

DEPARTMENT OF NATURAL RESOURCES & MINES

Planning Guidelines for Water Supply and Sewerage

Chapter 8

REMOTE OR SMALL COMMUNITY ISSUES

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Remote or Small Community Issues

1.0 Purpose

This chapter highlights some of the issues that need to be considered in the provision of water and sewerage services to small or remote communities.

2.0 Key Principles

Planners should take into account the ability of the community and service provider to fund, manage and sustain the proposed infrastructure.

The appropriateness of proposed solutions should be rigorously assessed.

Sustainable operational strategies are an essential consideration for planning studies for small and remote communities.

Regional solutions for service provision, management and operations should be considered for small or remote communities.

3.0 Background

Queensland contains 450 communities with a population of less than 1000 people. These account for nearly 75% of the State's communities but only 5% of its population. Of these communities 340 have populations ranging between 50 to 500 persons and many of these are remote. The provision of water and sewerage services to these communities requires the adoption of practical, appropriate solutions, which recognise the constraints that size and remoteness imposes on the delivery of these services.

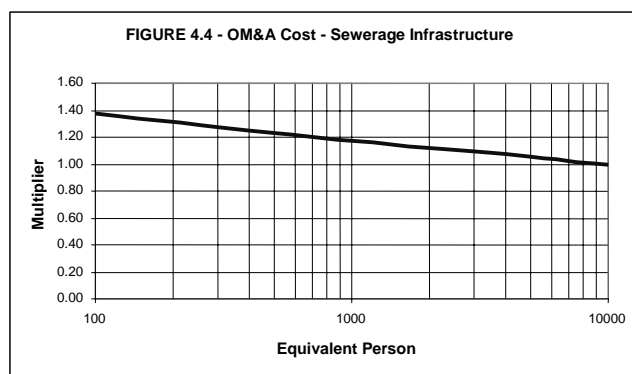
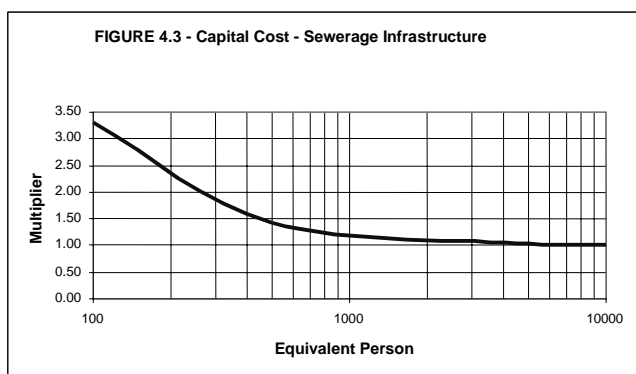
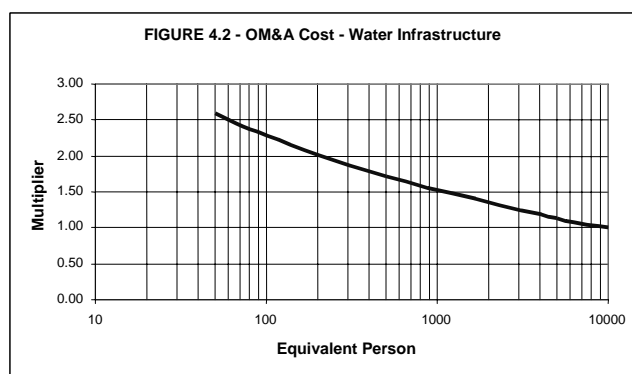
4.0 Why Is This Important?

The provision of reliable and affordable water supply and sewerage services is as essential to the public health and well-being of small communities as it is to larger urban centres. However, in many instances, service provision to the smaller and remote communities must overcome specific challenges that do not impact on the larger coastal communities. These include:

- Huge diseconomies of scale for both capital and operational costs. Figures 4.1 to 4.4 provide an indication of the level of these diseconomies of scale. For instance, Figure 4.1 indicates that the cost (per EP) of constructing a water supply scheme for a community of 100 people could be nearly five times that to service a community of 10,000 people.
- The costs associated with these diseconomies of scale mean that it can be difficult:
 - for service providers to charge customers the full cost to sustain the infrastructure in the long term
 - to provide the optimal infrastructure to meet desired service levels
 - to adequately resource the management and operation of the scheme
 - to attract suitably qualified and skilled staff.
- Declining population in some smaller and remote communities.
- Staff turnover.
- Reliance on one critical member of staff.

