



Europe-China Eco-Cities Link
中欧低碳生态城市合作项目

Municipal Finance

EC-Link Training Manual
Green Municipal Funding and Finance Tools

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1 Tool MF

1.1 GREEN INVESTMENT RESOURCES PLAN¹

1.1.1 What is a GIRP?

A green investment resources plan (GIRP) is designed to identify and program financial resources which will fund green investment.² The tool analyses past revenue performance, identifies opportunities for revenue enhancement, determines the financial resources needed to fund the green investment program of the city, and sets out actions to generate the required amount. The tool can be used both at the city level (preferably) and by specific agencies. The approach used identifies resource gaps for green investments, setting planned expenditure needs (what do I need to spend) of investment plans against existing resources, generating a precise target for expenditure savings and/or the additional revenue that needs to be generated.

The output of the tool should be clear funding strategy, detailing from which sources urban administrations can generate their own revenues to cover investment expenses. The output sets the basis for an assessment of the most effective financing strategy (Tool 2). The particular focus of this tool is on greening of city investments. All capital investments in a city should be “green” in that all should be assessed for their potential to include low carbon or pollution abating elements in design (see other Tools contained in Position Papers) and should be resilient against the impact of climate and other risks.³

The responsibilities and timelines for the implementation of a GIRP should also be clearly defined. The GIRP can be carried out after (P)FS stage, when project costs and benefits are clear defined first. The financing needs shall be aggregated, whilst all main revenue sources include taxes, service charges and fees, as well as, subsidies⁴ should be included in the analysis.

Target group of participants should include key people from relevant authorities, such as finance bureau, DRC, local HURD and departments with specific project demand. The working group need to facilitate synergy between the relevant authorities to make more holistic plan.

1.1.2 Structure of the Tool

The tool is structured by the main steps in the preparation of a GIRP:

- Step One sets out key issues relating to the policy and legal framework which need to be considered before beginning detailed planning.

¹ This tool is substantially based on the framework, adapted for Chinese conditions, provided by the GIZ Revenue Enhancement Planning methodology used in Ethiopia.

² Defined as climate mitigation/ energy efficiency, climate adaptation/ resilience and pollution reduction projects.

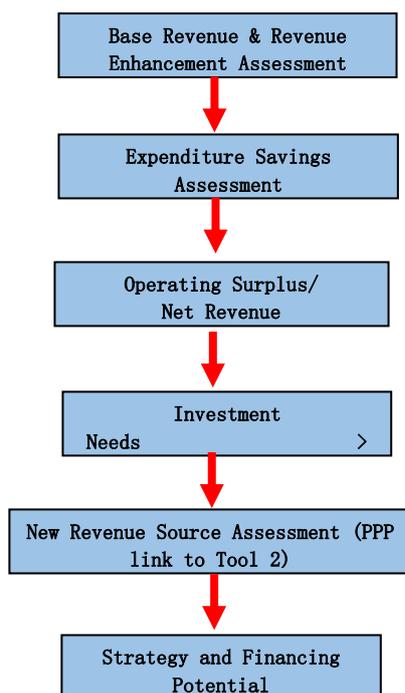
³ Green Finance stands for financial sector support to the reduction of GHG emissions and fostering climate resilience. It includes green banking, green stock markets, green financial ratings, green insurance companies and green municipal finance. In this endeavour the financial sector uses special green financial instruments such as green bonds and loans. See EC Link Position Paper 8 on Municipal Finance.

⁴ Central government subsidies for Sponge City; MoF subsidies for Rural areas environmental rehabilitation; Shandong provincial subsidies for building energy efficiency, etc.

- Step Two studies past revenue performance and potential for improvement. The trend analysis gives important inputs for further planning and is the basis for the coming gap analysis. The step also includes an analysis of options for additional revenue from existing sources, describes mechanisms for improvement of revenue administration and sets the targets for revenue generation.
- Step Three critically examines past expenditures. Any potential savings in expenditure will free up resources for new investment. Thus, the aim of this step is to identify potential expenditure savings.
- Step Four presents a format for defining and prioritising the green investment pipeline and determining the gap between available current resources and investment financing needs.
- Step Five offers an assessment of potential additional means increasing municipal revenue.
- Step Six defines the funding strategy. Based on the previous steps, this step develops strategies for achieving the revenue generation targets, allocating current resources and identifying financing needs.

The structure of the process is set out in Figure 1,1 below.

Figure 1.1



1.1.3 Why is revenue enhancement important?

The capacity for city administrations to supply urban services and undertake the necessary green infrastructure development is naturally constrained by limited financial resources. Insufficient revenue generation is most commonly the result of a combination of factors, including:

1. *Tax base:* The tax base for important sources, such as the property-related tax and the business tax, is often smaller than is potentially available. This is because the city administrations have not been rigorous in updating their records and informal businesses (and properties??) are not included in the base.

2. *Tax rates:* Determined taxes, charges and fees are partly out of date, with no relation to current incomes and costs. A significant amount of economic activities are currently left untaxed (for example eCommerce).
3. *Tax assessment:* In the local tax administrations, assessment of which taxes and rates to apply is often one of the most problematic areas. The issue is worse in relation to poor/ informal groups as they do not maintain records.
4. *Collection efficiency:* Given assessment, the next step is to actually collect the tax owed. Collection rates in many cities are not maximised relative to its tax base. As a result, the default rates and cumulative arrears are significant. The problem appears mostly in the case of [land lease, trade and service taxes].
5. *Payment procedure:* Payment procedures are often slow and inconvenient for taxpayers.
6. *Enforcement mechanisms:* Enforcement mechanisms are often insufficient and sporadic and the procedural legal basis to support enforcement is deficient. This further encourages defaults and adversely affects efforts to settle arrears.
7. *Weak incentives and capacity:* The above problems in the system of tax administration are often compounded by poor training of revenue staff and poor incentives for enhancing performance.

Measures to address shortfalls in any of these issues should be included in the revenue enhancement strategy developed under this Tool.

Combined with pressure on some traditional forms of financing (for example, land transfer taxes), the massive accumulation of new infrastructure required for the green agenda and the substantial need of resources to maintain, renovate and replace older, deteriorating urban services and built environment has compounded the above-mentioned problems. This calls for generating more revenue from own and external sources such as grants, intergovernmental transfers, revenue sharing and borrowing. The major objective is to maintain a steady increase in own revenue that is at least equal to increased inflation and population growth rates. This approach would help to offset the decline in purchasing power with inflation.

1.1.4 How is the GIRP linked to strategic objectives?

All cities in China have development plans, consisting of strategic development objectives and structure plans.⁵ Guided by City Climate Plans where they exist, city development plans imply a set of investments that are to be implemented by city line-offices, city agencies and companies.

In their yearly plans, the line offices submit a budget proposal including a recurrent budget (e.g. salaries) and investment proposals in order to fulfil strategic objectives (e.g. building a metro). These proposals and other capital projects, such as the rehabilitation of assets, constitute the capital investment plan – which, as discussed above, should incorporate green aspects in all investments. We thus term it the Green Investment Plan (GIP).

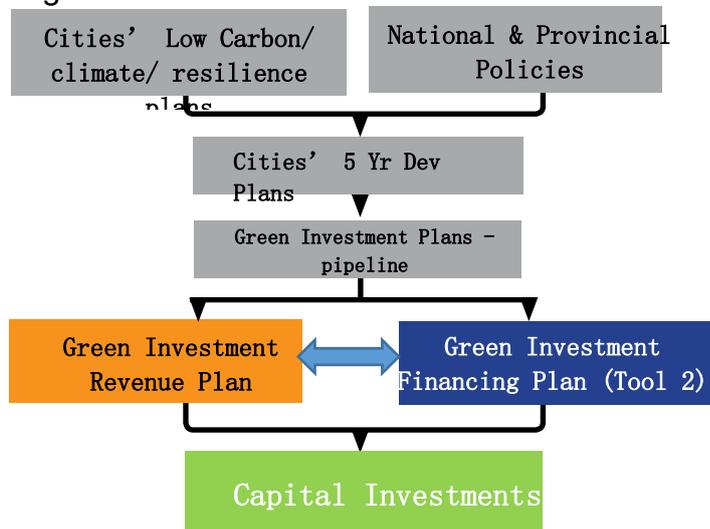
To implement this plan, additional revenue is always needed. Revenue is also needed for the maintenance requirements and costs, which are then consolidated in the maintenance budget. However, not all wishes from the GIP can be fulfilled. In order to match available resources with investment needs, the city will prioritise capital investments proposals by sector as a basis for determining financing priorities (see

⁵ 13th Five-year Plan for GHG emission control (State Council [2016]no.61), reduce 20.5% CO₂ emission by 2020. To meet this target, Shandong formulate Low carbon development action (2017-2020)

Tool 2 Green Investment Financing Plan) which sets out the financing for priority investments.

