

People’s Democratic Republic of Algeria

Ex-Post Evaluation of Japanese ODA Loan  
“Earthquake-Affected Education Sector Reconstruction Project”

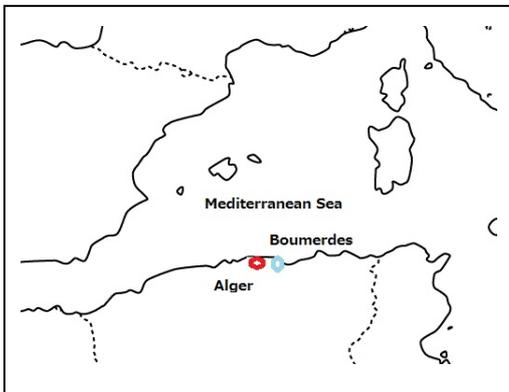
External Evaluator: Takeshi Daimon, Waseda University

**0. Summary**

This project was intended to rebuild primary, middle and high schools in Algeria—a country hit and severely damaged by an earthquake in May 2003 in order to attain the pre-quake level of education services as well as to realize highly earthquake-resistant school facilities using Japanese earthquake experience. The relevance of this project is considered to be high, because it reflects the reconstruction policy and needs of the education sector, as well as the core human infrastructure of the country, and is also consistent with Japanese assistance policy. The effectiveness as well as impact of the project is considered to be high, because the project was effectively realized nearly as planned, and the physical structure of the affected primary, middle, and high schools became more earthquake-resistant, allowing children to go back to school, and the quality of the educational services such as the class size was raised to the pre-quake level. However, the efficiency is considered to be low, because the project took much longer period and higher cost than originally planned. On the other hand, the sustainability is considered to be high, because there was no major institutional, technological and financial issue raised for the operations and maintenance.

In light of the above, this project is evaluated to be satisfactory.

**1. Project Description**



**Project Map**



**Rebuilt School (Boumerdes)**

## **1.1 Background**

On May 21, 2003, Algeria was hit by an earthquake that measured 6.7 on the Richter scale and whose epicenter was off the coast of Zemmouri in Boumerdes Province, 70 kilometers east of the capital city of Algiers, leaving a total of 2,274 dead, 11,452 injured (of whom 1,378 dead and 6,789 injured in Boumerdes, and 883 dead and 3,444 injured in Alger), about 1.8 million houses damaged, and many facilities providing public services either collapsed or rendered inoperative.

After the quake, Algerian Government gave top priority to assist the survivors by securing their immediate needs in terms of food and shelters, while at the same time launched a post-earthquake reconstruction plan (July 2003) requiring financial needs of 820 million US dollar for needy sectors (water management, health, education, port, road, airport, railway, and house, of which house is the largest size needing 490 million US dollar), asking assistance for donors including Japan.

The field survey<sup>1</sup> showed that victimized students of primary, middle, and high schools had to 1) use nearby classrooms and dormitories (for school masters, teachers, and students), 2) move to pre-fabricated temporary schools, or 3) quick-fix the existing schools. As a consequence, some schools had to have two-shift system, the average class size was higher than the national average, and the education materials (math, science, and arts) are not arranged, so overall educational environment worsened significantly since the earthquake. Also, those quick-fix or pre-fabricated temporary schools are less likely to resist the earthquakes of similar magnitude that may hit the nation again in future, which proved the necessity of rebuilding quake-resistant schools and this project was launched.

## **1.2 Outline of the Project**

The objective of this project is to rebuild primary, middle and high schools, in Boumerdes and Alger Provinces, especially damaged areas from the earthquake that hit Algeria in May 2003, by raising the quality of the education services in the assisted schools, thereby contributing to help recover the socio-economic situation of those areas.

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<sup>1</sup> This survey was conducted by the local consultant.