- Limited water source options.
- Costs of accessing specialist maintenance resources.
- Costs of planning studies can be high in relation to the total water supply and sewerage budget.
- Greater proportion of input required from customers and community in the operations and maintenance of the system.

Planners should recognise these, and other challenges, and develop appropriate strategies.



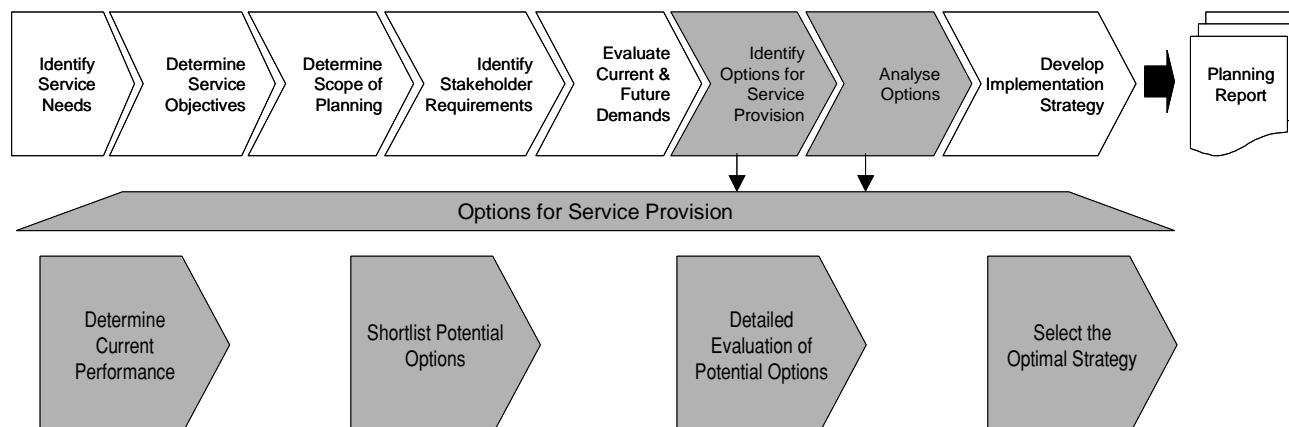
5.0 When Should These Issues Be Addressed?

Issues that particularly impact on small or remote communities should be addressed as early as possible in the planning process to minimise wasteful investment of scarce resources in inappropriate solutions.

6.0 Key Elements

The process for selecting the optimal strategy for the provision of water supply and sewerage services to small or remote communities will be the same as for any other community. The process is illustrated in Figure 6.1 and is described in Chapter 3 – The Planning Process and Chapter 7 – Options for Service Provision.

FIGURE 6.1 – Selecting the Optimal Strategy for Providing a Service



Issues that should be considered by the smaller service providers include:

- **How much should be invested in the planning study?** Before commencing on a planning study the service need should be identified and confirmed through consultation with key stakeholders. Potential savings can result from the critical evaluation of needs. For instance, fireflow capacity and infrastructure should be commensurate with the rural fire service capability. Consideration should also be given to the expected life of the community (eg. a mining town). Where the project is likely to have significant financial impact it would be desirable to determine what priority exists for this type of project under various financial assistance packages. The planning study should be an iterative process. It should commence with a feasibility study which will:
 - evaluate potential options (asset and non asset solutions)
 - provide indicative costs and financial impacts on customers
 - identify what further studies (and their costs) are required
 - identify potential risks particularly in relation to ongoing management and operation of the infrastructure and the impacts of cost estimate over-runs (capital and operational).

Should the project be feasible it can progress into a more detailed planning phase.

- **Availability and reliability of information.** Systems should be set in place to collect and store operational data. Due to the turnover of staff and reliance on one key person, it is essential that systems are set up to register and store all planning reports and related operational data. Smaller service providers should require all planning reports and related digital files to be provided at the end of a planning study. As constructed drawings should be provided, registered and maintained. Planning studies can be quite expensive in relation to a small service provider's water and sewerage budget. To obtain value for money, planning costs should be expended on analysis and optimisation rather than collecting and verifying raw data. However, for many small communities the collection and verification of raw data will be critical and a balance between the collection and verification, and analysis and optimisation will have to be achieved.

