Public Investment Efficiency:
Guidance Note on an Indicator-Based Approach

I. Introduction

1. Many of the arguments for fiscal space are explicitly about the need to boost public investment in physical assets such as public infrastructure or in health or education facilities that contribute to improvements in human capital. This argument is often weakened by evidence of low efficiency of public investment in a number of dimensions, including:

   - Poor project selection, including wasteful “white elephant” projects
   - Delays in design and completion of projects
   - Corrupt procurement practices
   - Cost over-runs
   - Incomplete projects
   - Failure to operate and maintain assets effectively so that the benefits are less than projected

2. The impact of such failures is to negate the core argument that additional fiscal space allocated to public investments could enhance future economic prospects. In considering the case for creating additional fiscal space for investment therefore, it is important that an assessment be made about the relative efficiency of public investment. Additionally, it would be desirable to identify the specific weaknesses that contribute to poor outcomes and suggest appropriate institutional and technical remedies that could correct such failures.

3. The approach taken in this guidance note is to begin with a description of key “must-have” features of a well-functioning public investment system. With regard to the “must have” features, the emphasis is on the basic processes and controls (linked at appropriate stages to broader budget processes) that are likely to yield the greatest assurance of efficiency in public investment decisions. The approach does not seek to identify best practice, as exemplified perhaps by a sophisticated high-level OECD or Chile-like system, but rather to identify the bare-bones institutional features that would minimize major risks and provide an effective process for managing public investments.

4. A second feature of this approach is the use of diagnostic indicators of inputs, processes and outputs that would enable us to assess the functioning of actual public investment systems. These indicators should provide objective measures of inefficiency that can also help identify the decision nodes at which existing processes might be failing. Thus, for example, an indicator of cost-over-runs relative to appraisal estimates

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1 This note was prepared by Anand Rajaram, Tuan Minh Le and Nataliya Biletska. Comments from William Dorotinsky, Para Suriyaarachchi and Paul Wade are acknowledged.

2 An obvious comment that might be made at this stage is that the economic rate of return would provide the most appropriate measure of public investment efficiency. Where available, the ERR would be a valuable indicator and should be used. But this is often not calculated or, in many instances, is only
may point to problems of unrealistic appraisal, poor project design or procurement or various combinations of the above which may need to be confirmed with more specific assessment. Similarly, a very low rate of project completion often provides a robust indication that gate-keeping functions that prioritize public investment project selection consistent with resource availability are not effectively enforced. Poor project planning and management and procurement delays may also contribute to this outcome.

5. Using this approach in the case study countries, we suggest a diagnostic “gap-analysis” of the actual system relative to this basic system so as to identify structural aspects of the public investment decision and management process that may be weak and in need of attention. The gap analysis will be supplemented by diagnostic indicators to identify the particular areas of weakness that are likely to contribute to low public investment efficiency. As with any diagnostic, good judgment regarding the underlying incentive and capacity problems will be necessary to supplement the gap analysis and diagnostic indicators. The recent Ukraine PER provides a good example of a case study that applies many of the suggestions in this note embedded in a broader understanding of public finance management practices. 

6. In principle, a good diagnostic would allow reforms to focus scarce managerial and technical resources where they will yield the greatest impact. The approach is based on a clearly defined institutional framework and recognition of the role of institutions, capacity, and incentives. It is broadly consistent with the approach taken in the Public Expenditure and Financial Accountability (PEFA) initiative which addresses broader issues of public expenditure management. Like the PEFA framework, the diagnostic makes use of well-defined symptomatic indicators which can be objectively assessed and which provide information that can be used to identify problematic areas. This identification will enable (and typically require) more detailed assessment to develop institutional remedies to the identified problems. Thus they can motivate governments to undertake periodic self-assessments of public investment efficiency and design reforms to improve government systems.