Loan Approved Amount/ Disbursed Amount	1,943 million yen / 1,486 million yen
Exchange of Notes Date/ Loan Agreement Signing Date	September 2004 / June 2005
Terms and Conditions	Interest Rate: 1.5% Repayment Period: 25 years (Grace Period 7 years) Conditions for Procurement: General Untied
Borrower / Executing Agency(ies)	People's Democratic Republic of Algeria / Ministry of National Education
Final Disbursement Date	November 2010
Related Projects	European Investment Bank (December 2003) Loan for Road and Transport Infrastructure, Water Resource Management, Schools and Houses (230.0 million euros), France (June 2004), Loan for Housing Related Infrastructure (50 million euros) JICA Technical Assistance "Algerian Earthquake Micro-Zoning Survey" (February 2005 to September 2006), etc.

## 2. Outline of the Evaluation Survey

### 2.1 External Evaluator

Takeshi Daimon, Waseda University

### 2.2 Study Period

This ex-post evaluation was conducted as follows:

Study Period: From October 2012 to August 2013

Field Survey: Cancelled

### 2.3 Limitations of the Evaluation

The field survey was cancelled due to a worsened security situation. Hence, this ex-post evaluation was conducted based upon a review of various reports and replies to a questionnaire

collected from the executing agency. Additional information was obtained from the executing agency through a local consultant.

### **3. Results of the Evaluation (Overall Rating: B<sup>2</sup>)**

#### **3.1 Relevance (Rating : ③<sup>3</sup>)**

##### **3.1.1 Relevance to the Development Plan of Algeria**

In July 2003, two months after the great earthquake, the Government of Algeria drafted a “Post-Earthquake Reconstruction Plan” (820million US dollar), covering water resource management, health, education, public works, public transportation, and housing. The reconstruction and rebuilding of the education sector, including this project, represented 16% of the whole plan, reflecting the country’s priority given to this sector.

The Algerian economy largely depending on the petroleum and natural gas sector, representing about 30% of GDP and more than 95% of its export, has pursued a policy by which to diversify the economic structure by, for example, developing a tourism sector, and to this end, human development has been pursued as a top priority policy, in order to realize high value added economy. This position has not been altered since the earthquake, and the high priority is given to the education sector; according to the latest “Five-Year Plan 2010–14,” 1,300 primary schools, 500 middle schools, and 500 high schools are under rehabilitation and 400 school dining halls are under construction.

##### **3.1.2 Relevance to the Development Needs of Algeria**

Boumerdes and Alger Provinces were the most severely damaged, and nearly 1/3 of school in Boumerdes and more than 1/10 schools in Alger were completely or near completely destroyed, and about 340 thousands students were affected. At that time, there were 331 primary schools, 64 middle schools, and 26 high schools in Boumerdes, and 820 primary schools, 257 middle schools, and 110 high schools in Alger; of these, this project assisted 36 of the most severely damaged schools.

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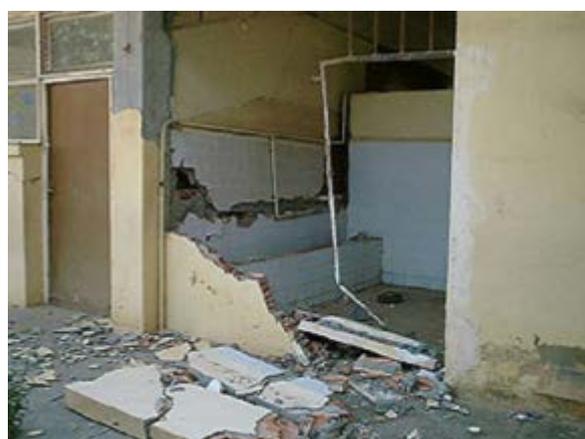
<sup>2</sup> A: Highly satisfactory, B: Satisfactory, C: Partially satisfactory, D: Unsatisfactory.

<sup>3</sup> ③: High, ②: Fair, ①: Low.

**Table 1 Number of Damaged Schools in Boumerdes and Alger Provinces**

	Province	Primary Schools	Middle Schools	High Schools
Total Schools	Boumerdes	331	64	26
	Alger	820	257	110
Damaged Schools	Boumerdes	238	45	25
	Alger	230	128	66
Severely Damaged Schools	Boumerdes	100	10	7
	Alger	64	37	18

Source: Algerian Ministry of National Education



**Figure 1 School Building Damaged by the Earthquake (Boumerdes)**

Source: Ministry of Foreign Affairs Web Page

This project selectively targeted the locations most urgently needing assistance for the reconstruction. Hence, this project was consistent with reconstruction and emergency needs.