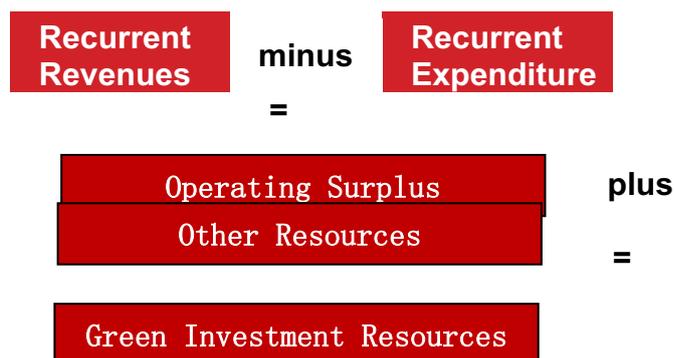
The process should work as set out in Figure 1.2

Figure 1.2



Both capital investments and maintenance expenditures require financial resources, which are to be generated by various agencies of the city. Therefore, at the beginning of each GRIP calculation the amount of available revenues needs to be determined. By subtracting the recurrent expenditures the city administration can calculate its operating surplus, i.e., own resources available for capital investments. In China, some external resources are available from the provincial and national governments, or from donors and international agencies and these should be added into the resources available for the GIP. Figure 1.3 shows the concept.

Figure 1.3



This tool will work through each of these elements with Steps 2 and 5.1 designed to maximise recurrent revenues, and Step 3 designed to minimise recurrent expenditure (thus maximising Operating Surplus). Step 5.2 addresses the issue of accessing other resources. Steps 4, 6 and 7 structure the green investment program paid for with the resultant resources.

1.1.4.1 STEP1: Considerations before GIRP drafting

Each city administration must bear in mind that their GIRP should be in line with the requirements of the national and provincial laws and policies when it devises its own local financial improvement policies. City administrations need to consult the following set of policies and government reform programs:

- Fiscal Policy
- Tax and Investment Policies
- Urban Development Policy
- Green policies⁶

In order to prepare the GIRP, a task force has to be set up, comprising of a pool of experts from relevant agencies and disciplines. Key considerations are:

Fiscal Policy

- Mobilisation of own revenue is a necessity but can also obstruct economic growth if citizens are over-taxed;
- Management of own revenue and expenditure of a local government should contribute to a fair distribution of income and wealth between citizens;
- GIRPs should not negatively affect the stability of the local economy, employment and inflation. These plans should not impair the allocation of local resources;
- City administrations are required to follow sound financial principles that strengthen fiscal responsibility, ensure sustainability of resources and spending, apply limits to local expenditure and create meaningful relations between local policy and expenditure patterns. Value for money should be produced through transparency and accountability.

Tax and Investment Policies

- GIRPs should be in line with the national and provincial investment and tax policies, which provide incentives to smallholder farmers, domestic entrepreneurs and direct foreign investors, stimulating in turn economic growth and prosperity;
- The private sector should be strongly supported by transparent and accountable services rendered with regard to delivery and pricing.
- Continue to improve the local tax system reform, expand the scope of tax collection gradually, for instance, property tax and resource tax.
- Create sustainable sources of income and reduce dependence on land finance.

Urban Development Policy

- City administrations should use different methods for the full recovery of land development costs such as:
 - an appreciation tax for increases in land values;
 - full cost recovery charges for the capital costs of services provided to developers and land holders; and
 - public acquisition and development of land.
- City administrations should apply charges and fees (cost sharing principle) reasonably well on occupants of new areas or redeveloped areas for the provision and installation of utilities such as electricity, supply of water, drainage, sanitations, refuse collections, schools, clinics and amenities such as parks and sport grounds;
- Cities should have a reliable inventory of their land;

⁶ <http://www.cepm.igdp.cn/> please refer to the IGDP green policy mapping

- Cities should update the value of their land.

Institutional Strengthening Needs

- Cities should have an Expenditure Management and Control system which should:
 - harmonise and implement the expenditure management and control mechanism, which integrates accounting, budgeting, procurement, auditing, and internal control principles in the preparation of the financial improvement plans across agencies of the city;
 - facilitate the formulation, introduction of and resourcing of performance appraisals and incentive systems in relation to the objectives of the GIRPs;
 - provide systems to monitor and benchmark the quality of local services including complaint handling mechanisms;
- City administrations should select and train suitable staff to manage these plans and their objectives.

Green Development Plan

- 13th Five-year Plan for GHG emission control (State Council [2016] No.61), which require to reduce 20.5% CO2 emission by 2020;
- Shandong Low carbon development action (2017-2020);
- Action plan for promoting industrial transformation and upgrading in Shandong province (2015-2020), which require to upgrade 22 major industries, adopt to use more advanced low carbon and energy efficiency technologies.

The executing entity need schedule forehead to allocate resources to achieve mandatory targets according to those action plans.

1.1.4.2 STEP 2: Analysis of Revenue Performance

The first exercise for developing a revenue plan is analysing past revenue performance. To do so, a list of all revenue items should be produced and their past performance assessed over the past 5 years where possible. Specific, one-time issues influencing revenue performance, such as boundary changes and service area coverage, should be taken into account when analysing the revenue information to determine trends. This exercise includes determining: (a) tax revenues from municipal services, (b) municipal rent revenues and investment incomes, (c) municipal service charges, (d) revenues of sales of goods and services and (e) other capital receipts.

The trend analysis provides important inputs for further planning. It is also the basis for the subsequent gap analysis. Performance changes registered within a time span of three years are averaged out. In assessing past performance the following factors are taken into consideration: Appropriateness of valuation and assessment, timely billing, collection efficiency and enforcement mechanisms.

The city’s administration collection efficiency is reviewed using two indicators: Actual efficiency and billing efficiency respectively. The key indicator used for measuring the performance is per capita revenue collection. The table below sets out the key tasks.

Tasks	Details
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□ 2.1 List all revenue items	<ul style="list-style-type: none"> ✓ Identify all municipal revenue items and list them <ul style="list-style-type: none"> • Tax revenues from municipal services • Municipal rent revenues and investment incomes • Municipal service charges • Revenues sales of goods and services • Other capital receipts
□ 2.1 Assess past performance of revenue titles	<ul style="list-style-type: none"> ✓ Perform collection efficiency analysis ✓ Calculate the moving average performance of 3 years of the revenue items ✓ Compare the per capita revenue collection of the city with other cities⁷
□ 2.3 Identify main difficulties in past revenue performance and opportunities for improvement	<ul style="list-style-type: none"> ✓ List main problems encountered and possible remedial actions ✓ Perform risk analysis ✓ Rank actions according to their impact on the revenue performance

Problems and opportunities related to the efficiency of revenue administration are identified. Plausible strategies to increase revenue administration efficiency need to be examined:

- Initially the amount of revenue generated from each financial source (tax, charge or user fee etc) needs to be calculated.
- Aggregate these sources.
- For each source, assess the potential yield from improvements in revenue administration in areas such as the tax base, tax rate, tax coverage, tax valuation and tax collection.
- Identify and estimate potential yield increase of other elements such as payment procedures, enforcement mechanisms, human resources and tax administration capacities have to be assessed.

The table below sets out a checklist of key tasks for this task.

Tasks	Details
2.4 Estimate potential revenue yields through improved administration	<ul style="list-style-type: none"> ✓ Calculate: Tax Revenue = Tax Base x Tax Coverage Ratio x Valuation Ratio x Tax Ratio x Collection Ratio ✓ Hold tax base and tax rate constant and calculate potential increase of tax revenue through improving tax coverage, tax valuation and tax collection
□ 2.4.1 Broaden tax base	<ul style="list-style-type: none"> ✓ Examine the option of broadening the tax base <ul style="list-style-type: none"> • More of a concern for macro-economic planners • Increasing tax base needs to be directly related to economic growth measures and proeconomic development strategies
□ 2.4.2 Increase tax coverage	<ul style="list-style-type: none"> ✓ Start to collect relevant information on tax coverage ✓ Use 'Standard Integrated Government Tax Administration System' (SIGTAS) □ To improve revenue administration efficiency <ul style="list-style-type: none"> • Setup better communication between agencies • Train inspection teams • Give rewards for loyal customers • Consolidate database with other tax agencies • Use Tax Identification Number (TIN) • List the registered tax, user charge and fee payers

⁷ Choose cities at similar per capita income and size for the comparison.

