SOE directors and
managers to abuse any dominant position they have in their markets are not likely to be
strong. This is because any excess profits the SOE may earn from such actions is unlikely
to benefit the managers while the effort required to increase (and collect) prices not only
up to but beyond full-cost recovery levels would be considerable31.

Even in the major international private sector companies the top managers only receive a
tiny proportion of any increase in the value of the business that might be thought to result
from their efforts.32. While the Government could and should remunerate the SOE
directors appropriately it will be the SOE directors who should decide on the
remuneration of their CEO. It is the CEO who normally would be setting the incentive
structure for her top management team and remuneration policy generally. As the
directors and Ministers would have to defend any major performance bonuses the
outcome is likely to be only moderate performance incentives at the most. These
incentives would probably determine how aggressively the SOE management would
attempt to “exploit” any market power the SOE has, subject to Board support. The
Government may be more concerned about job losses than the benefits of higher profits
earned by the SOE. Consequentially, the SOEs will probably have less strong incentives
to increase prices to excessive levels even if it would be potentially profitable to do so.

31 See for example
http://ubpost.mongolnews.mn/economics.php?subaction=showfull&id=1136429959&archive=&sta
rt_from=&ucat=4&
32 J Tirole “The Theory of Corporate Finance” 2006
The strong incentives given by the profit motive with PSP arise because the owner can decide to receive any and all profits and will usually have a contract with her managers to maximize the profits via some form of profit-sharing arrangement.

Thus, careful analysis of each proposal for subjecting ISP services to price control should be undertaken.

**Price control models**

Economic regulation (price control) undertaken by the PSRC tends to involve setting prices on a broadly annual basis: prices that could be expected to recover costs to a greater or lesser degree. In the case of electricity full cost-of-service regulation is applied allowing the distribution company to levy charges that cover all of its costs including a return of and return on the capital invested. If credible this should allow the service to be properly funded at least in the short run. We consider that the law should be clear that PSRC, when setting prices, has to set maximum prices to allow the recovery of capital as well as operating costs. It should then be up to the ISP to decide on the actual charges they wish to levy. Western regulatory practice puts considerable emphasis on and debate over the assets invested in the provision of the price controlled services- the “regulatory asset base”- and how it should be remunerated and recovered. “Profiling” of price caps is used extensively to “smooth” price adjustments and avoid excessive price jumps. Provided the regulatory regime is seen as credible private investors, and SOE managers subject to price control, may accept such price profiles while continuing to pursue desirable efficiency gains and socially profitable investments.

The weakness in the cost-plus approach to price control is the adverse effects on cost effective service delivery from traditional “cost-plus” economic regulation. Any profits arising from investment in projects to deliver efficiency gains may be taken away in such a regime virtually eliminating the incentive to invest in efficiency gains. Also, there may be distortions of investment if the allowed cost-of-capital differs from the firm’s cost-of-capital.

The international evidence of performance gains from the change in regulatory regime to a price cap regime is widespread. Perhaps the main question is the readiness of firms, the PSRC and the government to make the transition from rate of return regulation to price caps. PSRC is effectively operating price caps in respect of electricity and Yerevan Water as required under the respective license/concession. Under price caps there will be a higher probability of particularly private firms making un-expected profits or losses. This can cause political problems so the change in policy needs to be carefully explained and broadly accepted.

The legislative framework within which price control is to be conducted is one output (technically, the most important output) from this policy development and communication process. Experience suggests that for multi-year price caps to be effective the caps need to be required by legislation. This is because regulators will otherwise have
strong incentives to reduce charges when a regulated firm is seen to be making excess profits regardless of the price cap they have set. In addition there are advantages if the law allowed a regulator to review a price cap within the set period if and only if the regulated firm agrees.

Many countries are considering shifting price control to a multi-year price cap system. The cap would usually be set on the basis of the firm’s own historic and/or projected costs although benchmarking techniques could also be used using other comparable firms. This should be a choice for the PSRC, following consultation with interested parties. A change of this nature can be expected to reduce regulatory risk for enterprises and to introduce stronger incentives for efficiency gains. There is a popular concern that it would be difficult to move to price caps given the limited information currently available to the PSRC from most firms. Generally, price caps can be set using less information than is required under rate-of-return regulation. For example, in telecommunications, where costs are dropping due to technical change, the current prices for regulated services could be the maximum permitted for the period of the price cap, probably adjusted for general inflation: this could be the initial price cap. This is informationally simpler compared with rate of return regulation and also gives firms stronger incentives to reveal more accurate cost information. This is the advantage of price caps: they give stronger incentives to the regulated firms to reveal true information about costs, over time\footnote{See for example “Regulation, competition and liberalization” M Armstrong and D Sappington JEL 2005.}