### 3.1.3 Relevance to Japan's ODA Policy

Algeria is a resource rich economy, largely depending on the export of petroleum and natural gas, and, according to its per capita income measure, it is a middle income country; which usually means that the country becomes a recipient of market-based OOF (other official flows) rather than concessional ODA (official development assistance), the latter not extended since 1982, because its per-capita income became too high. In 1991, the country became ODA eligible again, but no ODA was extended, due to the worsened security situation. However,

from its humanitarian stance to help rebuild the nation affected by an earthquake disaster, JICA's Country Assistance Strategy for Algeria (2004) stressed the necessity to assist the reconstruction of the quake-inflicted country.

In February 2004, a JICA Technical Appraisal was conducted by an expert sent from the City Planning General Office of Kobe City who was well versed in the reconstruction of the city since the Hanshin–Awaji Great Earthquake (1995). As part of that appraisal, proposals for quake-resistant structure design, reflecting the Kobe experience, were made and some were adopted. Also, in relation to the project, activities took place, including seminars and model classes for natural disaster prevention which were realized in Alger with the help of Kobe City, participated by invited stakeholders (i.e., teachers and middle-school pupils)—many of whom took lessons from the Japanese experience vis-à-vis post-quake reconstruction.

This project, intended to help rebuild schools affected by the Algeria Earthquake, was therefore consistent with the reconstruction policy and needs of the time; it was also highly relevant to and consistent with Japan's ODA policy, in taking lessons from its own experience with post-earthquake reconstruction. From development perspectives as well, the necessity of developing human resources and national education remains to be high priority within the national development plan. Therefore, the project is considered to be highly relevant.

### **3.2 Effectiveness<sup>4</sup> (Rating : ③)**

#### **3.2.1 Quantitative Effects (Operations and Effectiveness Indicators)**

By the target year (2008–09), all effectiveness indicators have achieved their objectives, including school capacity (except for that of middle schools), a two-shift primary school system, class size at high schools (less than 36) and other indicators of quality of education. By 2011–12, class size at middle schools had also achieved their target of less than 37). By 2009–11, the number of students decreased by about 3,000, because in 2011, there were new schools constructed (19 primary schools [of which 11 in Alger and 8 in Boumerdes], middle schools [of which 3 in Alger and 5 in Boumerdes], high schools [of which 2 in Alger and 5 in Boumerdes]), resulting in changes to school districts and transfer of students. It is considered to be an improvement in quality of education, in the sense that they can go to school located closer to their residence.

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<sup>4</sup> Sub-rating for Effectiveness is to be put with consideration of Impact

**Table 2 Quality of Education Indicators**

	Before Earthquake (2002–03)	Target (2008–09)	Realized (2009–10)	Realized (2011–12)
Student Capacity in Assisted Schools (Number of Assisted Schools)	19,960	19,960 (36)	19,960 (35)	19,960 (36)
Enrolled Students in Assisted Schools (Number of Assisted Schools)	22,070	19,190 (36)	19,433 (35)	16,050 (36)
Improvement in Quality of Education				
Primary: Two-Shift (*)	1.23	1.00	1.00	1.00
Middle: Class Size	38	36 <	38	33
High: Class Size	35	37 < (**)	32	33

Source: Algerian Ministry of National Education

Note:

\* Number of classes / Number of classrooms; 1.00 indicates an end to the two-shift system.

\*\* Expected temporary expansion due to increased enrollment in high schools.

### 3.2.2 Qualitative Effects

Qualitative effects are part of the above mentioned “quality of education” indicators, all of which achieved their targets. Also, all newly constructed or rehabilitated schools under this project meet Algerian standards of building, which became more quake-resistant after the earthquake.

In summary, that this project overall has achieved the effect of “raising the quality of education of beneficiary schools to the pre-quake level” by “rebuilding primary, middle and high school facilities in Boumerdes and Alger Provinces.”

