# Cost Benefit Analysis (CBA) WORKPLAN – Water Project Proposal for Lelu, Korsea.

## 1. Determine the Objectives of the CBA

### Problem

**Inadequate quantity of water for people at the end line areas of Lelu, Korsea.**

#### Cause(s) of problem

* Leakage of water pipe due to poor maintenance.
* Low pressure due to inadequate design like inappropriate pipe size.
* No price of water which creates disincentive to save water.
* Uncontrolled development. New pipes are added unsustainably due to poor monitoring.
* Degradation of catchment area affecting quality of water may would lead to muddy water supply
* rainfall variability and drought

#### Objective of project

**Ensure adequate quantity of water being supplied for people at the end line areas of Lelu, Korsea.**

### Options

**Demand side:**

* Education and awareness to communities on wise use of water.
* Pricing of water
* rationing water(i.e. regulating use of water)

**Supply side:**

* Repair pipes
* Redesign size of pipes
* Underground water supply or Increase dam size, to maintain water quantity.

You may want to consider screening out one or more of the abovementioned options that are to be assessed in this preliminary CBA If this is done, please provide sentence outlining rationale for excluding (e.g. increasing dam size does not address key cause of the problem ..).

### Objective(s) of CBA

The primary objective(s) is to determine whether the benefits of a project option outweigh its cost and by how much relative to other alternatives. The purpose of this is to (i) determine whether the proposed project is (or was) a sound investment (justification/feasibility); and/or (ii) compare between alternative project options (rank and prioritise).

## 2. Identify Costs and Benefits - With and Without Analysis

|  |  |  |  |
| --- | --- | --- | --- |
| Baseline - without project | Project option 1  Repair municipal owned leaking pipes  Or  Repair Household owned pipes (most cost and benefits are similar) | Project option 2  Redesigning of municipal owned pipes | Project option 3  Increase dam capacity or Underground water supply |
| **Cost:**  -additional quantity of water for households at end of line.  -increase water pressure for households in end of line in Lelu.  **Benefit:**  None to individuals at end of line in Lelu. | Costs | | |
| **Upfront costs**(leakage detection cost, labor costs, capital and materials costs)  Operating and maintenance costs | Design (field investigations, technical reports,)  -material and labor costs for new pipes | -large capital costs  -large labor costs (field investigation, research and design, technical supports)  -environmental damage nearby dam  -regular inspections and maintenance from experts. |
| Benefits | | |
| -additional quantity of water  -increase water pressure  Health benefits(due to increase in water supply)  -avoided damage and loss to road infrastructure  -increase in economic benefits from continuous water supply (school, businesses etc) | -additional quantity of water  -increase water pressure  Health benefits(due to increase in water supply)  -increase in economic benefits from continuous water supply (school, businesses etc)  -  (note: this benefits are similar to option one but actual amounts may differ) | -additional quantity of water  -increase water pressure  Health benefits(due to increase in water supply)  -continuous water supply  -increase in economic benefits from continuous water supply (school, businesses etc) |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Project option 4 Education and awareness to communities on wise water usage. | Project option 5  Pricing of water | Project option 6 rationing water(i.e. regulating use of water) |
|  | Costs | | |
| **-**labor cost  -training costs  Publication costs  -media promotion costs on TV and Radio.  -transportation costs | -increased in cost of living  -installation cost including meters  -administration costs to manage pricing of water  -operational costs | -operational costs  -awareness costs to inform about rationing system.  -Disruption costs. |
| Benefits | | |
| -additional quantity of water  -increase water pressure | -additional quantity of water for households at end of line.  -increase water pressure for households in interior parts of Lelu.  -efficient use of water i.e. decrease in water wastage  -increase in government revenue | -additional quantity of water for households at end of line.  -increase water pressure for households in interior parts of Lelu.  -efficient use of water i.e. decrease in water wastage |

## 3. Measuring and valuing costs and benefits

This section should detail the data/information needed to estimate each of the costs and benefits identified in the with and without analysis, and list where this data/information can be sourced. It should also state the intended 'method' that will be used to value each of the cost and benefit items identified.

**Project Option 1 Repair municipal owned leaking pipes**

|  |  |  |  |
| --- | --- | --- | --- |
| Cost/benefit | Valuation method | Data required | Source of data |
| Cost 1  Upfront costs(leakage detection cost, labor costs, capital and materials costs) | Market price |  |  |
| Cost 2 |  |  |  |
| Benefit 1 |  |  |  |
| Benefit 2 |  |  |  |

Note that, some cost and benefit items may be too abstract to measure or too small a consideration to justify going to the effort of collecting data and undertaking valuation analysis. For these such items, the table should list 'qualitatively describe and discuss' and briefly outline the reasons why this item will not be valued in monetary terms.

## 4. Aggregating costs and benefits

This section will detail how costs and benefits will be aggregated/computed over time.

Key matters to be outlined here include:

* choice of discount rate (to be used for cost estimates as a minimum);
* the process the group will follow to qualitatively evaluate benefit items (refer Preliminary CBA template, including worked example)[[1]](#footnote-2);
* the process the group will follow to make a qualitative judgement on net-benefits of each option (using traffic light system, refer Preliminary CBA template)[[2]](#footnote-3)

## 5. Sensitivity Analysis

List key parameters (e.g. length of drought period) for which there is a significant amount of uncertainty.

Describe how these uncertainties will be tested through a sensitivity analysis - e.g. through testing of upper and lower bound values of these parameters.

Also outline the basis for selecting values used in the sensitivity analysis.

## 6. Equity and Distributional Implications

Identify which stakeholder groups will incur costs and which stakeholder groups will accrue benefits for each major cost and benefit category.

This information should be summarised in the below table.

|  |  |  |  |
| --- | --- | --- | --- |
| Cost/benefit | Stakeholder group 1 | Stakeholder group 2 | Stakeholder group 3 |
| Cost 1 |  |  |  |
| Cost 2 |  |  |  |
| Benefit 1 |  |  |  |
| Benefit 2 |  |  |  |

Comment/assess whether impacts on certain stakeholder groups may merit special consideration (e.g. costs borne by low socio-economic groups).

Further comment on whether distributional effects will likely cause political or other issues that may threaten the successful implementation of the project - and could benefit from refinements to project design.

## Timeline

|  |  |  |
| --- | --- | --- |
| **Action** | **Date** | **Responsibility** |
| CBA Workplan | End of October,2014 | Water CBA Team Lead by Stanley and Palikkun |
| Data collection | Mid November | Tbd in updated draft |
| Data analysis | End of November | Tbd in updated draft |
| Draft CBA report | By Christmas,2014 | Tbd in updated draft |
| Peer Review | Mid-January,2015 | Tbd in updated draft |
| Final CBA report | Mid February, 2015 | Tbd in updated draft |
| CBA Finding Video | 1 March 2015 | Tbd in updated draft |
| Briefing paper on CBA report | Mid-March 2015 | Tbd in updated draft |
| Presentation on CBA report to xyz | End of March, 2015 | Tbd in updated draft |
| Incorporation of CBA report results and findings in project proposal and cabinet submission |  |  |

1. this could include a water CBA team meeting, once all relevant information has been collected and collated. [↑](#footnote-ref-2)
2. this could include a water CBA team meeting, once all relevant information has been collected and collated. [↑](#footnote-ref-3)