The figure below presents a picture of how multi-year price controls might work. The key assumption is that the regulated firm, seeing pre-set tariffs\footnote{This may be in the form of a CPI+/−X formula but the key point is that prices are fixed for a finite period.} over the medium term, has an incentive to work to increase profits by lowering costs or expand outputs where profitable as it will keep the profits earned until the price cap is re-set. The price cap formula can be as simple or as complex as the regulator, in consultation with the regulated firm, considers best meets their statutory objectives and duties. Provision can be incorporated in the formula for cost pass throughs e.g. gas prices as inputs for electricity generation and differing levels of demand risk. The provisions may allow full or partial cost pass throughs. The key point and difference with rate of return regulation is that such “pass throughs” are pre-specified in the price cap.

The longer the period of the price cap, the stronger the incentives to improve efficiency. The corollary is that there is a greater prospect of profits being earned. The decision on the optimal required term for the price cap is ultimately a political choice reflecting a judgment over the importance of cost savings on the one hand and political concern about profits on the other. If the government considers it likely that higher than expected profits will lead to irresistible pressures for intervention within the price cap period then this would suggest that a shorter period be specified in the law. We would suggest that a period specified by law, perhaps consistent with the electoral cycle. Aucon suggests a period of up to three years.
Price control objectives

Where the government has decided to impose price controls to address the risk of excessive prices there is the consequential risk of excessively low prices. From an economic perspective such lower prices generally cause more economic harm than higher prices. This is because low prices, while politically attractive in the short term, often result in service quality and investment not improving as desired. In contrast, higher prices in these markets reduce this risk with relatively low economic cost, albeit with political risks. Given this, the design of regulatory objectives should clearly indicate that the risks in setting price controls are not symmetric from an economy-wide perspective and regulators should err in the direction of looser rather than tighter price controls.

All known practical price control mechanisms compromise incentives to increase efficiencies and deliver the “right” level of capacity and service quality. To the extent that price control tries to target problems such as efficiency and service quality in addition to the core problem of excessive pricing, the price control itself becomes less effective. The effectiveness of price control in addressing these other issues is probably marginal largely because of the “law” of unintended effects e.g. from excessive focus on the targeted indicator. Careful cost-benefit analysis is required before adding these extra features. Decisions in this area can be safely left to the PSRC possibly guided by a legislative directive to set maximum charges with a view to minimizing the overall costs of regulation.
There is a range of legislative drafting options available to specify in law what regulators should be seeking to achieve in setting prices. The over-arching principle embodied in the law should be that regulators should set maximum prices consistent with maximizing the long term living standards of citizens: this can be regarded as an economic efficiency objective. As this formulation can and should be read to include environmental and distributional concerns, these can be excluded from price control objectives by focusing the regulator on the interests of customers and the regulated firm e.g. the regulator should set price caps that aim to maximize the long term net benefits to customers and the firm. The basis for the exclusion of these broader concerns is that the government has other policies and agencies to better address environmental and equity issues. Allowing an economic regulator to address this broader set of objectives is likely to reduce the transparency and accountability of the regulator and inefficiently duplicate the work of other agencies.

To facilitate the entry of PSP as well as being consistent with the objective of SOE policy this broad objective could be supplemented by a “minimum” requirement that controlled prices should always be set to at least allow investors a commercially realistic prospect of earning a “return on” and a “return of” their investment if sought by the firm. Alternatively, the objective, where investment is a concern, could require that controlled prices to be consistent with the costs of new capacity. Given the economic costs of price control the legislative objectives could also incorporate an objective to “minimize total regulatory costs and risks”.

**Price control should set only maximum charge/tariff**

The current practice appears to be to require all tariffs to be approved rather than merely maximum tariffs. This imposes considerable rigidities. The approach of requiring regulators to set only maximum prices would allow an efficient firm to innovate in the pricing structure offered to customers within a set of maximum prices approved by the regulator. It should also allow the firms to enter into contracts with particular customers. This may increase output and revenue to the benefit of customers and firms.