	<ul style="list-style-type: none"> Analyse the collected data of potential taxpayers Perform continuous inspections Compare the status of coverage for each tax item
□ 2.4.3 Consider tax rate and ratio	<ul style="list-style-type: none"> ✓ Monitor the appropriateness of tax rates ✓ Assess tariffs and rates of all services at least once in two years and contact the regional BUDC to request revision of a tariff whenever necessary <ul style="list-style-type: none"> Assessment of tariffs and rates must consider the economic situation Conduct a survey to measure taxpayer capacity
□ 2.4.4 Valuate and assess tax	<ul style="list-style-type: none"> ✓ Establish mechanisms for assessing taxpayers ✓ Compare any economic unit with its market value continually ✓ Create a clear procedure and encouragement for self-assessment ✓ Implement tax education programmes
□ 2.4.5 Maximise collection ratio	<ul style="list-style-type: none"> ✓ Summarise recent tax arrears, evaluate arrears using annex 1, table 7 on CD ✓ Observe large, medium and small size businesses that have trouble paying taxes ✓ Identify basic reasons for non-compliance ✓ Create strong and continuous tax awareness campaign ✓ Abolish small and inefficient taxes ✓ Evaluate both uniform and timely cases of arrears ✓ Compile accurate information ✓ Allocate sufficient resources for revenue collection
□ 2.4.6 Evaluate payment procedure	<ul style="list-style-type: none"> ✓ Shorten payment procedures ✓ Encourage self-assessment ✓ Establish different means of payment ✓ Organise payment schedule
□ 2.4.7 Implement appropriate enforcement mechanism	<ul style="list-style-type: none"> ✓ Clearly communicate the enforceable legal codes ✓ Create a clear and uniform appeal process ✓ Conduct regular information forums for tax payers ✓ Distribute explanatory materials on the benefit of tax compliance and consequences of non-compliance; Additionally use other media (e.g. Radio, TV) to create awareness ✓ Produce timely data on defaulters and take appropriate legal actions ✓ Review fines
□ 2.4.8 Develop human resources and capacities	<ul style="list-style-type: none"> ✓ Equip the revenue staff appropriately with knowledge and material ✓ Allocate reasonable annual budget to enable offices to perform their task □ ✓ Fill existing vacancies ✓ Introduce staffing plan and produce terms of reference for each employee ✓ Revise staffing plan when necessary

Aggregate local revenue sources by sector. Go through each revenue source in respect of the coverage of the tax/ fee base, the applicable rate and collection efficiency and consider where improvements can be made in each. Set out the required actions to achieve these improvements. Estimate potential yield and how long it will take to achieve that yield given the action that have to be carried out.

Format 1.2.1 Summary revenue items and enhancement actions (wrt base, rates, assessment and collection)

Item	Total Yield (\$m)	Yield per capita	Base ratio	Rate ratio	Assessment Ratio	Collect Ratio	Potential Yield	Target Yield & Description of Enhancem Actions
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General Revenue								
Tax A								
Fee B								
Etc								
Companies Etc repeat								

Format 1.2.2 Aggregating and Forecasting revenue potential

Revenue source	Year				
	1	2	3	4	etc
General Revenue					
- Revenue items					
Companies etc					
- Revenue items					
Other					

Add in provincial/ national transfers and other sources – allocate by sector

Format 1.2.3 Aggregating and Forecasting total revenue potential

Revenue source	Year				
	1	2	3	4	etc
Total Local Revenue					
- Revenue centres					
Transfers from					
- Province by revenue centre					
- National by revenue centre					
- Other (eg aid) by revenue centre					
Other					

1.1.4.3 STEP 3: Examination of expenditure management

Enhancing the well-being of citizens via the provision of public services is the most important responsibility of cities. Hence, an assessment of the potential savings in expenditure – freeing resources for other services or enhancing the service in question – is essential.

In line with the principles of efficiency, effectiveness and economy, unnecessary recurrent expenditures or costs should be eliminated. Such savings are an integral component of the budget planning regime which should clearly identify recurrent and capital expenditure projections. An estimate of cash flow broken down on a quarterly basis should be prepared.

Measurable performance indicators need to be developed and monitored during implementation. The table below sets out a checklist of key tasks for this step.

To promote the zero-based budgeting (ZBB) is an important part of budget reform in China. Since the 1990s, some provinces and cities in China have adopted a zero-based budgeting method. There is a big difference between the current trial and the theoretical zero-based budget, and many difficulties have been encountered in the process of preparation and implementation.

The zero-based budget of local governments in China is mainly used for special funds. The personnel and public funds are actually determined outside the process of zero-based budget. The annual fiscal revenue (both budgetary and extra-budgetary) is very small after the personnel and public funds are guaranteed. It is. This means that local governments in China, even if the zero-based budget is strictly implemented, can have a very limited scope. That is to say, in the local government's expenditure decision, only a very small part of the expenditure decision is based on the zero-based budget. Secondly, for the part of the budget expenditure that has been explicitly included in the special funds, although the zero-based budget has been identified as the main budget decision-making method, the impact of the zero-based budget on the actual budget process is due to the tight financial resources of the local government is very limited. Because in the case of very tight financial resources, if the zero-based budget is strictly implemented, most of the special funds may not be funded. Once this happens, there is a huge resistance to continuing to push the zero-based budget. Therefore, the financial department finally had to give up the zero-based budget and switch to the traditional way, that is, most projects can get some budget allocations, but each project cannot get a lot, even if the project is in the priority of the zero-based budget

Thirdly, the implementation of the zero-based budget in China is still facing some political and administrative constraints. Moreover, some large state-owned enterprises have not adopted a zero-based budget plan.

Application of Departmental Budget Reform (Zero Base Budgeting - ZBB) processes which, in summary, require the following steps:

- Re-envision the business and ask what activities and resources will truly be needed to compete under future market conditions, then set a clear strategic vision and cost target;
- Build a comprehensive fact base of current offerings, functions and expenses;
- Use a "blank sheet of paper" approach to build the ideal state and identify vital initiatives;
- Build the future state, bottom up, by justifying what activities should be performed; and
- Reset budgets and full-time employee levels, redesigning the organization and planning for implementation.

Specifically, this will address two standard questions:

- Are the current activities efficient and effective?
- Should current activities be eliminated or reduced to fund higher-priority new programs? Or to reduce the current budget?⁸

In an overview of zero-based budgeting, there are a total of three elements that make up the concept:

- Decision Unit Determination
This is the building process of the formulation of a budget structure.
- Decision Package Formulation.
When compiling and packaging a budget request, this mechanism is utilized.
- Ranking
This process requires the most attention as it requires a company's manager(s) to prioritize out of a group of decision packages that are laid out to them.

In general there are three components that make up public sector ZBB:

⁸ Pyhrr, Peter A. "The Zero-Base Approach To Government Budgeting." Public Administration Review, Jan. 1977.

- Identify three alternate funding levels for each decision unit (Traditionally, this has been a zero-base level, a current funding level and an enhanced service level.);
- Determine the impact of these funding levels on program (decision unit) operations using program performance metrics; and
- Rank the program "decision packages" for the three funding levels.

In many cases, ZBB analysis looks for alternative service delivery models that could deliver services more efficiently at lower funding level.

The tasks involved in this exercise are set up in the table below.

Tasks	Details
□ 3.1.1 Align with Expenditure Management and Control Reform Programme	<ul style="list-style-type: none"> ✓ Follow the principles of Efficiency, Effectiveness and Economy ✓ Analyse value for money ✓ Develop mid-term fiscal planning ✓ Prepare strategic plan for 3-5 years ✓ Involve stakeholders when preparing strategic plans ✓ Implement cost-centre budgeting (see also Step 5) ✓ Avoid misuse of public funds ✓ Get annual audit reports within 6 months after the end of every fiscal year ✓ Review expenditures thoroughly if financial balance is negative
□ 3.1.2 Budgeting process	<ul style="list-style-type: none"> ✓ Ensure stakeholder participation <ul style="list-style-type: none"> • Identify key agencies and external groups • Undertake fora • Document viable measures to maximise efficiency
□ 3.3 Assess expenditures of agencies	<ul style="list-style-type: none"> ✓ Clearly distinguish capital and operating expenditures ✓ List and analyse items of recurrent and capital expenditures of last three years ✓ Assess sources of finance for each type of expenditure ✓ Compare the planned expenditures against the actual performance ✓ Calculate the per capita expenditure of the past 3 years and compare data with another, similar city ✓ Identify the controllable and uncontrollable costs of the city ✓ If costs overrun, try to balance budget by reducing unnecessary expenditures

Aggregate recurrent expenditures by sector and explore potential savings using the above process. Format 3.1 summarises.

Format 1.3.1 Potential Expenditure Savings

Expenditure items	Current Amount (\$m)	Cost/ population served (\$/capita)		Potential Savings (\$m)	Budget Expend (\$m)	Actions required for expenditure reduction
		Planned expend	Actual expend			
Total municipal expenditures (recurrent & capital)						
<i>Total municipal capital expenditures</i>						

Recurrent Personnel Services						
Recurrent Goods and Supplies						
Debt service						
Other expenditures						
Repeat: Break down per department/ agency						

Project potential expenditures given proposed introduction of expenditure reduction measures over time.

Format 1.3.2 Aggregating and Forecasting expenditure

Revenue source	Year				
	1	2	3	4	Etc
General Expenditure					
- Expense items					
Companies etc					
- Expense items					
Other					

Cost Administration

Cities often have no integrated cost accounting system that is independent of service agencies and correctly reflects the full costs of services and products. Hence, cities are institutionally handicapped to competently price their services and products and to assess optimal funding and financing strategies.

In due recognition of this deficit, city administrations should set up a functional cost accounting system. When putting this system in place, the first step is to set up cost centres for clearly defined municipal services. The costing department of each utility/ unit captures all costs, calculates them and allocate these to cost centres. To that effect, cities are advised to employ a cost centre approach whenever preparing their annual budgets. After having created cost centres, the costs of the services these cost centres provide have to be calculated.

The table below sets out a checklist of key tasks for this step.