## 3.3 Impact

### 3.3.1 Intended Impacts

At the time of appraisal, the implementation of this project was expected to raise the quality of education services in the assisted schools in Boumerdes and Alger Provinces, thereby “contributing to help recover the socio-economic situation of those areas” . In fact, Algerians recognize the effects of rebuilding schools, in terms of: 1) expanded schooling opportunities, 2) saved schooling expenses, and 3) in rural areas, in particular) narrowed the educational gap between rural and urban schools.<sup>5</sup>

<sup>5</sup> This information comes from replies to a questionnaire disseminated by the evaluator.

At the time of the ex-post evaluation, the socioeconomic situation in both provinces has overall recovered and there was no evidence of a worsening in poverty or inequality situation, suggesting a high likelihood that this project and the post-earthquake reconstruction projects have had positive impacts, as expected.

### 3.3.2 Other Impacts

At the time of the appraisal, this project was not subject to the Environment Impact Assessment (EIA), because the project was intended to rebuild schools affected by the earthquake, therefore involving no resettlement or relocation of residents, having minimal natural or social environmental impact. According to information obtained locally at the time of the ex-post evaluation,<sup>6</sup> of the 36 assisted schools, all have been equipped with manuals for natural disaster, and 26 have ever conducted drills for earthquake disasters. The manual was drafted in cooperation with the Kobe City Education Board and translated into French and Arabic by JICA, for when the anti-disaster seminars and model classes were held in Alger in April 2008. These measures have contributed to raise awareness of natural disaster as well as to prevent panic when disaster actually takes place.

There were 7 schools for which new land properties had to be acquired, because of mobility of local residents, and change in enrolled students due to the construction of new apartments in those locations. Some of these properties were privately owned, and the landlords were properly compensated in terms of substitute properties or financial compensation) without any major dispute for relocation, according to the Ministry.

In conclusion, this project has largely achieved its objectives, therefore its effectiveness and impacts are high.

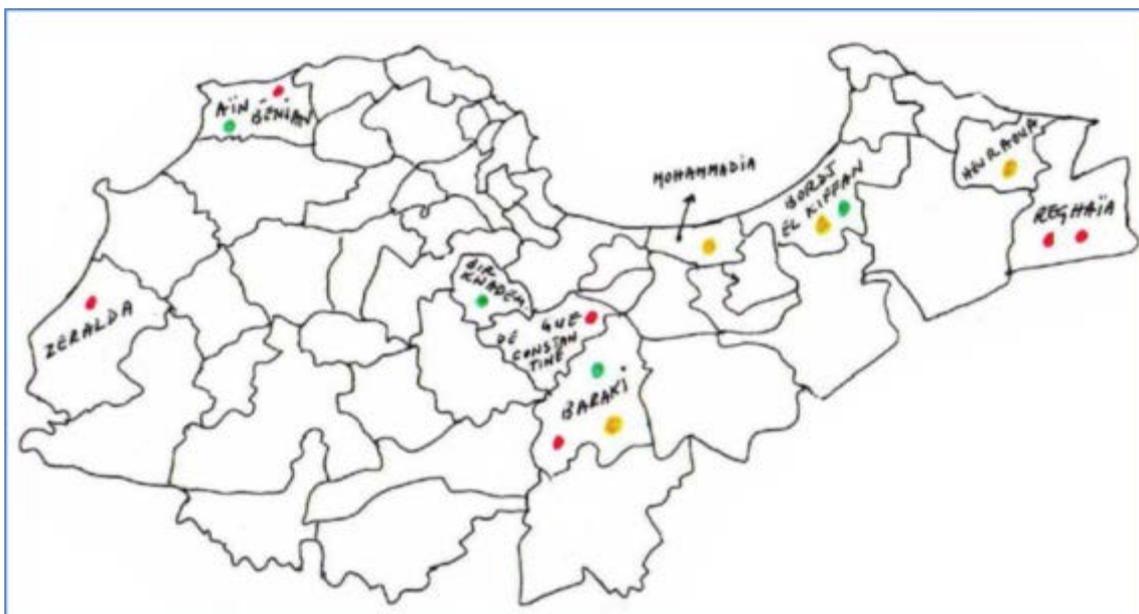
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<sup>6</sup> Hearing from the target schools was conducted in June 2013 by the local consultant, because the field survey by the evaluator was cancelled.