**Transparency and accountability**

The law should also be clear as to not only the objectives that should be met by the regulator in setting the prices discussed above, but also the policy and process that the PSRC as regulator should follow in setting prices and the appeal mechanism. The law should require the PSRC to follow best international practice in respect of their decision-making process, meet the requirements of natural justice and due process and give full reasoning for their decisions. Moving to multi-year price caps would give regulators and price controlled firms more time for analysis, consultation and debate. Decision-making could become more transparent e.g. public meetings of the PSRC including when decisions are made. PSRC decisions can be appealed to the courts: given the importance of price control decisions this is important.
In addition there may be further measures that could be taken to enhance the autonomy of the PSRC in delivering their regulatory functions e.g. clarifying the tenure of commissioners so that they clear that they are appointed for a fixed term.

**Budget process**

A separate chapter of the PER comprehensively addresses public sector financial management issues. It emphasizes the importance of macro and micro control fiscally, ensuring the efficiency with which public resources are used and their best allocation. This chapter endorses and illustrates these themes specifically the importance of hard budget constraints on government entities (SOE policy), the role of incentives and focus on improving efficiency in government service providers (SOE policy) and the allocation of government fiscal resources to their best use e.g. eliminating irrigation subsidies.

Unsurprisingly this chapter also focuses on **dynamic efficiency**: how to best ensure that infrastructure capacity is adjusted, via more efficient SOEs including their customer-focused investment and divestment programmes, to provide the services that citizens/customers are likely to value in the future e.g. the rehabilitation and development of infrastructure services. In most cases getting the best government policy developed and implemented is important e.g. re-considering the role of the government, suggesting its increased focus on policy and regulation rather than service provision. Developing appropriate policies is inherently a strategic issue.

The MTEF has provided for the government to formally institute a strategic phase to the government decision-making in a process that leads to the annual budget. This is highly desirable. The forgoing has identified several issues in respect of infrastructure that would benefit from explicit consideration in this phase. For example, the high level, inherently strategic, issues involved in road maintenance and development, judgments on the likely long term development of the primary sector versus the development of (more urban focused) services industries and the implication for long term road policy. Other issues would be the policy towards local government including Yerevan and setting the level of road user charges (the last is probably best also considered as part of overall taxation policy rather than just a roads issue as the charges have the properties of taxes).

In water, the issue of subsidy policy for irrigation would be another strategic, fiscal and fairness issue. Reform would probably be best progressed as part of a broader package based around governance and regulatory reforms together with institution building assistance to the WUAs along with appropriate assistance to households in poverty. More broadly, the discussion on sound infrastructure policy has illustrated the importance of the budgetary issues being placed explicitly in

- an economic efficiency and long term development framework, and subject to that
- fiscal, regulatory and institutional policies also being seen in a long term framework.
The consideration of these issues should be underpinned by analytical and empirical work on costs and benefits of relevant policy options as well as life cycle fiscal flows. This often would be regarded as the “top-down” part of the budget process and indicative of where political priorities are directed.

Conclusion

While there have been considerable efforts by the government to address infrastructure issues there are a number of issues where there are problems and improvements would be supportive of the Government’s overall strategy consistent with sustaining high rates of economic growth. We suggest focusing on:-

- developing advisory capacity within the Government with respect to microeconomic policy including the removal and avoidance of government imposed entry barriers;
- options for credibly moving price control to medium term price cap regimes more consistent with improving investment incentives and efficiency;
- where pricing of infrastructure services exists, reforming the service provision arrangements consistent with best-practice state-owned enterprise policy.

Recommendations

We recommend that the government

(i) considering developing, for public consultation, an SOE policy with the following core principles

- separate non-commercial functions from the SOEs e.g. regulatory functions and contracting for the delivery of non-commercial functions;
- give the SOEs a clear commercial objective e.g. of creating net value to the resources invested in the business;
- remove government imposed competitive advantages and disadvantages from the SOEs;
- ensure that each SOE has a proper board of directors with the board being given responsibility with appropriate autonomy to run the firm, particularly hiring, remunerating and firing of the management team;
- hold the board of directors accountable for the SOE’s performance.

with the policy being applied to government entities that provide services to citizens and legal entities on a basis that can be efficiently charged for;
(ii) develop, for public consultation, a revised price control policy which has the following elements:-

③ replacing the existing price control provisions in law with a general provision that authorizes the government to place particular services under price control for a fixed period provided the government is satisfied that there is and will be a serious problem of market dominance and that price control as a remedy would result in Armenia being better off,

③ requiring all and any price control to be implemented by the application of legislatively set three year price caps that can only be re-set within the period with the agreement of the firm providing the price controlled service,

③ requiring the regulator, in setting a price cap, have the legislative objective of maximizing the net benefits to customers and service providers in aggregate, subject to

  o controlled prices being set to at least allow investors a commercially reasonable prospect of earning on return on and a return of their investment,
  o controlled prices not be below the unit-costs of new capacity, and
  o total regulatory costs and risks minimized.

