

SUMMARY ON CLIMATE CHANGE
(including estimated costs associated with Climate Change)

1. The results of AWARE¹ were considered in the preparation of the initial environmental examination (IEE) report. In this connection, a Climate Vulnerability and Risk Assessment (CVRA) had been incorporated in the IEE which also includes discussions on greenhouse gas (GHG) emissions. Likewise, additional costs that may be attributed to climate change adaptation are estimated at \$1 million representing about 2% of the ADB financing. Additional costs associated with climate change mitigation are considered negligible.

2. The AWARE results had a rating of MEDIUM for the subprojects in Lao PDR. However, for consistency with the other country-IEEs, a CVRA was still prepared and imbedded into the IEE. The discussions also include the GHG emissions of various subproject components. Cost attribution for climate change was also estimated. Additional costs for civil works that may be attributed to climate change arise from designing the Houayxay riverbank protection upgrade, and riverside road and walkway, with an extra height; and by designing drainage in both Houayxay and Luang Namtha to account for future rainfall increases due to climate change. There are also costs associated with the time spent by key experts (environmental, conservation and urban greening specialists and municipal, road, site and drainage engineers) to integrate climate change considerations into the detailed design and capacity building activities. In sum, these costs (and associated contingencies) amount to about \$1 million of the ADB loan of \$47 million. All of this cost is attributed to climate change adaptation.

¹ AWARE for Projects is an online tool used by ADB project teams to screen projects for climate risks. The tool uses data from 16 general circulation models, as well as databases on temperature increase, wildfire, permafrost, sea ice, water availability, precipitation change, flooding, snow loading, tropical storms, and landslides. For each project screened, the tool generates an overall climate risk ranking of low, medium, or high; key risk areas; and narratives on potential impacts and adaptive measures to guide subsequent activities