7. Section II below provides a schematic description of the “must-have” features of the public investment system. Section III then proposes some diagnostic questions and indicators that would help assess the functioning of the existing system. Section IV concludes and indicates the next steps to implementing this indicator-based approach in particular country case studies. This is a draft intended to provoke comment and inputs are invited to improve the approach and the content.

available as an ex ante estimate. Some studies (ref ) suggest that ex post ERRs are systematically lower because of optimism in ex ante estimation and/or poor project implementation. The approach taken here is to develop a range of indicators which include indicators about process and institutional failures, which then provides the basis for corrective actions.

3 See chapter 5, “Capital Budgeting in Ukraine”, in the Ukraine 2006 PER.
II. Defining “Must Have” Features for an Efficient Public Investment System

8. First, some broad strategic guidance for public investment is often an important way to anchor government decisions and to guide sector-level decision-makers. Such guidance may be derived from a national plan or other medium to long term strategic document that establishes economy-wide development priorities at the highest decision-making levels. The PRSP may serve as such a document in some countries. In other countries longer term vision documents may provide the necessary directional guidance. In many countries, this may be supplemented by a sector level strategy that provides more detailed translation of the priorities at a sector level. The existence of credible strategic guidance to public investment is a basic requirement and may be referenced in annual budget preparation instructions.4

9. Second, a first level screening of all project proposals must be undertaken to ensure that they meet the minimum criteria of consistency with the strategic goals of government. A project that fails to meet this consistency test should be rejected, making it unnecessary to subject it to further evaluation. An appropriate institutional arrangement to ensure that all major project proposals are screened is an important must-have feature so that resources are not wasted in more detailed project appraisal.

10. Third, projects or programs that meet the first screening test may need to undergo more rigorous scrutiny of their cost-benefit or cost effectiveness. The project selection process needs to ensure that projects proposed for financing have been evaluated for their social and economic value. To do so effectively, governments should have formal and well publicized guidance on the technical aspects of project appraisal appropriate to the technical capacity of ministries and departments. The guidance should describe techniques of economic evaluation that are appropriate to the scale and scope of the project – with larger projects requiring more rigorous tests of financial and economic feasibility and sustainability. The project appraisal process should consider project proposals of different scales and take into account the key macro, sectoral and project-specific uncertainties, such as inflation, cost overrun, change in output and key input prices over the project life.

11. Fourth, the value of ex ante project evaluation depends very much on the quality of the analysis which, in turn, depends on the capacity of staff with project evaluation skills. Upstream investment in training in project evaluation techniques is an important aspect of an effective public investment system.6 Whether the government has an established process for training staff in project evaluation technique would be a useful

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4 The U.K. requires departments to prepare Departmental Investment Strategies to guide investment decisions.
5 Five year plans in many countries proved to be non-credible to the extent that they proposed targets that were not grounded in realistic resource projections.
6 See Fontaine (1997) for a description of the sustained effort undertaken by Chile to train a number of generations of public officials in project evaluation techniques.
indicator of capacity creation. Quantifying the number of staff in government with
project evaluation skills would be another relevant indicator. Identifying whether such
staff are in line positions that makes effective use of their skills is another related
indicator. In many countries, technical assistance is used to train staff in skills which are
then not effectively deployed.

12. Fifth, where departments and ministries (rather than a central unit) undertake the
appraisal, an independent peer review might be necessary in order to check any
subjective, self-serving bias in the evaluation. In countries where donor-financed
projects are significant, upstream aid-coordination can help channel resources to priority
areas but should be subjected to the same appraisal stages as government funded projects.

Excerpts from U.K.’s “The Green Book”

“Appraisal, done properly, is not rocket science, but it is crucially important and needs to be carried out
carefully. Decisions taken at the appraisal stage affect the whole lifecycle of new policies, programmes
and projects. Similarly, the proper evaluation of previous initiatives is essential in avoiding past
mistakes and to enable us to learn from experience.”

“The first step is to carry out an overview to ensure that two pre-requisites are met: firstly that there is a
clearly identified need’ and secondly that the proposed intervention is likely to be worth the cost.

The second step is to set out clearly the desired outcomes and objectives of an intervention in order to
identify the full range of options that may be available to deliver them.

The third step is to carry out an option appraisal. This is often the most significant part of the analysis.

