## Project Name
Guizhou Rocky Desertification Area Water Management Project

<table>
<thead>
<tr>
<th>Project Number</th>
<th>48468-002</th>
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<tbody>
<tr>
<td>Country</td>
<td>China, People's Republic of</td>
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<tr>
<td>Status</td>
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<tr>
<td>Project Type / Modality of Assistance</td>
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### Source of Funding / Amount
- **Loan 3564-PRC: Guizhou Rocky Desertification Area Water Management Project**
  - Ordinary capital resources
  - **US$ 150.00 million**

### Strategic Agendas
- Environmentally sustainable growth
- Inclusive economic growth

### Drivers of Change
- Governance and capacity development
- Knowledge solutions
- Private sector development

### Sector / Subsector
- Agriculture, natural resources and rural development
- Irrigation
- Land-based natural resources management
- Rural water supply services
- Water-based natural resources management

### Gender Equity and Mainstreaming
- Effective gender mainstreaming

### Description
The project is aligned with the following impact: livelihoods of people living in rocky desertification areas improved (Guizhou Provincial Government. 2011. Guizhou Provincial Master Plan for Water Resources Development, Ecological Improvement, and Rocky Desertification Management. Guiyang). The project will have the following outcome: rocky desertification area reduced. The project will have two outputs: (i) water resources conserved and (ii) environment, ecology, and land productivity restored.

### Project Rationale and Linkage to Country/Regional Strategy
The project will help the Guizhou Provincial Government (GPG) reduce rocky desertification areas and improve the livelihoods of people living in rocky desertification areas by conserving water resources; restoring environment, ecology, and land productivity; and increasing resilience to climate change.

Rocky desertification is characterized by vegetation degradation, soil erosion, and bedrock exposure. It occurs in various countries and regions, including the Mediterranean and Dinaric karst regions of the Balkan Peninsula as well as the southwest region of the PRC on a large scale. In the PRC, rocky desertification is one of the most serious land degradation problems in karst areas spreading in the southwest, which has a population of 220 million and overlaps the Yangtze River Economic Belt. Karst area is susceptible to rocky desertification because of the low soil formation rate and high permeability of limestone. Where arable flat land and water are limited, originally vegetated karst areas are cultivated by removing vegetation and planting rain-fed crops which are less effective for soil conservation. Soil erosion control is not conducted in most cultivation areas. Such repeated unsustainable cultivation has increased the rocky desertification areas. Climate change is expected to increase temperatures and the frequency and intensity of extreme climatic events, including storms. This could exacerbate rocky desertification by exposing the soil surface to warming and evaporation, and by causing physical damage such as erosion. Rocky desertification reduces vegetation, soil, land productivity, and arable lands; increases natural disasters such as landslides and debris flows; and deteriorates ecology, increasing vulnerability to climate change and deteriorating people's livelihoods.

Guizhou is in the southwest PRC and has a population of 35 million, of which 36.1% is ethnic minority. Agriculture, forestry, and fishery account for 16.3% of Guizhou's gross domestic product (GDP) much higher than the PRC average of 9.2%. Crop production is the most important agricultural activity (10.4% of Guizhou's GDP and 64.0% of its agricultural, forestry, and fishery products). Guizhou's total area is 176,167 square kilometers, of which 92.5% is mountain or hilly area. It has 112,240 square kilometers of karst areas (63.7% of its total area). Guizhou is in the Yangtze River Economic Belt and is an important province to develop the southwest and far west regions. It has the biggest rocky desertification area in the PRC, at 30,237 square kilometers (17.2% of its total area and 25.2% of the total rocky desertification area in the PRC). Water is necessary to change unsustainable land use and restore vegetation in rocky desertification areas. In the southwest PRC, including Guizhou, rainfall concentrates during the rainy season and becomes floodwater that cannot be used. Porous limestone formations cannot capture and store much rainfall. Much of the water drains into rivers quickly through numerous short creeks and streams that run deep in valleys, or through deep aquifers (groundwater rivers) in limestone layers. Although annual precipitation in Guizhou (1,273 millimeters) is much higher than the PRC average (622 millimeters), the amount of annual water supply per person (272 cubic meters [m³]/person) is about 60% of the PRC average (447 m³/person). To capture sufficient water and distribute it to users in karst areas, and to change unsustainable land use and restore vegetation in rocky desertification areas, water storage facilities are essential.

