METHODFINDER

Practitioner's Guide:

Problem Tree Analysis

An example from a country in Northern Africa

Example

Planning for Utilisation of Unused Treated Waste Water

A sewerage treatment plant was built in a district in order to treat all waste water from the city. However, no clear plans were developed as to what should be done as far as the treated waste water is concerned. Ironically, the waste water was being treated but then the resulting water was not being used at all in an area where water is a very scarce resource. It is quite common for planners who only view problems from the purely technical perspective often forget important additional elements. They often oversee additional causes and effects that need to be considered in their plans, such as the actual use of the treated waste water.

The Planning Unit was requested to prepare a proposal on the most effective use that could be made of the waste water. In a first step, the planners analysed the causes as to why the waste water was not being utilised. This analysis was done using the problem tree analysis. In addition, field surveys were carried out to map the location and the potentials that exist in the area under review. The information generated provided the basis for elaborating a realistic proposal on the optimal use of the treated waste water.

Photo 1:   Problem tree analysis being undertaken in the Planning Unit
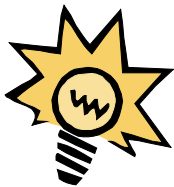
Problem Tree Analysis

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Procedure used:

Step 1 The small planning team approach was selected rather than conducting a large workshop.

Step 2 Expert opinions and ideas were collected by the planning unit in advance of their own meeting to determine the different points of view and positions.

Step 3 All of the problems and constraints mentioned by the experts were carefully collected.

Step 4 An internal meeting or workshop was conducted involving the members of the planning unit.

Step 5 The planning unit then identified the problems and these were then clustered. The clustering selected was based upon a priority list rather than the classical cause-effect relationships.

Step 6 Each "problem-field" or group was presented on a separate sheet. Additional information was added for each problem namely:

▶ Detailed specifications of the problem, for example the location and resource persons;
▶ The causes of each problem were identified, including the spatial location and frequency of the problem;
▶ The effects and possible solutions to the problems were assessed and detailed.

Step 7 The core or central problem for the particular group was identified and the causes and effects were sorted around this core problem.

Step 8 The results were depicted both in form of problem trees as well as spatially on the general development map of the city.

Example

Conclusion:

The result of the exercise was that decision makers were presented with a complete overview of the problems involved in the unused treated waste water situation. The causes, effects and possibly remedial solutions were thus identified more precisely. The decision-makers could then select the most appropriate solution.

Figure 1:   Example of the problem environment: Unused treated waste water

Problem tree diagram. EFFECTS: Agricultural Potential Unused; Costs for Water Treatment but no Returns; Water Evaporates or Seeps into the Ground. CORE PROBLEM: Unused Sewage Water. CAUSES: Inaccessible of sewage water to the cultivated land (High cost of land reclamation → The high levels of reclamation land above see 48 m → Insufficient finances); Shortage of infrastructure network (Roads unpaved and in a bad condition, Sewage water tank insufficient → Bad quality construction material, Tank capacity insufficient (1600m3) Should be 20000m3, Tank location not suitable (low area)); No demand for sewage water (Alternatives water resources (Rains, wells), No fast economic revenue, The fear of diseases of sewage water → Shortage of environmental awareness how to use sewage water, Unsuitable water for crop agriculture → Insufficient treatment for sewage water → Insufficient finances); Shortage of coordination between institutions (Shortage of using the previous studies, The sewage water waste project not delivered to city council mange).