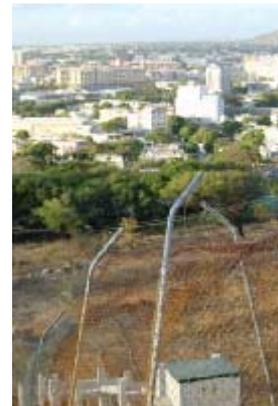
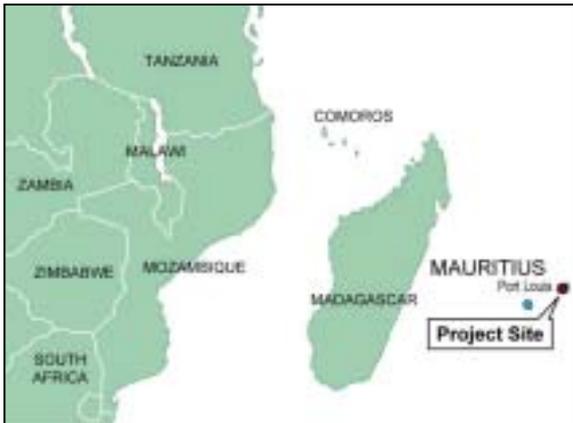


**1. Project Profile and Japan's ODA Loan**



Project Map (Port Louis)

Project Pictures

**1.1. Background**

The La Butte area, a poor residential district located in the west of Port Louis, the capital of Mauritius, has suffered from repeated landslides. Major elements of the infrastructure in the area, including houses, roads, schools and other public facilities, were destroyed or seriously damaged by major landslides that occurred in 1987 and 1988. Although the Government of Mauritius had taken corrective measures to tackle the problem by installing drainage wells, there was still a major risk of landslides, and more substantive measures were urgently needed.

**1.2. Objectives**

To protect residents in La Butte from landslides, through the construction of drainage wells, horizontal boring, and the installation of piles in the area threatened by landslides.

**1.3. Project Scope**

The construction of a drainage system, steel piling, water collection boring, horizontal boring in drainage wells, and consulting services were to be included in the project scope.

**1.4. Borrower / Executing Agency**

Government of the Republic of Mauritius/Ministry of Local Government, currently the Ministry of Local Government, Rodrigues Island and Rural and Urban Development (MOLG)

## 1.5. Outline of Loan Agreement

Loan Amount	2,922 million Yen
Loan Disbursed Amount	1,240 million Yen
Exchange of Notes	December 1993
Loan Agreement	August 1994
Terms and Conditions	
Interest Rate	3.0 %,
Repayment Period (Grace Period)	25 years (7 years)
Procurement	General Untied
Final Disbursement Date	December 1999

## 2. Results and Evaluation

### 2.1 Relevance

In Mauritius, a serious natural disaster could ravage the national economy by scaring off tourists and damaging the sugar cane industry and other agro-industries. The Government of Mauritius recognizes that the protection of local residents (e.g. 619 households in 2000) against natural disaster is a top priority today. In this sense, the project objectives have been and continue to be relevant to date.

### 2.2 Efficiency

#### 2.2.1 Project Scope

All physical works have been completed as planned, except for the reduced size of horizontal boring, from 1,670 m to 400 m. Additional works were conducted with the approval of the JBIC in May 1998, including (1) repair of the existing drain channel and construction of a new one and (2) replacement of stairs in the existing drainage and intermediate wells.

#### 2.2.2 Implementation Schedule

There was a delay in the commencement of construction work, owing to complex approval procedures within the Government. In addition, the civil works were extended two months because of the additional works.

#### 2.2.3 Project Cost

Of the total 2,922 million yen ODA loan, only 1,240 million yen, or less than 45% of the loan amount, was disbursed. This decrease of the project cost was mainly due to (a) Changes in the exchange rate between the time of the appraisal and the actual period for lending, (b) Modification of the project scope, mainly the reduction of horizontal steel boring, (c) Reduction of the project cost through the International competitive bidding process.

## **2.3 Effectiveness**

### ***2.3.1 Effectiveness of the project***

Since completion of the project in July 1998, topographical data from the project site -- including rainfall, temperature, ground displacement (extensometer readings) and ground water levels -- have been collected on a daily basis. Data submitted by MOLG from the extensometer show no ground displacement<sup>1</sup> at the sites where readings were taken, which indicates that there has been no signs of a landslide since then.