Following option appraisal, decision criteria and judgment should be used to select the best option or
options, which should then be refined into a solution. Consultation is important at this stage……
Procurement routes should also be considered, including the role of the private sector. Issues that may
have a material impact on the successful implementation of proposals must be considered during the
appraisal stage, before significant resources are committed.

(The main) purpose (of evaluation) is to ensure that the lessons are widely learned, communicated, and
applied when assessing new proposals.”


13. Sixth, it is important that the process of appraising and selecting public
investment projects is linked in an appropriate way to the budget cycle even though the
project evaluation cycle may run along a different timetable. There is clearly a two way
relationship between the budget cycle and the project selection cycle. The fiscal
framework and the annual budget need to establish envelopes for public investment (on
an aggregate and/or sectoral basis) so that a sustainable investment program can be
undertaken.\textsuperscript{7} The key to efficient investment is both good decisions in choice of investments but equally a budgetary process that ensures recurrent funding to maintain and operate existing assets and to undertake new investments only when rehabilitating existing assets is not as cost effective as undertaking investment in a new asset. Therefore, forward costs of investment projects should be reviewed systematically by both sector ministries and the ministry of finance during budget preparation.

14. Seventh, projects should be scrutinized for implementation realism. Project design should include clear organizational arrangements and a realistic timetable to ensure the capacity to implement the project. It is critical to establish and develop effective measures, including efficient procurement plans and institutional capacity to manage project implementation. Project proposals, especially for a large infrastructure project, should also present organizational arrangements for running the project once the construction is finished.

16. Governments need to create the capacity to monitor implementation in a timely way and to address problems pro-actively as they are identified. Monitoring project implementation would minimally involve comparison of project progress relative to the implementation plan. Implementing agencies should be required to submit progress reports to identified monitoring agencies that may then need to audit both financial and physical implementation.

17. Finally, a desirable but often missing feature of government systems is an ex-post evaluation of completed projects. Ex post project evaluation of completed projects should focus on the comparison of the project’s outputs and outcomes with the established objectives in the project design. Good practice suggests that the project design should build in the evaluation criteria and that learning from such ex post evaluations is used to improve future project design and implementation. We include this as a “must have” feature in order to underline the need for governments, even in a basic way, to ensure that there is some learning and feedback from projects that will create a positive dynamic for improvement over time.

18. The box citing the approach suggested by the U.K. Green Book on appraisal and evaluation is cited as an example of good practice. While the rigor of any of the steps in public investment selection will need to be adapted to country capabilities, the emphasis here is on ensuring that attention is paid to the various aspects of good decision making, even if it is initially a rudimentary discipline.

\textsuperscript{7} A medium term budget framework can provide some forward visibility regarding resource availability and predictability for long gestation investments.
Synchronizing Public Investment Evaluation with Budget Process

Macro Framework
- Recurrent expenditure commitments
- Ongoing capital investments
- Discretionary surplus

Fiscal Framework
- Sector envelopes
- Inclusion of priority appraised project in the budget

Budget Preparation Process
- Budget negotiations
  - Parliamentary committee review
  - Appropriations

Budget Execution
- Guidance on Project Program Appraisal
  - Screening for consistency with gov't policy objectives
  - Process of appraisal & institutional arrangements
  - Gov't project
  - Donor funded project

First stage: Screening
- Appraisal
  - Process of appraisal & institutional arrangements
  - Gov't project
  - Donor funded project

Second stage: Screening
- Screened portfolio of projects aligned with policy objectives and suitable for public financing

Gate keeping
- Project work plan
- Potential new project "parachuted" into budget
- Multi-year appropriation
- Annual appropriation

Unscreened projects
III. Diagnostic Questions for Evaluating Public Investment Efficiency

The following questions might provide the basis for a diagnostic assessment of the efficiency of a public investment management system. Bolded statements indicate the aspects with the possibility of developing diagnostic indicators.