Problems can be experienced in obtaining reliable population statistics for small or remote communities.

- **Financial Assistance.** Financial assistance packages may be available for capital works. However, this availability should not be allowed to distort the analysis of options. The service provider should carefully consider its ability to financially and operationally sustain the infrastructure in the long term. The policy on cross-subsidisation between schemes should be clarified at the commencement of the planning study.

- **Population Decline.** The issue of population decline in some small communities will require serious consideration and needs to be addressed in any planning study. Similarly renewal of infrastructure by smaller capacity assets may be appropriate for these communities.
- **Population Fluctuation** In some small communities there may be short term and long term population fluctuations that will require serious consideration. Population data may not adequately reflect population peaks and troughs due to visitors, or during holidays, festivals or other events. An understanding of both the extent and duration of population fluctuation will be required.
- **Resource Sharing.** The planning study should evaluate the benefits of resource/skills sharing between neighbouring local governments for the management and operation of water supply and sewerage services. A regional approach for service provision should also be considered.
- **Options.** Chapter 7 – Options for Service Provision provides a range of options, many of which would be appropriate for small or remote communities. Resource sharing with neighbouring local governments may also be feasible in some circumstances. The features of an optimal solution for small or remote communities include:
 - technology that is appropriate to the locality and skills level of the service provider
 - proven track record in similar situations
 - low recurrent costs
 - ability to upgrade in later years (applicable where potential for significant growth exists)
 - infrastructure provided is “fit for purpose”.
- **Community Reaction.** Communities may react strongly to significant rate increases or the provision of services (eg. reticulated sewerage), which the community does not perceive as being necessary. In these instances community consultation is essential in the early stages of the planning process. Plan to develop ideas and systems slowly and inclusively so that the community can develop ownership of the ideas and designed systems.
- **Community Priorities:** Planners should consider the competing priorities of the community governance structure, as there are usually limited resources available.
- **Sustainable Capacity.** Planners should consider the following factors that contribute to sustainable water and sewerage services. These factors are applicable to all communities but can impact more on the smaller remote communities. These factors include:
 - **Community Capacity** which represents the ability of the community to sustain its population/demand for services and the capacity and commitment of the service provider to maintain the infrastructure to meet appropriate and targeted service levels.
 - **Infrastructure Capacity** which is the physical and operational capacity of the infrastructure. It addresses the technical considerations needed by the service provider to achieve required public health and environmental standards and considers infrastructure appropriateness, condition and limitations.
 - **Financial Capacity** of the service provider’s financial ability to sustain the service in the long term.
 - **Environmental Capacity** is the capacity/capability of the service to minimise environmental harm and to achieve environmental compliance.

- **Management and Systems Capacity** is the ability of the service provider to manage its infrastructure in an effective and efficient manner. It involves management, administration, technical and operational skills, staffing and systems, strategic planning, information management and risk management.
- **Service Levels.** Each service should be able to sustain service standards. For example:
 - water supply – quantity, quality and reliability of supply
 - sewerage – reliability of service and quality of effluent.

7.0 Checklist

Are the issues that will impact on provision of water or sewerage services to the community thoroughly understood?

What is the basis of this understanding?

What has been the level of stakeholder consultation in relation to matters such as:

- willingness to pay
- service standards
- impact on lifestyle
- willingness to undertake additional responsibility ?

Have all practical options (asset and/or non-asset) been seriously considered?

Are the preferred options appropriate in terms of resources and applicability?

Has the option of resource/skill sharing for system management and operation been thoroughly investigated? How was this undertaken?

Does the preferred option have a demonstrated track record? How has this been determined?

Have the risks associated with the project been clearly identified and what measures have been taken to minimise any risks?

Has the planning progressed to a stage where design can commence (subject to funding approval)? If not what further work is required?

Has actual community responsibility for the proposed designed system been identified and discussed?

8.0 Bibliography

Hughes A, Rose R, The Ultimate Indicator – Are Queensland Water Supply and Sewerage Services Sustainable, Enviro 2002 Conference, April 2002.

WSAA, 1999, Affordable Water Supply and Sewerage for Small Communities.