

ANALYSIS OF COST INCREASE

Major Reasons for Cost Increase

1. The overall project cost will increase by 25% from \$248.0 million to \$310.1 million. The increase is mostly attributed to the increase in cost for the civil works related to the construction of wastewater collection and treatment infrastructure, and preparation of land. At appraisal the cost for civil works was estimated at \$186.8 million. However, after completion of the design detailed engineering designs (DEDs) civil works are estimated to cost \$245.5 million. The revised estimated costs are 32% higher than appraisal costs, because the DEDs measured the length of tertiary and lateral sewers more accurately. At appraisal, due to limited availability of topography and geotechnical data, the length of trunk mains and main sewer was estimated at 71.5 kilometers. However, after more accurate measurements conducted during the preparation of the DEDs, the length of the sewer network increase to 267.2 kilometers. The DEDs also suggested to ensure a sufficient that greater depth of the sewers are required. These two elements, the increase in the length and deeper sewers contributed to the increase.

2. The DEDs of the wastewater treatment plants (WWTPs) also indicate more structural engineering content to address the constraint of the sites selected was required. For example the WWTP location in Makassar was originally a fish pond. To enable a proper operation of the WWTP, the land needed to be prepared with a certain structural engineering content. The overall cost for land acquisition and preparation and was estimated at \$11.5 million. The original cost estimate for land acquisition and preparation was \$8.6 million. Moreover, during the preparation of the DEDs the city administration requested for the effluent to meet local standards, which are more stringent than national standards. These also contributed to the increase in the construction costs of the WWTP.

4. The revised project cost also suggests an increase in the allocation for property connections. About \$21.7 million will be required to install the 44,300 connections. The original project cost estimated \$16.2 million for the construction of 82,900 property connections. The following table summarizes the comparison between the original and revised costs.

Table 1: Comparison of Original and Revised Costs

Expenditure	Original Cost \$'million	Revised \$'million
Civil Works (wastewater treatment plants, sewers)	186.8	245.5
Land Acquisition and Preparation	8.6	11.5
Property Connection	16.2	21.7
Consulting Services and Project Implementation Support	27.6	20.3
Project Management by Government	0.0	2.3
Financial Charges	8.8	8.8
Total	248.0	310.1

Source: ADB estimates