However, MOLG has reported some problems with monitoring the project, specifically with interpretation of the data taken by the extensometers, maintenance and handling of the installed equipment. Proper training courses in the area of the data interpretation from the extensometers, boreholes and rainfall are required for more efficient monitoring of the project.

### ***2.3.2 Economic Benefits***

At the time of appraisal, it was expected that the minimization of the risk of landslides would enhance economic activities in the area through improved road access and increased commercial activities. In the original EIRR calculation, averted economic damage to the area was considered a benefit. However, the EIRR was not re-calculated, as it was impossible to measure the benefit of the project.

## **2.4 Impacts**

### ***2.4.1 Impact of the project***

Because of the risk of landslide, in 1989 the Port-Louis city prohibited the construction of new residences and businesses. After the completion of the project, the ban was lifted, and there have been new construction works in the area. As of 2000, 158 public buildings and 731 commercial buildings exist. Judging from the situation, it can be said that this project contributed to the revitalization of economic activities by reducing the risk of landslide.

In the field survey, it was reported from the residents that the damages of houses and

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<sup>1</sup> 'Landslide' is defined as ground displacement of more than 1 mm.

facilities caused by the landslides before the project have not been repaired yet and these damages still affected the life of the residents.

#### ***2.4.2 Environmental Impacts***

There have been no negative environmental effects or resettlement cases reported either during or after the project implementation.

### **2.5 Sustainability**

#### ***2.5.1 Organizational Structure***

Since the appraisal, the implementation agency has changed its name from the Ministry of Local Government to the Ministry of Local Government, Rodrigues and Rural and Urban Development, but its function and legal status remain unchanged.

#### ***2.5.2 Operation and Maintenance (O&M) and Technical Capacity***

At the time of appraisal, it was anticipated that this project would not require complex operation and maintenance works. However, as mentioned above, MOLG has reported problems with monitoring the project. Though the Solid Waste and Beach Management Unit of the MOLG is handling the task of extensometer monitoring directly, the division is not specialized in landslide issues and technical officers lack proper skills in interpreting data from the extensometers, boreholes and rainfall. In addition, it is difficult to find proper training courses for this area of expertise within Mauritius.

## **3. Recommendations**

- a) The condition of the extensometers and MOLG's skills of interpreting data from the extensometers should be assessed by the expert of landslides.
- b) It is necessary to further examine the necessity of assistance for repairing the damages before the project.

### Comparison of Original and Actual Scope

Items/Activities	Original Scope (At time of Appraisal)	Actual Scope
<b>(1) Project Scope</b> <b>1. Drainage Small Wells Construction</b> <ul style="list-style-type: none"> <li>• Drainage Well</li> <li>• Intermediate Well</li> <li>• Groundwater Collection</li> <li>• Drainage Borehole</li> </ul> <b>2. Horizontal Boring</b>  <b>3. Piling Works</b> <i>3-1. For Main Landslide</i> <ul style="list-style-type: none"> <li>• Vertical boring</li> <li>• Steel pile installation</li> </ul> <i>3-2. For Small Landslide</i> <ul style="list-style-type: none"> <li>• Vertical boring</li> <li>• Steel pile installation</li> </ul> <b>4. Consulting Services</b> <ul style="list-style-type: none"> <li>• Tender assistance, supervision, TA</li> </ul>	3 wells (diam = 3.5 mm, L= 10-15 m) 1 well (diam = 3.5 mm, L= 11 m) 2,100 m (diam = 66 mm, L= 50-60 m) 200 m (diam = 116 mm, L= 50 m)  1,670 m  8,800 m (diam = 350 mm, L= 13-37 m) 8,420 m (outer diam = 300 mm)  576 m (diam = 350 mm, L= 16 m) 576 m (outer diam = 300 mm)  64 m/m	As planned Drilling within well As planned As planned  400 m (reduced)  As planned As planned  As planned As planned  N.A. (extended by 10 months)
<b>(2) Implementation Schedule</b> Selection of Consultant  Tendering / Contract  Civil Works	Aug 1994- Jan 1995  Jan 1995-Apr 1996  Apr 1996-July 1997	May 1995  Feb 1996 – April 1996  Feb 1997 – July 1998
<b>(3) Project Cost</b> Foreign currency Local currency <b>Total</b> <b>ODA loan portion</b> Exchange Rate	2,922 million yen 65,492 thousand MR 3,464 million yen 2,922 million yen 1 MR = 8.27 yen (as of Dec. 1992)	1,238.5 million yen 30.9 million MR 1,244 million yen 1,240 million yen 1 MR=5.45 yen (as of 1998)