1. Is there well-publicized strategic guidance for public investment decisions at central/ministerial/provincial levels?

2. Is there an established process for screening of project proposals for basic consistency with government policy and strategic guidance? Is this process effective? **What proportion of projects so screened are rejected?**

3. Is there a formal appraisal process for more detailed evaluation of public investment project proposals for costs and benefits? If yes, is appraisal mandatory for all projects or for projects above a certain monetary value? Is project appraisal undertaken only for specific sectors and if so which sectors? **What proportion of public investment projects are formally appraised for costs and benefits?**

4. Are project appraisals formally undertaken by the sponsoring department or by an external agency? What is the quality of such appraisals?

5. **What proportion of the public investment program is donor financed?** Are donor financed projects subject to the same or different rules for appraisal and inclusion in the budget as government financed projects? If different, describe the difference. Does the government review project appraisals undertaken by donors?

6. Are appraisals screened by an external agency or department for quality and objectivity of appraisal?

7. Is final project selection undertaken as part of the budget process or prior to the budget process? Does the government maintain an inventory of appraised projects for budgetary consideration?

8. Is there an effective process to control the gates to the budgeted public investment program, i.e. the collection of projects that are formally approved for budget allocation and implementation? Is there an established but limited process for including projects for emergency or politically imperative reasons? **What proportion of projects enter the PIP by “climbing the fence” i.e. by avoiding the gate-keeping process?**

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8 The chart indicates the possibility of “unscreened projects” entering the budgeted program, essentially climbing the fence. An effective gate-keeping process would limit this to a very small number of emergency projects.
b. What proportion of projects that “climb the fence” is donor financed?

9. What is the typical proportion of the value of new project starts relative to the ongoing public investment program? (use three year moving average)

10. What is the completion rate of the public investment program (annual average over the past 5 years), defined as the annual public investment budget divided by the estimated cost to complete the current public investment program? How does this differ across key sectors – education, health, water supply and sanitation, roads and power, for ex.?

11. Do ministries undertake procurement plans in line with good practice and do they implement procurement plans effectively?

12. Has the government undertaken a rationalization of its public investment program in the recent past? Did the rationalization improve the prioritization of the public investment program? Did it result in the cancellation or closure of ongoing projects? If yes, what is the percent of the PIP that was cancelled or closed? Indicate if projects were merely “deferred” rather than cancelled.

13. Are project implementing agencies required to prepare periodic progress reports on projects? Is this report used in subsequent budget discussions with the MOF or MOPlanning?

14. For a representative subset of the public investment program (including Bank-supported projects), what is the average percent age cost over-run (in inflation-adjusted terms) on major projects in key sectors?

15. Are projects commissioned to private contractors and if so are contracts awarded on the basis of competitive bidding? Are international firms permitted to bid on contracts? If other methods are used, describe the methods. Is there any evidence from CPARs or other reviews of procurement contributing to cost escalation or fraud?

16. For a representative subset of the public investment program, what is the delay in project completion relative to initial estimated time on major projects in key sectors?

17. Does the government estimate the actual NPV of completed projects and undertake an evaluation of differences relative to the estimated NPV at appraisal?

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9 To illustrate, if the residual investment to complete the current program is $1000 and the annual investment budget is typically $100, the completion rate is 10 percent, implying 10 years to complete. A low completion rate may confirm a poor gate-keeping process that allows too many projects into the budget or it may reflect cost-escalation that causes the cost of completing projects to exceed initial estimates.
What alternative methods, if any, does it use to undertake ex post evaluation of completed projects?