Guizhou has the lowest GDP in the PRC at CNY26,444, which is 56.7% of the PRC average. The rural poverty ratio in Guizhou (18.0%) is much higher than the national rate (7.2%). The poor population in rocky desertification areas accounts for 50.2% of Guizhou's total poor population. Rocky desertification is a main cause of the deterioration of livelihoods in Guizhou.

### Impact
Livelihoods of people living in rocky desertification areas improved

### Project Outcome

**Description of Outcome**
Rocky desertification area reduced

**Progress Toward Outcome**

**Implementation Progress**

**Description of Project Outputs**
Water resources conserved
- Environment, ecology, and land productivity restored

**Status of Implementation Progress (Outputs, Activities, and Issues)**

**Geographical Location**
Guizhou Sheng
Summary of Environmental and Social Aspects

Environmental Aspects
The project is classified category A for environment because of the potential environmental impacts from the construction of the two reservoirs and water transfer facilities (para. 32). An environmental impact assessment, including an environmental management plan (EMP), was prepared in accordance with the SPS. The EMP includes mitigation and monitoring requirements and institutional responsibilities to ensure proper environmental management throughout construction and O&M. The environmental impact assessment, including the EMP, was disclosed on ADB’s website on 19 December 2016.

Involuntary Resettlement
The reservoirs and water transfer facilities will cause significant resettlement impacts. A total of 2,261 households with 7,980 persons will be affected by permanent land acquisition, out of which 3,190 persons in 678 households will be physically relocated and resettled. A total of 534.3 ha of land will be affected permanently, including 13.0 ha of state land and 521.3 ha of collective land; 115.8 ha of collective land will be occupied temporarily; and 113,285.6 square meters of residential structures will be demolished. Resettlement plans have been prepared for Anlong and Nayong following the SPS and PRC laws and regulations, and were disclosed on the ADB website.

Indigenous Peoples
Ethnic minorities constitute 52% of the direct beneficiaries of the project. The EMP and resettlement plans address the adverse impacts of civil works, land acquisition, and resettlement. Other impacts will be mostly positive for ethnic minorities and other populations. Ethnic minority and social development plans were prepared in consultation with local stakeholders, including ethnic minorities, in accordance with the SPS; and have been disclosed to affected persons as well as on the ADB website.

Stakeholder Communication, Participation, and Consultation

During Project Design
Project information will be disclosed through ADB’s and government’s websites, meetings, interviews, focus group discussions, and community consultation meetings, in accordance with requirements of ADB’s information disclosure policy. Main stakeholders are the different agencies of the GPG, ACG, and NCG, beneficiaries, APs, and participants in the project implementation. Stakeholder communication is also part of the EMSDPs and the GAP, and will be monitored accordingly.

During Project Implementation
Same as above.

Responsible ADB Officer
Kobayashi, Yoshiaki

Responsible ADB Department
East Asia Department

Responsible ADB Division
Environment, Natural Resources & Agriculture Division, EARD

Executive Agencies
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Guizhou Province, P.O. Box: 550004, PRC

Guizhou Provincial Government (EA)
909693587@QQ.COM
No 43, Zhongshan West Road, Guiyang city, 550003
Guizhou Province, PRC

Loan 3564-PRC

Timetable
Concept Clearance 29 Jan 2016
Fact Finding 19 Sep 2016 to 26 Sep 2016
MRM 02 Jun 2017
Approval 20 Sep 2017
Last Review Mission -
Last PDS Update 21 Mar 2019

Financing Plan

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