Tasks	Details
<input type="checkbox"/> 3.2.1 Create cost centre for services	<input checked="" type="checkbox"/> Create cost centres <ul style="list-style-type: none"> • Clearly assign responsibilities to officials • Analyse the city administration's organisational structure and work processes for mapping the cities financial resources • Include all major service centres in cost centres • Put unclassified cost services as auxiliary combined into one cost centre <input type="checkbox"/> • Ensure aggregated cost centres for the following services are included <ul style="list-style-type: none"> <input type="checkbox"/> Environmental protection and regulatory services <input type="checkbox"/> Infrastructure services

□ 3.2.2 Calculate the cost of services	<ul style="list-style-type: none"> ✓ Select services to be costed ✓ Define service or product and quantity provided ✓ Define nature of unit for calculation of unit cost ✓ Capture all costs and calculate costs for municipal services by summarising <ul style="list-style-type: none"> • Direct cost of particular service • Indirect cost to provide this service ✓ Calculate annual service charge according to the following formula: <ul style="list-style-type: none"> • Annual service charge = Annual total cost divided by the number of customers • Annual service charge at 80% cost recovery = Annual cost – 20% annual costs divided by the number of customers
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1.1.4.4 STEP 4: Establishing the GIF Pipeline, Investment Needs and Resource Gap

It will be necessary (for the DRC) to develop a mechanism for reviewing the pipeline of projects from a green perspective (eg GCF criteria?)
These projects can then be prioritised (CDIA tool).

Appendix: Description of GAM methodology

Based on the prioritisation and the (P)FS, the likely implementation schedule and the implications for costs and revenues can be set out in the format below.

Format 1.4.1 Summary for costs and revenues

Company/ Project	Component	Cost (\$m)	Revenue Streams (\$m)	Net Revenue	Sector priority	Narrative Description
A						
B						
Etc						

The project expenditures and revenues should then be forecast over time.

Format 1.4.2 Project Net Revenue Projections

Company/ Project	Year				
	1	2	3	4	etc
Net Revenue Proj A					
Net Revenue Proj B etc					
Total Proj Net Revenue					

Given the measures in Steps 2 and 3, these investment expenditures and project net revenue can be set against the current net resources (revenue minus expenditures). The difference is the Funding Gap – that is the amount that will have to either be made up by additional sources of revenue and financing.

Format 1.4.3 Aggregate Net Revenue, Project Net Revenue and Funding Gap

Item	Year				
	1	2	3	4	etc
Net Local Revenue including revenue enhancement (Format 2.3) and expenditure control (Format 3.2)					
Net Project Revenue					
Funding Gap					

1.1.4.5 STEP 5: Strategies to increase revenue generation and budget administration

After having improved revenue administration (Step 2) and reviewed potential savings in the costs of services (Step 3), new revenue sources should be identified.

Public-Private Partnerships (PPPs) may help to reduce costs by outsourcing public services to competitive and cheaper private actors. Private actors can cross-subsidise some municipal projects that in return generate revenue through taxes, charges and user fees.

The table below sets out a checklist of key tasks for this step.

Tasks	Details
<input type="checkbox"/> 5.1 Increase tax rate and adjust user charges and fees	<input checked="" type="checkbox"/> Evaluate tax rates, user charges and fee rate adjustments <ul style="list-style-type: none"> • Consider socio-economic dynamics of the city • Raise institutional capacity of finance and revenue departments • Balance tariffs with their cost of service delivery • Consider inflation • Involve the public in the tax adjustment process • Make sure that the increase in tax or tariff is in support of the local development strategy and translates into additional and improved services <input checked="" type="checkbox"/> Review own ability to effectively raise revenue level <ul style="list-style-type: none"> • Identify the reason for the increment of the tax base of a certain item • Clearly show which tax or tariff is planned to be increased (which, when, how) • Give reasons for the changes • Describe the actual situation of revenue and expenditure (cost centre approach) • Describe the outcome of inaction
<input type="checkbox"/> 5.2 Introduce new taxes, user charges and fees	<input checked="" type="checkbox"/> Identify potential new taxes, user charges and fees <ul style="list-style-type: none"> • Give attention to items that have high yields
<input type="checkbox"/> 5.3 Consider Public-Private Partnerships	<input checked="" type="checkbox"/> Evaluate the pros and cons of PPP <input checked="" type="checkbox"/> Carefully analyse which services can be effectively delivered to the public in this mode (e.g. waste disposal, cemeteries, ...) <input checked="" type="checkbox"/> Differentiate services to be provided by the government alone and services to be left for private sector involvement <input checked="" type="checkbox"/> Relentlessly analyse risk factor and conduct feasibility study
<input type="checkbox"/> 5.4 Choose the right option	<input type="checkbox"/> Explore all options available to properly justify charges for services

Detailed potential additional revenue sources and PPP issues.

Potential Local Revenue Sources/ Structures

In addition to the existing sources of revenue, other revenue sources are available. These include:

Greening property-related taxes

Currently, taxes levied in China do not reflect any externalities such as cost of environmental degradation or the cost (financial and environmental) of extending public infrastructure services. Few governments have tried to internalize the “external” cost of development in taxation, for example the infrastructure that needs to be built to connect to new developments or remote areas to public services and transportation, although Australia and other countries do this routinely through development charges (see below). In Toronto the city government taxes multi-residential buildings at the same rate as single-family homes to discourage a further spreading of the city. Another programme in the US (Property Assessed Clean Energy (PACE) program) is one of

another type of measure that reduce the taxes for those who install certain energy efficient measures or renewable energy devices. The property tax (but in China it could be a fee levied through a development agency such as industrial parks) is surcharged to pay for green investments undertaken by the householder through the – thereby avoiding the disincentive to such investment resulting from the lack of full benefit being recognized in the sale price of a house.

Value capture tax (VCT)

This tax is levied on businesses, the industry and private land owners who directly benefit from municipal improvements in infrastructure in their area of location. The logic behind it is if e.g. a new public transport hub is created surrounding shops and small services will participate due to the increased movement of people in their neighbourhood. The same goes for industries or private home owners, who would generate windfall profits through cities' infrastructure improvements. Historically most of the projects where VCT (also called betterment tax) was introduced related to public transport. Good examples are found relating to urban metro systems eg Hong Kong. A more proactive form of value capture, which can both encourage, and pay for, green infrastructure investments is 'plus value' tax. Under this scheme, an area of land, for example along a public transport corridor, is rezoned for higher density (the rezoning may include provisions requiring increased energy efficiency and "greenness"). The local government takes some of the increased value of the property either upfront (as in Colombia) or as a tax on the rental of developed properties (as in China). This increased revenue can be used as the funding base for the finance of investments (as in TIF below).

Tax increment finance (TIF)

TIF is a mechanism which will allow local authorities to borrow against locally raised future income. The cost of building infrastructure will be paid for through future extra taxes generated by the property development. Local governments would be enabled to take up finance (against this new source of income) generated by areas that need to be recovered or are brownfield developments. Cities designate a certain area as TIF district and earmark all future increases in property-related tax to pay for other infrastructure developments.

TIF is practiced in the US since 1953 and has shown good results if well planned. This mechanism works best when the area has a good upward potential for property values. When considering TIF as a mechanism for green municipal revenues municipalities need to be mindful of the fact that they depend very much on market forces. If significant financing has been based on projected tax increment, and the TIF area does not pick up as expected, no additional income will be raised, leaving a gap in the future budget.

Green Fees and Charges

In addition to taxes, municipalities are mandated to collect certain fees and charges.⁹ These can be structured so as to avoid a detrimental effect on the environment and promote environmentally sound behaviour.

The instruments used must be well planned and provide the right incentives. That takes time and thorough planning. The measures should be very specific in their targeting, transparent and easy to implement. In Singapore the congestion charge is not a flat fee but varies by the time a car passes through a specific area, by the type of car, by the type of area the car passes etc. The price is highest when congestion is worst.

⁹ Example case in Jiangsu province, industries are allowed to trade their NOx, SO2, NH4-N, COD. The price of COD is in a range of 2600-4500 embrace/ ton.

This level of detail is necessary to set the right agenda: don't drive alone in your car during rush-hour!

Examples for green fees and charges are:

- User charges that cover the full cost of services, such as water and electricity, including the cost of providing the supply and of damages caused by usage, and the opportunity cost of taking the resource from other potential users, including the ecosystem;
- Emission (effluent) charges based on quality or quantity of waste (usually wastewater);
- Product charges on products that pollute surface or groundwater during or after consumption, based on the actual value of damages caused by their use;
- Tradable rights to use a quantity of a resource (usually water or air shed for emissions) and the establishment of a market for such rights;
- Marketable permits entitling an entity to treat its waste and sell its permit, or to not treat its waste and purchase more permits; and
- Refund systems for commodities packaged in nonreturnable containers to ensure that these are returned for proper disposal or reuse.

Development charges.

Development charges are a one-time payment levied on developers to finance the cost of infrastructure provided by the municipality due to the growth impacts new and redevelopment areas have on the immediate surroundings. These costs would include the extension of roads, water and wastewater systems as well as the enhancement of schools and hospitals. In the past, the developer already paid for public on-site costs such as roads. The development charge should cover the cost of these new infrastructure measures. The idea behind it is that due to the new development surrounding areas need to adapt, which creates costs that should not be borne by the cities but by those who benefit from it. The ultimate beneficiary will be the new tenant – providing the basis for developers to pass on the extra cost to the new owners.