(iii) develop a policy package for irrigation assistance comprising

  • clear medium term pricing policy by the government-owned JSCs operating the up-stream irrigation assets under the SOE policy;
  • PSRC is both able to and required to allow maximum charges that cover all costs including capital;
  • autonomy to individual WUAs in respect of plans, budgets and cost-recovery;
  • targeted government assistance to WUAs to build their capacities.

(iv) develop proposals for the government having available to it a modest but expert strategic/analytical advisory capacity together with best locations for the capacity and an undertaking to consider advice from this capacity.
Attachment

Infrastructure PER

Terms of Reference Stage 2

Background

Since 2000, Armenia has made solid progress in advancing reforms in the public expenditure management. This refers to the institutionalization of the multi-year budgeting practice through the Medium Term Expenditure Framework (MTEF), continuous improvements in the budget presentation and classification, introduction of accounting and second generation treasury reforms, reforms in financial reporting and management of public non-commercial organizations, development of internal and external audit strategies, and advancing budget methodology and legislation, etc.

In the context of implementing the MTEF, the government is gradually moving towards budgeting practices based on expected programs outcomes, and performance indicators linked to government policies, as opposed to norms based on inputs or line items which do not reflect the existing demand and cost of public services. Despite the progress made, there are considerable demands on limited public revenues including for infrastructure services. There have also been a number of structural reforms such as privatization of electricity distribution assets, introduction of management contracts for Yerevan Water and increased functions and responsibilities for the PSRC. The Bank’s programmatic public expenditure review aims to work closely with the Government in identifying priority problems that the Government needs to address and any improvements that can be made in laws, policies, institutions and processes that would result in better outcomes.

Bank appointed consultants have completed the first stage of the work on infrastructure (the problem definition phase) and the results have been discussed with the Government and the Bank. The outcome of this process has resulted in identification of the topics that should be investigated further in stage 2.

Outputs required

The consultant shall:-

(Microeconomic reform capability)
1. Undertake an assessment of the costs and benefits of whether and how appropriate expert advisory services on overall government policy towards optimal long term infrastructure provision, including identifying and removing government-imposed regulatory economic entry barriers, should be made available to the Government together with an action plan for implementation

(Further economic regulation reform)
2. Identify options, along with costs and benefits, for credibly moving price control to medium term price cap regimes via changes in relevant legislation that are aimed to improve economic efficiency including facilitating sustained increased private sector participation in infrastructure service provision together with an action plan for implementation which should include consideration of the option of eliminating any role for the Regulatory Board in influencing WUAs pricing to their members

(Applying best practice SOE model)
3. Taking account of existing work on strengthening SOE governance, develop an implementation plan for moving state owned infrastructure service providers onto a best practice SOE model basis.

(Medium term government assistance policy)
4. Given references 2 and 3 above which should allow efficient water pricing and more cost-effective service provision, produce frameworks to (i) assist the Government in developing a State technical assistance plan for WUAs, and (ii) assist the Government in the operation and development of drinking water and sanitation.

(Energy sector investments)
5. Given references 2 and 3. above, which should allow efficient energy pricing and more cost-effective service provision, comment on the interaction between (i) further development of a strictly commercial approach to the development of the energy sectors with (ii) the proposed projects contained in the energy sector strategy development program containing as they do considerable external assistance;

(Increased responsibility for and accountability of AR)
6. Develop an implementation plan for AR taking full responsibility for implementation of the Government’s road policy for the efficient and effective maintenance and development of roads and, to that end, AR being required to develop and maintain a long term economic plan for Armenian roads that makes the maximum possible contribution to the Government’s economic development strategy for roads which, inter alia, (i) would be suitable for assisting the Government’s MTEF/Budget process and (ii) be the principal accountability document for the Government’s road policy following its revision to incorporate Budget decisions;

(Road costing and charging study)
7. Prepare a project plan for MoTC undertaking a study on the cost of roads and road usage that will provide concrete advice on the best structure of road user charges and their (minimum) levels necessary to fund roads at least cost to the economy given the road plan approved by the Government;