### 3.4 Efficiency (Rating : ①)

#### 3.4.1 Project Output

The original plan was to rebuild 36 primary, middle, and high schools, of which 26 primary (6 in Alger, 20 in Boumerdes), 4 secondary (4 in Alger), 6 high (4 in Alger, 2 in Boumerdes) schools; all of which was completed as planned. However, there was one primary school in Alger that was absorbed into another school that had been rebuilt. Also, 6 primary schools in Boumerdes City were merged into three schools as an organization, but since each school has two school complexes, there were effectively six school buildings rehabilitated as planned (see Table 3). Also, 3 secondary and 4 high schools were rebuilt in substitute land properties, because there were not suitable for the construction of buildings due to improper geological base. The school rehabilitation had to go through the Organisme de Contrôle Technique de la Construction (CTC) for technical inspection, approval of construction, and inspection of completion.



**Figure 2 Assisted Schools in Alger**

Note: Locations of primary schools are colored in red, middle in yellow, and high in green.



**Table 3 List of Rebuilt Schools**

Province/Commune		Name of School		Completion: Original Actual			
Primary	Alger	Zeralda	Quartier 1000 logements		2007	2009	
		Reghaïa	Abdehamid Ben Badis		2007	2009	
		Reghaïa	Frères Messaoudi		2007	2009	
		Ain Bénian	Cité Belle Vue 1		2007	2010	
		Gué de Constantine	Moufdi Zakaira		2007	2010	
		Baraki	Mohamed Laïd Khalifa (absorbed by Essalam)		2007	2010	
	Boumerdes	Ouled Moussa	Koudiate Ahcène		2006	2007	
		Ouled Moussa	1 <sup>er</sup> Novembre		2006	2006	
		Boumerdès	Les Sablières 1	Integrated as Figurer FAD 450 logements	2006	2011	
		Boumerdès	Les Sablières 2				
		Boumerdès	Boumerdès centre 1	Integrated as Ecole Ali Hamdane	2006	2006	
		Boumerdès	Boumerdès centre 2				
		Boumerdès	Boumerdès centre 3	Integrated as Bourmerdassi Ibrahim	2006	2006	
		Boumerdès	Boumerdès centre 4				
		Corso	Guedouari		2006	2006	
		Corso	Corso 232 chalet		2006	2009	
		Isser	Ounouagha		2006	2008	
		Si Mustapha	V.A. Si Mustapha Djadida		2006	2007	
		Bordj Menaïel	Ecole Site 1 (renamed École Site Jolie Vue)		2006	2008	
		Hamadi	Ben Hamza Djadida		2006	2007	
		Zemmouri	Douar Boussarah		2006	2008	
		Zemmouri	Douar Bendou, renamed as Ryal Ali		2006	2007	
		Cap Djinet	Haouch Ben Ouali		2006	2008	
		Benchoud	Benchoud		2006	2007	
		Nacira	Nacira (renamed Thala Koufi)		2006	2007	
		Baghila	Colonel Amirouche - Baghila		2006	2007	
	Middle	Alger	Bordj-El-Kiffan	Dergana Janoubia		2008	2009
			Baraki	Djemaa Bachir - Bentalha		2008	2009
			Mohammadia	Dr. Abdelmajid Meziane - Les Bananiers		2008	2009
			Herraoua	Malika Gaïd - Heuraoua centre		2008	2009
	High	Alger	Bordj-El Kiffan	Bordj El Kiffane - Cité Faizi		2007	2009
			Baraki	Ahmed Hamani - Bentalha		2007	2008
			Birkhadem	Birkhadem (renamed Mustapha Ourari)		2007	2011
Ain Bénian			Ain Bénian 1600 logements		2007	2010	
B		Béni Amrane	Béni Amrane Djadida		2007	2011	
		Baghlia	Baghlia		2007	2010	

Source: Ministry of National Education

### 3.4.2 Project Inputs

#### 3.4.2.1 Project Cost

The project cost turned out to be 3,180 million yen (or 2,255 million DA), which is 149% of original estimated cost of 2,128 million yen (or 1,438 million DA). Therefore, the project cost was significantly higher than planned.