Development charges can also recoup environmental costs that occur due to new development (a targeted approach to internalize externalities). The level of development charges can be used to disincentivise urban sprawl, with higher the development charges per unit for low density development. In Canada, the Ministry of Community Services has issued a Best Practices Guide for development charges, based on feedback from local governments and the development community. It provides a good insight on the efficient use of development charges to address environmental purposes.

Shared Taxes

In some countries, local governments can surcharge income, profit or sales taxes (eg Value Added Taxes). Such surcharges (and indeed the underlying tax if higher levels of government cooperate) can be structured so as to provide green benefits or incentives – such as through allowing a tax deduction for green investments, the loss of revenue needs to be carefully and transparently weighed against the environmental benefit attained.

5.2 Other Sources

NOTE sources of financing such as green bonds etc are NOT funding sources – they have to be paid back by funding sources. Their use is described in Tool 2. This section will only describe sources that are a NET gain to funding resources.

Carbon Markets

Carbon finance under the United Nations Framework Convention on Climate Change (UNFCCC) provide under the Kyoto Protocol for two methods to offset GHG emissions, one being the Clean Development Mechanism (CDM) and the Joint Declaration (JI). CDM allows developed countries to offset their emissions by buying certified carbon

credits from developing countries and the JI from developed countries. Neither mechanism has in the past had a significant impact on city finances.

The project types mostly promoted by municipalities are difficult to register under the current CDM framework due to:

- High transaction costs of CDM procedures/limited municipal budgets as income from CDM occurs only ex post;
- Limited local autonomy of cities versus national governments to control GHG/limited support by national governments;
- Technical procedures such as measuring the effects of urban mitigation projects due to their mixed nature and the lack of standardized approaches (standardized baselines, benchmarks and default values) at the urban level;
- Limited technical knowledge, institutional and human capacity.

The future Chinese Carbon markets, if well structured, may afford better access to cities.

External Development Bank and Climate Finance.

A number of development banks and climate funds support municipalities in financing green infrastructure. It should be noted that only the grant components of assistance are net additions to funding – the remainder of such assistance is financing, albeit relatively cheap financing.¹⁰ These funding and financing sources usually are approved by national governments and are then on-lent (the normal mechanism in China) or passed through as grants to cities. Some additional sources of grant technical assistance can be accessed to help prepare projects and to structure financing. In some cases they may be able to access capital grants or guarantees. Such funds are:

- The C40 Cities Financing Facility (mainly German and UK funding);
- Cities Development Initiative for Asia (Germany and the ADB); and
- The Urban Financing Partnership Facility of the Asian Development Bank (ADB)¹¹.

Other external funds include the well-known climate funds such as those under the leadership of the UNFCCC. The Financial Mechanism was founded to facilitate the agreement that developed countries shall provide financial resources to assist developing countries. The operation of the Financial Mechanism is partly entrusted to the Global Environment Facility (GEF). In addition four special funds were established: the Special Climate Change Fund, the Least Developed Countries Fund, the Green Climate Fund (GCF) and the Adaptation Fund.

- The Global Environment Facility Trust Fund supports the implementation of multilateral environmental agreements, and serves as a financial mechanism of the UN Framework Convention on Climate Change. It is the longest standing dedicated public climate change fund. The GEF aims to help developing countries and economies in transition to contribute to the overall objective of the United Nations Framework Convention on Climate Change (UNFCCC) to both mitigate and adapt to climate change, while enabling sustainable economic development. The GEF is intended to cover the incremental costs of a measure to address climate change relative to a business as usual base line. The GEF is a partnership of 182 countries and international institutions, nongovernment organizations, and

¹⁰ Although there is foreign exchange risk if financing is denominated in a currency other than CNY which has to be accepted or hedged (increasing the cost of the finance).

¹¹ Source: <http://www.adb.org/site/funds/funds/urban-financing-partnership-facility>

the private sector to address global environmental issues. Since 1991, it has allocated \$9.2 billion, supplemented by more than \$40 billion in co-financing.

- The GCF was founded in 2010 and is poised to become the main fund for channeling international climate finance. Up to the end of 2014 over USD 10 billion were pledged and the Fund is currently starting the process of replenishment. The fund has windows for mitigation and adaptation and a private sector facility. 50% of all resources are committed to adaptation and of this another 50% is targeted at vulnerable countries. The Fund promotes the paradigm shift investments towards low-emission and climate-resilient development pathways by providing support to developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change, taking into account the needs of those developing countries particularly vulnerable to the adverse effects of climate change. The Fund has both grant and soft loan modalities, although China, as an upper income developing country, will have very restricted access to grants.
- A third range of funds are the so called Ethical Funds. They pool the money of hundreds of investors into a single fund which, in turn, invests in the stock market. The choice of investments is influenced by a range of social, environmental, or other ethical considerations and funds employ various criteria to exclude or include a company in a portfolio.

Public Private Partnerships: Leveraging private sector finance¹².

NOTE: Only the equity and user charges IN ADDITION to those already (or potentially) charged count as increased resources for the purposes of city funding. Other financing merely replaces city financing – probably at increased cost. Tool 2 sets out the procedure for assessing the potential contribution of the private sector.

For municipalities to attract private sector co-finance for infrastructure measures requires a number of things:

- The business case for the private sector needs to be convincing;
- The return on equity needs to be clearly defined and acceptable; and
- The risk for the private sector also needs to be clearly defined and acceptable to investors.

To create a win-win situation for both the city and the private sector, thorough planning is needed to clearly set out the rationale for private sector involvement (financial reasons, operational efficiency, and technical innovation) and the contractual arrangements between the public and the private sector.

In the past public-private partnerships [PPP]¹³ were the most prominent form of leveraging private sector finance. A PPP is a partnership between the public and the private sector in which the private party provides a public service and assumes substantial financial, technical and operational risk. The city often contributes to the

¹² The State Council released in November 2014 the “Guiding Opinions on Encouraging Social Investment by Innovating Investment and Financing Mechanisms in Key Fields of Focal Points” and proposed to innovate eco-environmental investments. Based on this directive, the NDRC issued in December 2014 the “Guiding Opinions on Cooperation in Government and Social Capital” which pointed out that PPP can be implemented in projects such as sewage and garbage disposal, water conservancy, resources, environment and ecological protection. Since then, PPP-related policies have been making rapid progress, and environmental friendly projects have become mainstream PPP investments.

¹³ For the discussion on PPPs see also OECD 2012, Financing green urban infrastructure. http://www.oecd.org/gov/regional-policy/WP_Financing_Green_Urban_Infrastructure.pdf

partnership by providing an asset, usually land, or financial equity. Such arrangements can result in projects e.g. in municipal water or energy projects where the public sector does not need to make any financial inputs and is freed from the need to manage the service. Common risks are dissatisfaction with the quality and quantity of services the private sector, and with higher fees and charges required to achieve the benchmark return on equity.

Conventional PPPs are based on concession contracts such as BOTs (build-operate-transfer) or BOOTs (built-own-operate-transfer) where the private sector undertakes the design, construction, completion operation etc. For this the private sector receives a fee over the lifetime of the concession contract. Where the private sector bears the demand risk, the interest of the concessionaire is to maximise demand. The more the concessionaire produces, the higher the revenues will be. Thus conventional PPP contracts do not necessarily set the right incentives for environmentally conscious behavior. PPPs are worldwide used and the general experience is positive, if the pitfalls such as high transaction costs, length and inflexibility of contractual structure and the complexity of the project structure are managed well.

To green PPPs, the objectives must change. A good example is the need to include energy efficiency obligations (EEOs) for utilities are set qualitative targets such as the amount of water that need to be reused. The PPP arrangement as such remains, but the objectives are formulated in a way that internalizes externalities. EEO is part of the so-called demand side management, whereby energy companies and utilities are obliged to fund measures that lead to energy or carbon reductions. A penalty will be levied on the company if energy savings targets are not met. In other words, utilities are made to make their clients save energy. For example energy companies give or finance advice to their customers how to save energy and install the relevant measures. These actions are measurable and can be verified. Subsidies may be provided initially for each kW/h saved.

5.3 Summary of Additional Resources

Assessment of the feasibility of each of these options should result in a forecast of additional revenue over time. Where these measures take significant resources to implement eg in payment for systems, these costs should be netted from the revenue yield.

Format 1.5.1 Additional funding potential

Funding source	Year				
	1	2	3	4	Etc
Current Net Local Revenue					
Additional Source A					
Additional Source B etc					
Total Funding Potential					

1.1.4.6 STEP 6: Strategy: Revenue Enhancement, Allocate Current and Potential Resources and Financing Needs

As summarised in Step 5, only after having analysed all 'internal' possibilities of revenue enhancement and projected this over the likely life of investments (typically 20 years), potential cooperation with the private sector can be sought (see Tool 2), city administrations should calculate their debt service capacity (including agencies and

companies) as a basis for turning to external sources of financing for delivering services and products to the citizens.