18. Does the government maintain an asset register or inventory of public sector property, equipment, vehicles, etc.?

The following table provides a structured layout for an assessment of public investment management and likely efficiency of public investment?
<table>
<thead>
<tr>
<th>Stage of Public Investment</th>
<th>Desirable Institutional Arrangement</th>
<th>Diagnostic Indicator(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic guidance for investment</td>
<td>Published development strategy or vision statement</td>
<td>Assess “realism” of strategy relative to resource availability – is it actively used to prioritize budgetary decisions?</td>
</tr>
<tr>
<td>Preliminary screening of projects or programs</td>
<td>Various. Centralized approval by planning or finance ministry for developing proposals/ Explicit ministry level justification wrt strategy.</td>
<td>Evidence of inadequate process for screening proposals - major projects inconsistent with government strategy or vision</td>
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<tr>
<td></td>
<td>Clarity of project objectives in terms of outputs and outcomes</td>
<td>Sampling of proposals</td>
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<tr>
<td></td>
<td>Consideration of alternative approaches to objectives</td>
<td>Sampling of proposals</td>
</tr>
<tr>
<td>Project Appraisal</td>
<td>Publicized guidance and effective training and deployment of staff for project design and appraisal (including stakeholder consultation in project design)</td>
<td>Quality of published guidance on appraisal</td>
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<td></td>
<td>Application of guidance in project appraisal</td>
<td># of staff with training in project appraisal in line positions</td>
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<td></td>
<td>Independent checks to ensure objectivity and quality of appraisals</td>
<td>Sampling of appraisals</td>
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<tr>
<td></td>
<td>Disciplined completion of project appraisals prior to budget</td>
<td>Rate of rejection of project appraisals (incl. donor funded)</td>
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<tr>
<td></td>
<td>Identifying and maintaining an inventory of appraised projects ranked by priority for budgetary consideration</td>
<td>Evidence to the contrary - appraisals “hurried” to meet budget timetables or downstream project design issues</td>
</tr>
<tr>
<td>Project Selection</td>
<td>Transparent criteria for selecting projects with reference to policy objectives at ministerial level.</td>
<td>Evidence to the contrary – high % of projects in the budget that evaded established appraisal and selection process</td>
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<tr>
<td></td>
<td>Well structured budget preparation process with scope to integrate investment and recurrent implications of projects</td>
<td>High value of new project starts relative to ongoing PIP</td>
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<td></td>
<td>Effective gate-keeping to ensure that only appraised and approved projects are selected for budget financing</td>
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<td></td>
<td>Ensuring adequate financing for selected projects, including recurrent needs on completion</td>
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### Project Implementation

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<tr>
<th>Published guidelines for project implementation, including contracting and supervision</th>
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<tbody>
<tr>
<td>Timely implementation in line with guidelines</td>
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<tr>
<td>Timely implementation reports on major projects</td>
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<tr>
<td>Cost-effective implementation through effective procurement and contracting</td>
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<tr>
<td>Effective budgeting for selected projects</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Review quality of guidelines for clarity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completion cost relative of PIP relative to annual investment budget</td>
</tr>
<tr>
<td>Large stock of incomplete projects – data by vintage of projects by sector</td>
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<tr>
<td>Sample for delays in project implementation relative to appraisal estimates – sector specific indicators</td>
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<tr>
<td>Review sample of reports for timeliness problems of procurement on major projects by sectors</td>
</tr>
<tr>
<td>Estimates of cost-over-runs on major projects – sector specific indicators</td>
</tr>
<tr>
<td>Evidence of under-funding of major projects relative to appraised requirements (shortfalls in budget allocations, unpaid bills, disputes over payment, etc.)</td>
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</tbody>
</table>

### Project Evaluation

<table>
<thead>
<tr>
<th>Formal institutional arrangements for ex post evaluation of projects/programs with feedback into future project designs</th>
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<tr>
<th>Where such evaluation reports exist, useful indicators may include:</th>
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<tr>
<td>Share of public investment projects subject to ex post evaluation</td>
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<td>Quality of evaluation and recommendations</td>
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### IV. Conclusion

This note provides guidance to country teams relevant to forming a pragmatic and objective assessment of the quality of public investment efficiency in a context where governments are seeking to mobilize additional fiscal resources for investment. An indicator-based approach provide a basis both for objective assessment as well as serving to highlight weaknesses that should be addressed if the use of fiscal resources is to enhance public sector assets and economic growth. The use of indicators must be accompanied by good country-specific judgments on the functioning of institutions and the underlying incentives for public sector performance, including political economy considerations.
References


Ukraine - Fiscal Space for Growth: A Public Finance Review, World Bank, see chapter 5 on Capital Budgeting.