**Table 4 Comparison of Project Cost**

	Original	Actual
Primary School Boumerdes	361	274
Alger	132	181
Secondary School Alger	265	493
High School Boumerdes	243	410
Alger	437	897
Total	1,438	2,255
Yen Equivalent	2,128 million yen	3,180 million yen
Exchange Rate (1DA=)	1.48 yen (February 2004)	1.41 yen (June 2006~August 2011 average)

Source: Ministry of National Education

Note: The original project cost was reconfigured according to the breakdown categories reported as the time of post-evaluation.

According to the Algerian authorities, reasons for the increase in cost: 1) inflation, especially with respect to materials and labor cost, 2) fluctuation of the exchange rate (i.e., devaluation of DA), 3) change in project location, and resulting additional geological surveys, 4) re-appraisal of approval of school construction, and 5) additional expenses due to land quality – land base problems.

#### 3.4.2.2 Project Period

From the signing of Loan Agreement (June 2005) to the handover of the last school (August 2011), it took 75 months long. This represents 182% of the original period of 41 months (December 2004 to April 2008). Therefore, the project period was significantly longer than planned.

Reasons for the delay included the following: 1) nearly half schools that needed to secure new land properties because of relocation of local residents and change in enrolled students due to construction of apartments, 2) for some schools, originally planned to be rebuilt in the same location, land quality-land base was not appropriate and they needed to look for new properties,

3) some bidding process was cancelled and they had to announce a new bid, and 4) a new law on public property management was drafted which delayed the business and administrative procedures.

In summary, both project cost and project period were significantly exceeded the plan, therefore efficiency of the project is low.

### **3.5 Sustainability (Rating : ③)**

#### **3.5.1 Structural Aspects of Operation and Maintenance**

Since the time of appraisal, there has been no organizational change in operation and maintenance of the project. Namely, the executing agency remains the Ministry of National Education, while the operation and maintenance of each school are taken care of by the local provinces (i.e., Boumerdes and Alger). Teachers (at primary, middle, and high schools) as well as provincial directors of education are all considered staff members of the Ministry.

According to Algerian law, the maintenance and repair of school buildings are taken care of by the Ministry only after 5 years have passed since the construction. Until then, communes take care of basic maintenance (such as painting, and window repairs, etc.). Daily maintenance (cleaning and security) is taken care of by the communes in primary schools, and by staff sent from respective province at secondary; in middle and high schools (in both cases maintenance staff is technically Ministry officials. No major issue has been raised for the operation and maintenance.

#### **3.5.2 Technical Aspects of Operation and Maintenance**

In all 36 assisted schools, regular maintenance is conducted on a daily basis. Depending upon the school size, there are 2 to 7 maintenance staff members in primary schools, 3 to 7 in middle schools, and 7 to 12 in high schools. In primary and middle schools, they are in charge of cleaning and security as well as basic repair (for example, change of broken light bulb, repair of window glass), but major repair needing specialized skills including (e.g., rain leakage or electricity repair) is taken care of by external contractors out of the provincial or commune budget. The daily operation and maintenance (cleaning and security in particular) require no special training, and no major issue has been raised so far.

### 3.5.3 Financial Aspects of Operation and Maintenance

Out of “facilities and equipment budget” of the Ministry of National Education, 50 billion DA (or some 60 billion yen) is budgeted for the five years of 2010–14, of which 3 billion DA (or about 3.6 billion yen) for Alger and 2 billion DA (or about 2.4 billion yen) for Boumerdes are assigned. This implies that on an annual basis, Alger schools will receive 720 million yen (or 0.61 million yen per school) and Boumerdes schools will receive 400 million yen (or 0.95 million yen per school), which is sufficient to cover daily operation and maintenance. In case of need, more budgets will be allocated for specific operation and maintenance costs through provinces or the communes on the basis of report from the local council in charge of technical services.

However, these budgets are not “pre-assigned” annually or explicitly for respective schools, and all expenses are covered by the national budget in case of need through the provinces and communes, which makes it very difficult for each school to keep records of financial expenses for operations and maintenance, and also because the cost of repairs etc. depends on uncertain factors (such a frequency and level of mal-function) and therefore, schools are usually not aware of the actual cost spent on these items. On the other hand, in the middle and high schools, daily maintenance (change of light bulbs, purchase of sweeping materials, painting, etc.) is allocated budgeted at their disposal (Table 5).