Loans or credit finance are regarded as a natural sources of capital financing. To utilise those sources credit-worthiness is vital. Further, good governance principles such as accountability and transparency need to be applied. A thorough assessment must take place prior to the decision to borrow. Debt management must be taken into account before an arrangement with a financial institution is made. At this stage, a preliminary affordability analysis is likely to be carried out to see how much room for borrowing.

Hence, city administrations are advised to:

- limit their borrowing to capital expenses, large and costly projects as well as income earning investments,
- explore sources and methods of borrowing,
- assess their borrowing capacity, and
- consider the debt management afterwards.

A checklist for Step 6 is set out below.

Tasks	Details
☐ 6.1 Understand the purpose and extent of borrowing	<ul style="list-style-type: none"> ✓ Borrowing should be restricted to: <ul style="list-style-type: none"> • Long-term loans for capital expenses • Large and costly projects which have long term utility • Investment which is expected to earn income ✓ Urban authorities should not borrow at any rate, especially not to cover: <ul style="list-style-type: none"> • Short-term cash-flow deficit • Deficit in the annual operating budget
☐ 6.2 Sources and methods of borrowing	<ul style="list-style-type: none"> ☐ Potential sources: (a) city administrations credit enhancement facility, (b) sinking fund investment bond, (c) intermediary lending institutions, (d) city administration bond market, (e) city administration borrowing subsidisation grant ☐ Since the borrowing process is long, get approval <ul style="list-style-type: none"> • At city level: city cabinet and city council • At regional level: Board, BoFED, regional government council and regional council • At federal level: MoFED
☐ 6.3 Assess borrowing capacity	<ul style="list-style-type: none"> ✓ Only borrow to the limit you can service your debt ✓ Answer the following questions critically <ul style="list-style-type: none"> • Does the investment financed by a loan actually lead to economic growth? • How long does the expected economic growth take to materialise? • Does such economic growth increase the specific revenue, which the borrowing authority does or can exploit?
☐ 6.4 Consider debt management	<ul style="list-style-type: none"> ✓ No long-term debt for current expenses ✓ Retire short-term debt within 12 months ✓ Limit yourself to the maximum per capita loan ✓ Limit long-time borrowing to capital investment ✓ Fix your annual debt service so it will not exceed the limited percentage of the total operating revenues

The format below sets out the potential financing potential given projected increase in revenues an assumed allowable level of borrowing and typical terms and conditions of financing.

Format 1.6.1 Additional financing potential

Funding source	Year				
	1	2	3	4	etc
Total Additional Funding Potential (Format 5.1)					

Proportion available for finance					
Indicative incremental financing potential					

Detail the actions required to ensure the proposed revenue enhancement and expenditure control in a summary document with defined responsibilities, budgets for new systems, and expected outcomes.

In addition, the above “current resources” should, in a preliminary way, be allocated to projects using the broad source categories. This allocation can change as the extent of private and other contributions becomes clear. The format below should be used. Remaining resources for allocation and/or resource gaps will be apparent.

Format 1.6.3 Allocation of Current Resources

Project Allocation/ Source of Allocation	Year				
	1	2	3	4	etc
Project A General capital budget Enterprise Capital budget Grant 1 etc Other					
Project B etc General capital budget Enterprise Capital budget Grant 1 etc Other					
Project Totals General capital budget Enterprise Capital budget Grant 1 etc Other					
Unallocated/ Financing Gap General capital budget Enterprise Capital budget Grant 1 etc Other					

2 Tool MF 2

2.1 GREEN INVESTMENT FINANCING PLAN

2.1.1 What is a GIFP?

A green investment financing plan (GIFP) provides a systematic approach to deciding on the most appropriate financing structure for the city's green investments. In the context of the investment plans of the city, utility or service unit, and the context of the available funding (Tool 1) and the local capital markets,¹⁴ the tool will generate a financing plan for the investment pipeline. This will provide the basis of a clear strategy to be carried out by the finance unit of the entity concerned.

The responsibilities for its implementation should also be clearly defined. Some financing sources will require specific legal structures and these both need to be costed into the project and to be established in a timely fashion. The main revenue sources for funding, potentially including taxes, service charges and fees, need to be assured ("ringfenced"¹⁵ in the case of PPPs) so as to repay financing over time.

2.1.2 Structure of the Tool

The tool is structured by the main steps required to prepare a GIFP:

- Step One sets out the key information that needs to be assembled by the unit coordinating the GIFP, in particular: the estimated project costs, broken down by major component; the sectoral priority of the project (derived from a structured project prioritisation exercise);¹⁶ documents potential financing sources and funding context (see Tool 1 GIRP) including the flow of grant finance linked to particular types of project types.
- Step Two is a structured analysis of all projects and their main components to determine which projects and/or components could recover their costs from user charges or other means and could thus be implemented/ financed by the private sector.
- Step Three classifies and prioritises projects by investment size into those that are a) small and urgent and thus must use current revenue, and b) those that are large or that are small but less urgent and can be "bundled" into larger investment packages - these will need to be at least partially financed.
- Step Four is a "market sounding" relating to a) the likelihood of attracting private investors and/or finance to those projects identified for private sector implementation¹⁷ and the appropriate structures; and b) the cost and timing of potential private and public financing (international – including all costs – and national) of non-private investments.
- Step Five plots needed financing for prioritised projects (net of small urgent projects) and potential tied external grants, among projects according to their economic IRR and urgency as determined by the GAM approach in Step 3 over the investment period (including phasing of projects/ components).

¹⁴ The capital markets provide finance (equity and debt) for periods of over one year – all largescale projects will need access to such finance.

¹⁵ That is, legally separated or guaranteed stream of revenue tied to a particular project or programme.

¹⁶ Potentially a Tool 3 similar to CDIA's City Investment Programming and Prioritisation Tool.

¹⁷ If there is no interest, or if the likely charges are deemed unacceptable, then the project(s) revert to public sector implementation and the process reverts to Step 2.

- Step Six allocates recurrent revenue surplus (net of small urgent projects) and potential tied external grants, among projects according to their economic IRR and urgency using a GAM approach – the GIFP.
- Step Seven describes the action plan for establishing the legal and other structures required to implement the plan – and for monitoring the performance of financing, evaluating its effectiveness and reallocating resources as circumstances change (on a quarterly basis).

2.1.3 Why is planning for financing important?

The capacity for city administrations to supply urban services and undertake the necessary green infrastructure development is naturally constrained by limited financial resources and the level of development of the local capital market. Ineffective performance relating to financing is most commonly the result of a combination of factors, including:

1. *Revenue base (Tool 1):* Given the capacity of a city or entity to repay financing is constrained by its net income, this issue is the basis of financing and is addressed in Tool 1 – the Green Investment Resource Plan. Of particular importance in respect of PPPs are caps on user charges. It is important to obtain maximum leverage of local revenue.
2. *Procurement Process Efficiency:* Over-detailed and lengthy procurement processes that can be “second-guessed” by oversight agencies add to time and costs and thus to financing costs or unthinking resort to traditional financing that may be more expensive or more restrictive than other options.
3. *Restrictions on borrowing etc:* Although prudential standards are essential, artificially restricting access to capital markets stifles both city investments and the development of the capital markets.
4. *Efficiency and access to local capital market:* Access complexity, length of approval process and term. Some instruments eg bonds, have high transactions costs for small amounts. Some institutions are restricted in the types of investments they can finance.
5. *Transparency and execution failures:* Undertaking financing in a non-competitive manner potentially increases the cost of financing – thus reducing the amount of financing that can be undertaken. Experiences of non-transparency in procurement and/or abrogating contracts also increases the cost of finance as financiers and private investors increase their risk premium.
6. *Weak human resources:* The above problems in the finance system are worsened by the weak human resource capacity of financial planning staff and poor incentives for enhancing performance.

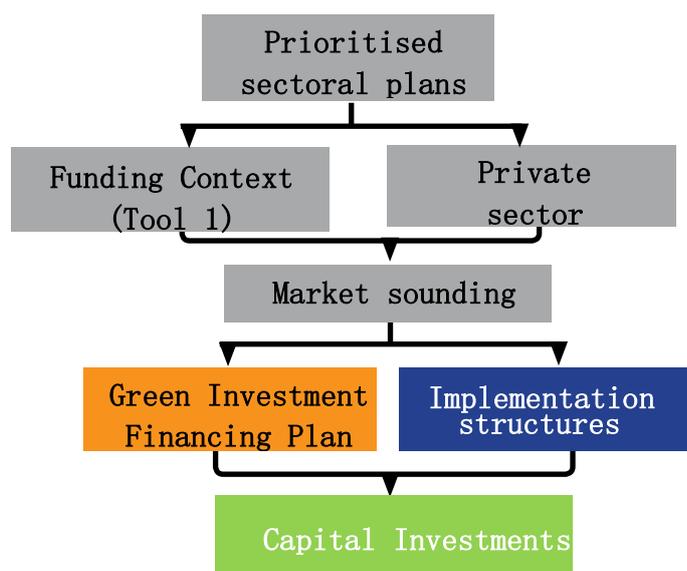
Building the capacity for a transparent finance planning process provides the opportunity to maximise the effectiveness of financing (in terms of cost and timing) and to minimise the negative implications of some of the above contextual failings. The massive accumulation of new infrastructure requirements and the substantial need of resources to maintain, renovate and replace older, deteriorating equipment has compounded the urgency of this process. The major objective is to maintain a steady increase in the sustainable financing available to the city or entity, enabling investments to keep pace with population growth rates and the expectations of citizens for a better quality environment.

2.1.4 How is the GIFP linked to strategic objectives?

All capital investments in a city should be “green” in that all should be assessed for their potential to include low carbon or pollution abating elements in design (see other Tools contained in Position Papers) and should be resilient against the impact of

climate and other risks. Guided by City Climate Plans, city development plans imply sets of investments which require financing. Cities in China have many different agencies and other entities that engage in investment. But the financial impact of investment financing costs, and associated operating and maintenance costs implications needs to be consolidated into city financing plans so that such plans will be sustainable. These ongoing costs should then be included in the next round the use of Tool 1. Tool 1 and this tool can also be used by a sub-set of the city government – a utility or an urban development investment company for example. Figure 2.1 summarises the process.

Figure 2.1



2.1.4.1 STEP 1: Information base for GIFP drafting

Step One sets out the key information that needs to be assembled by the unit coordinating the GIFP, in particular: the estimated project costs, broken down by major component; the sectoral priority of the project (derived from a structured project prioritisation exercise);¹⁸ documents potential financing sources and funding context (see Tool 1 GIRP) including the flow of grant finance linked to particular types of project types.

Format 2.1.1 Summary for costs and revenues (Tool 1 Format 6.2)

Project	Component	Cost (\$m)	Revenue Streams (\$m)	Net Revenue	Sector priority	Narrative Description
A						
B						
Etc						

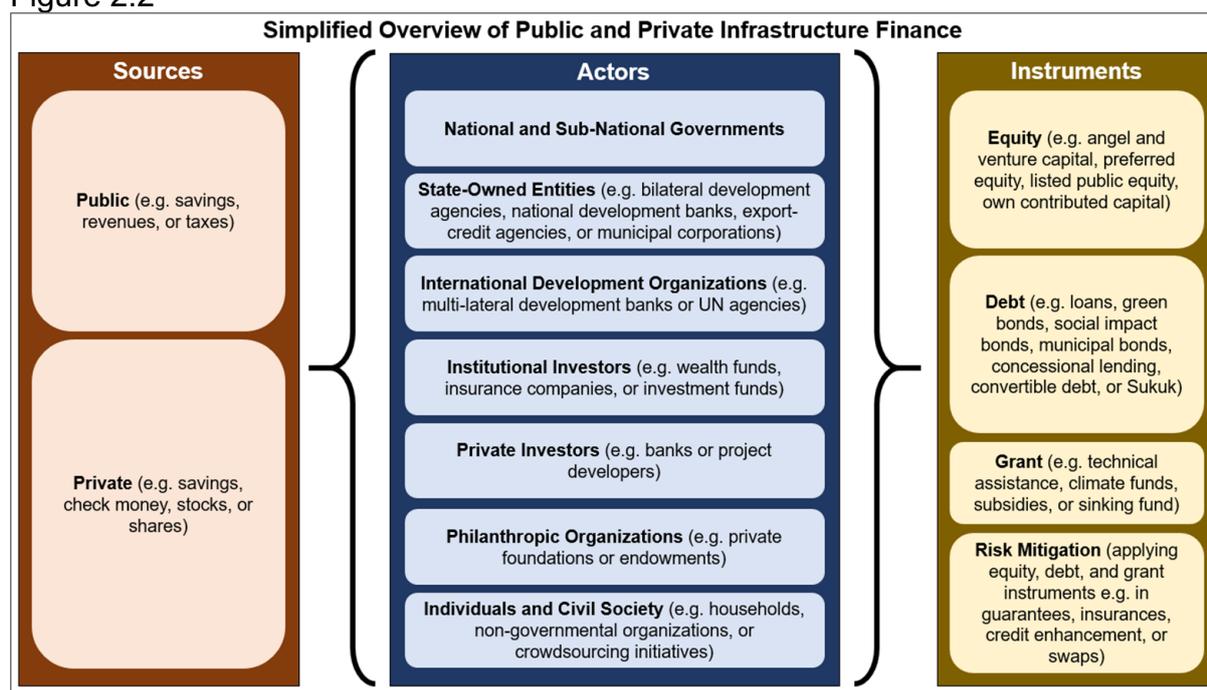
Financing potentials

Undertake analysis of the national capital market and potential international financing potentials.

¹⁸ Potentially a Tool 3 similar to CDIA’s City Investment Programming and Prioritisation Tool.

The figure below shows the breadth of options.

Figure 2.2



Format 2.1.2 Documenting funding potential and financing needs (Tool 1 Format 6.2)

Funding source	Year				
	1	2	3	4	Etc
Net Local Revenue (may need to be subdivided if not fungible across capital costs)					
Grant Type 1					
Grant Type 2 etc					
Debt Service Capacity					
Financing Needs					

Formats 2.1.3 and 2.1.4 Financing source analysis (include LG funding at opportunity cost)

Characteristics of Financing Sources

Set out the various sources of funds and their characteristics.

Source	Time for Approval	Maximum Amount	Phase/ Use Constraints	Sectoral Constraints	Eligibility Criteria
--------	-------------------	----------------	------------------------	----------------------	----------------------

Bonds					
Loan					
Green Bonds					
PPP					
Needs	<i>Latest time for disbursement</i>	<i>Needed amount</i>			

Per source establish total cost (Present Value over project lifetime)

Source	Transaction Cost (processing & PV of MRV)	Financing Close (fees if any)	Financing Cost (PV over project life)	Total Cost
Bonds				
Loan				
Green Bonds				
PPP				
Etc				

Format 2.1.5 Summary and priority usage of financing sources by sector (include LG funding at opportunity cost)

Sector/ Financing Source	Maximum Yield	Processing Time	Interest rate	Transactions cost (MRV etc)	Priority/ Comments (restrictions/ safeguards etc)
X					
Y					
Etc					

2.1.4.2 STEP2: Private sector potential

Step Two is a structured analysis of all projects and their main components to determine which projects and/or components could recover their costs from user charges or other means and could thus be implemented/ financed by the private sector.

Format 2.2.1 Private Sector Potential Analysis

Project	Components	Potential for full cost recovery (describe issues) given net revenue (see Tool 1 Format 4.2)			Cost (\$m)
		Strong	Some	None	
A					
B					
Etc					

For projects of sufficient size that the complexity of engaging a private sector methodology is likely to be advantageous, provide a preliminary estimate of the financing structure and NET FUNDING to the local government – this is fed back to Tool 1 Step 5 (Format 5.1)

Format 2.2.2 Preliminary PPP potential

Project	Components	Private Financing (\$m)			Total Cost (\$m)	Total Funding Contribution (\$m)
		Equity	Debt	Other		
A						
B						
Etc						

2.1.4.3 STEP 3: Project triage

Step Three classifies and prioritises projects by investment size into those that are a) small and urgent and thus must use current revenue, and b) those that are large or that are small but less urgent and can be “bundled” into larger investment packages. Bundle small, non-urgent projects according to technical feasibility within sectors. The remainder of projects should be prioritised across sectors using a Goals Achievement Exercise (CDIA CIIPP-based) of all large projects – the sectoral prioritisation was established in Step 4 Tool 1.

Appendix: Description of GAM methodology

Format 2.3.1 Minor Works Analysis - Cost

Projects	Urgent & small? (Y/N)	Potential for bundling in larger financing? (Y/N)	Cost of Y/N (\$m)	Cost of N/N, Y/Y (\$m)
A				
B				
Etc				

The cost of minor works projects is than allocated across years.

Format 2.3.2 Minor Works Program

Funding source	Year				
	1	2	3	4	etc
Cost Project A					
Cost Project B etc					
Total Current Funding for Minor Projects					

2.1.4.4 STEP 4: Private Sector Assessment and Market Sounding

Step Four establishes how much government can leverage its funds with private sector equity or other money. First, it establishes if the potential PPP project (from Form 2.1) can be viable as a private sector project. If the answer is yes, and the project is deemed as feasible for private sector involvement, a “market sounding” is carried out. This relates to the likelihood of attracting private investors and/or finance to those projects identified for private sector implementation.¹⁹ Given this context, the cost and timing of potential private and public financing (international – including all costs – and national) of non-private investments need to be compared.