**Table 5 Routine Maintenance Costs at Middle and High Schools**

Unit: DA		School Name	Annual Maintenance Cost	
Middle	Alger	Bordj-El-Kiffane	Dergana Janoubia	100,000
		Baraki	Djemaa Bachir-Bentalha	200,000
		Mohammadia	Dr. Abdelmajid Meziane-Les Bananiers	140,000
		Herraoua	Malika Gaïd - Heuraoua centre	417,000
High	Alger	Bordj-El Kiffan	Bordj El Kiffane-Cité Faizi	650,000
		Baraki	Ahmed Hamani - Bentalha	734,000
		Birkhadem	Mustapaha Ourari	632,203
		Ain Bénian	Ain Bénian 1600 logements	575,000
	B	Béni Amrane	Béni Amrane Djadida	800,000
		Baghlia	Baghlia	939,000

Source: Hearing from schools.

### 3.5.4 Current Status of Operation and Maintenance

All 36 schools have been inspected as part of the ex post evaluation, which confirms that all building and facilities have been maintained appropriately on a daily basis, and no major issue has been raised. After the project, 2 primary schools (both in Boumerdes) and one high school dormitory (in Alger) have repaired for rain leak and one high school (in Boumerdes) rehabilitated teachers' lounge. These examples show that, when a necessity arises, a sufficient budget is allocated to cover repairs, even beyond the daily maintenance level.



(a)



(b)



(c)



(d)

**Figure 4 Some of the Assisted Schools**

- (a) Brahim Boumerdassi Primary School (Boumerdes)
- (b) Heuraoua Centre (Malika Gaïd) Middle School (Alger)
- (c) Mustapha Ourari High School (Alger)
- (d) Abdelhamid Ben Badis Primary School (Alger)

No major problems have been observed in the operation and maintenance system, therefore sustainability of the project effect is high.

## **4. Conclusion, Lessons Learned and Recommendation**

### **4.1 Conclusion**

This project was intended to rebuild primary, middle, and high schools in Algeria, a country hit and severely damaged by an earthquake in May 2003, in order to attain the pre-quake level of education services as well as to realize highly earthquake-resistant school facilities using Japanese earthquake experience. The relevance of this project is considered to be high, because it reflects reconstruction policy and the needs of the education sector, the core human infrastructure of the country, and is also consistent with Japanese assistance policy. The effectiveness as well as impact of the project is considered to be high, because the project was effectively realized nearly as planned, and the physical structure of the affected primary, middle, and high schools became more earthquake-resistant—thus allowing children to go back to school, and the quality of educational services such as the class size was raised to the pre-quake level. However, the efficiency is considered to be low, because the project took much longer period and higher cost than originally planned. On the other hand, the sustainability is considered to be high, because there was no major institutional, technological and financial issue raised for the operations and maintenance.

In light of the above, this project is evaluated to be satisfactory.

### **4.2 Recommendations**

#### 4.2.1 Recommendations to the Executing Agency

None

#### 4.2.2 Recommendations to JICA

None

### **4.3 Lessons Learned**

It is highly relevant for Japan to assist earthquake-affected countries, given its own experience as a quake-driven country. Needless to say, for aid to be effective, it is imperative to have a good coordination between financial and technical assistance, and in this sense, a good lesson drawn from this project is the case of anti-disaster seminars and model classes realized in this project, in cooperation with Kobe City Education Board.

Comparison of the Original and Actual Scope of the Project

Item	Original	Actual
1. Project Outputs	Rebuilding of 36 primary, middle, and high schools, of which there were 26 primary (6 in Alger, 20 in Boumerdes), 4 middle (4 in Alger), and 6 high (4 in Alger, 2 in Boumerdes)	As planned
2. Project Period	December 2004–April 2008 (41 months)	June 2005–August 2011 (75 months)
3. Project Cost  Amount paid in Foreign currency Amount paid in Local currency Total Japanese ODA land portion Exchange Rate	2,128 million yen 0 million yen 2,128 million yen 1,943 million yen DA = 1.48 yen (As of February 2004)	3,180 million yen 0 million yen 3,180 million yen 1,943 million yen 1 DA = 1.41 yen (June 2005–August 2011 average)