Format 2.4.1 Financing Type by Project

Project	Components	Private Financing (\$m)			Total Cost (\$m)
		Equity	Debt	Other	
A					
B					
Etc					

A **Decision Tree** helps select institution type and financing vehicle (if any)

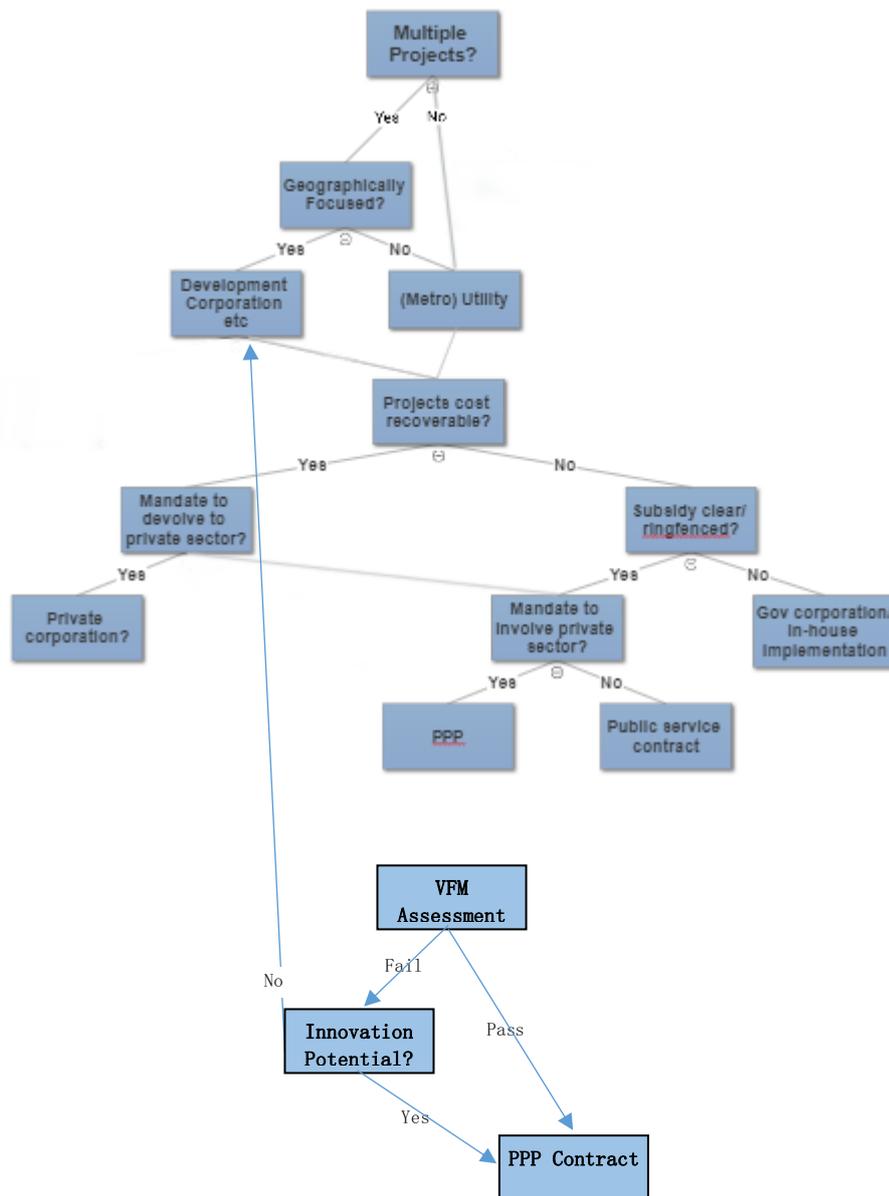
The key questions are:

- What is the nature of the “enterprise” or service?
- Does implementation of the investment program involve multiple projects or is it focused on one investment type?
- Is it geographically focused on one area of the city (eg a public transport corridor) > Development Corp; or is it metro wide (eg usually water supplies) > Metro Utility?
- Is the investment (or sub-investment) cost recoverable?
- Does the LG have the mandate to use private sector equity/ finance? > PPP or not
- Need for SPV? etc

The process is set out in the Figure below.

Figure 2.3

¹⁹ If there is no interest, or if the likely charges are deemed unacceptable, then the project(s) revert to public sector implementation and the process reverts to Step 2.



Appendix: VFM guidelines including market sounding

From this assessment the actual financing structures resulting from PPP can be determined. Repeat Format 2.2.2 projecting the contributions over time.

Format 2.4.2 PPP Resource Allocation

Project/ Source of Finance	Year				
	1	2	3	4	Etc
Project A					
Component 1					
Equity					
Debt					
Other					
Total Cost					
Revenue					
Net Revenue					
Funding Contribution*					
Component 2 etc					
Project B etc					
Component 1					
Equity					
Debt					
Other					

Total Cost Revenue Net Revenue Funding Contribution* <i>Component 2 etc</i>					
Project Totals <i>Component 1</i> Equity Debt Other Total Cost Revenue Net Revenue Funding Contribution* <i>Component 2 etc</i>					
Total Funding Contribution*					

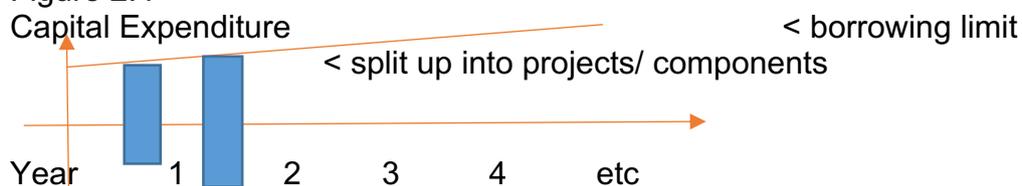
Note: * = net resources added to City funding ie not replacing city's own revenue and debt

2.1.4.5 STEP 5: Investment timeline

Step Five plots needed financing for prioritised projects (net of small urgent projects) and potential tied external grants, among projects according to their economic IRR and urgency as determined by the GAM approach in Step 3 over the investment period (including phasing of projects/ components) against financing/ funding limits as determined in Step 1. Figure 2.4 illustrates.

Input from Format 6.1 of Tool 1

Figure 2.4



Format 2.5.1 Additional financing potential

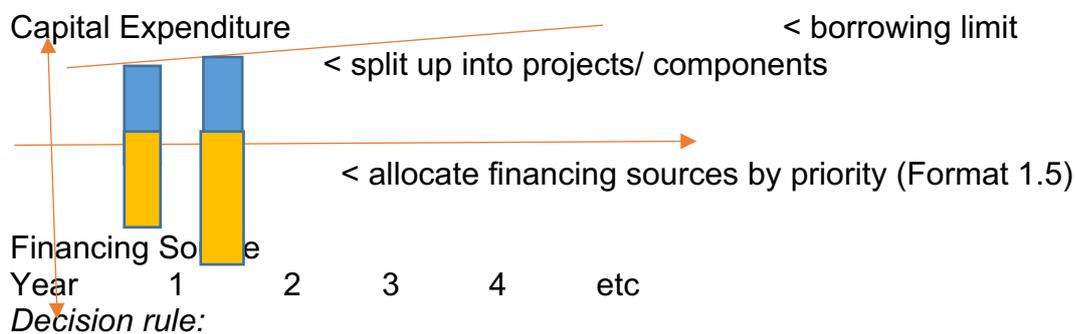
Funding source	Year				
	1	2	3	4	Etc
Total Funding Potential (including other sources & net Minor Works)					
Proportion available for finance					
Indicative incremental financing potential					
Total Financing Requirements of projects					

If Financing Requirements are greater than Financing Potential some projects will have to be postponed.

2.1.4.6 STEP 6: Financing source allocation

Step Six allocates recurrent revenue surplus (net of small urgent projects) and potential tied external grants, among projects according to their economic IRR and urgency using a GAM approach from Step 3 versus the available, lowest-cost financing set out in Step 1 and confirmed, in respect of the private sector, in Step 4 – the GIFF. Figure 2.5 illustrates.

Figure 2.5



Decision rule:

1. Apply cheapest applicable²⁰ funding first

Subject to:

2. Aligning timing of availability with scheduled²¹ start of project(s)²²
3. Aligning tenor of financing repayment with lifespan of project²³ or likely time to exit/refinance in relation to PPPs.²⁴

One financing source (such as Green bonds) can cover more than one project. In this case, reporting systems required of financiers need to be considered in the design of management systems for each project.

Format 2.6.1 Allocation of financing

Project/ component*/ source type	Financing Source (allocate cheapest applicable first)	Year				
		1	2	3	4	etc
Project A General debt service	Source 1					

²⁰ Obviously a grant given for water supply cannot be used on a bus station

²¹ The schedule should include realistic estimates of time for land acquisition, design and documentation, and approvals.

²² If the project is urgent then MDB/ GCF finance – which takes a minimum of one year to process and approve – is unlikely to be used unless there is an existing financing facility with unused capacity for which the project is eligible

²³ This is not binding – projects can be, and usually are, financed with tenors shorter than the project life, but the cost will usually be higher the shorter the tenor, and if the financing is structured so as to “roll over” the principle there is significant refinancing risk that should be taken into account.

²⁴ The refinancing risk, if it applies to the local government, should be factored in to likely cost of finance.

Enterprise debt service etc	Source 2 etc					
Project B General debt service	Source 1					
Project C Enterprise debt service	Source 2					
General debt service	Source 3					
Project D etc						

Note: * = components omitted for clarity (included in spreadsheet format)

2.1.4.7 STEP 7: Implementation structure

Step Seven is the process of establishing the legal and other structures required to implement the plan – and for monitoring the performance of financing, evaluating its effectiveness and reallocating resources as circumstances change (on a quarterly basis).

An implementation strategy needs to be documented with actions, responsibility, budget allocation where necessary (eg lawyers), and timeframe.



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