

**NORTHEAST ASIAN APPROCHES TO ALGERIA: IN THE FIELD OF  
INFRASTRUCTURE FROM THE DEVELOPMENT COOPERATION STANDPOINT**

**By**

**PARK, Jeong-Sun**

**THESIS**

Submitted to  
KDI School of Public Policy and Management  
in partial fulfillment of the requirements  
for the degree of

**MASTER OF PUBLIC POLICY IN ECONOMIC DEVELOPMENT**

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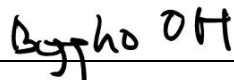
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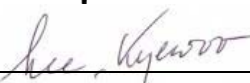
MASTER OF PUBLIC POLICY IN ECONOMIC DEVELOPMENT

Committee in charge:

Professor Byung Ho OH, Supervisor

  
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Professor Kye Woo LEE

  
\_\_\_\_\_

Professor Tae Jong KIM

  
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I would also like to express my appreciation to all the people who had helped me complete the thesis. Especially, I would like to express my most sincere gratitude to professors Byungho Oh, Kyewoo Lee and Hunjoo Park whose the most precious and valuable comments and suggestions, warm encouragements and cool-headed criticisms challenged me. Especially, I would like to express my most sincere respect to Professor Byungho Oh who has cheered up during my writing of this thesis for me not to give up and who gave me warm and inspiring words near the end of this thesis writing. I would like to express my sincere respect and my affectionate gratitude to all the professors and all the students of KDI School.

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## **Abstract**

While much has been written about Asian approaches of development cooperation to Africa, studies on Asian approaches to Algeria remain unknown. Asian approaches—based on perspectives different from those of Europe—would be valuable for Algeria to make it possible to apply Asian successful economic growth models to Algeria.

This research attempted to find out whether infrastructure development is linked to economic growth in Algeria and whether Northeast Asian countries' roles are different for the infrastructure development from the development cooperation standpoint.

As methodology, the main data were collected through on-line interviews and archives from ODA-related international organizations.

As Algeria is located at the aid-exit stage thanks to the oil and gas export revenue, this research focuses more on infrastructure development which is the foundation for future economic growth by including private sector cooperation in the development cooperation, as well as development cooperation through aid agencies. Northeast Asian countries' approaches to Algeria are concerned with their own strengths which has led successful economic growth. China has been leading “Construction Boom” in Algeria on the basis of low cost, rapid progress and capital strength. Japan has been focusing on energy sector and road construction sector in Algeria on the basis of high quality, cutting-edge and economic technology. And South Korea has been engaging in diverse infrastructure sectors in Algeria on the basis of good quality in terms of cost-effectiveness. On the other hand, their weaknesses in the Algerian local business environment are left in abeyance for the sustained and enhanced cooperation between China-Japan-South Korea and Algeria. China has weaknesses such as weak transparency and low quality. Japan has weak spots such as high price and lack of flexibility. South Korea has weakness such as relatively weak price comparativeness

comparing to China or India.

In order to switch from an oil-dependent country to an oil-based growing country, further researches on relations between these Northeast Asian countries and Algeria with regards to the industrial diversification will be needed to overcome two main barriers in Algeria: oil dependency and youth unemployment. This study on cooperation between China-Japan-South Korea and Algeria in the infrastructure sector would be the basis for the future cooperation between them in the future diverse industries.

**Keywords:** Infrastructure, Development Cooperation, Northeast Asia, China, Japan, South Korea, Algeria



## Abbreviation

AfDB	African Development Bank
AfEO	African Economic Outlook
AICD	Africa Infrastructure Country Diagnostic
AIDI	Africa Infrastructure Development Index
AIIB	Asia Infrastructure Investment Bank
AIKP	Africa Infrastructure Knowledge Program
ANDI	National Agency for Investment Development
ANA	Algeria's National Agency of Highways (Agence Nationale des Autoroutes)
CDB	China Development Bank
China EXIM Bank	the Export-Import Bank of China
CNPC	China National Petroleum Corporation
CRCC	China Railway Construction Corporation Limited
CSCEC	China State Construction Engineering Corporation
DAC	Development Assistance Committee
FOCAC	Forum on China-Africa Cooperation
GDP	Gross Domestic Product
HDI	Human Development Index
ICT	Information and Communications Technologies
IMF	International Monetary Fund
IMF WEO	International Monetary Fund World Economic Outlook
JICA	Japan International Cooperation Agency
KAF	Korea-Africa Forum

KDI	Korea Development Institute
KIET	Korea Institute for Industrial Economics & Trade
KOAFEC	Korea Africa Economic Cooperation
KOICA	Korea International Cooperation Agency
Korea EXIM Bank	the Export-Import Bank of Korea
KOTRA	Korea Trade-Investment Promotion Agency
KRIHS	Korea Research Institute for Human Settlements
KSP	Knowledge Sharing Program
NEPAD	New Partnership for Africa's Development
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PPI	Private Participation in Infrastructure
PPP	Public-Private Partnership
SINOPEC	China Petroleum & Chemical Corporation
TICAD	Tokyo International Conference on African Development
UNDP	United Nations Development Programme
UNSC	United Nations Security Council
U.S. EIA	U.S. Energy Information Administration
WB	World Bank

## **I. INTRODUCTION**

### **A. BACKGROUND OF THE STUDY**

In recent years, Asian approaches to Africa have been actively studied in the development arena. Japan—a member of OECD/DAC—is actually no longer a dominant player in Africa, but China—a non-DAC donor—has become one of the biggest sources of influence on the recipients. South Korea, as one of the emerging donors like China, India and Thailand, has been expanding its own role into African recipient countries, especially after joining the OECD/DAC in November 2009. These three Northeast Asian countries have been continuing their cooperative and competitive relationships one another in the political, economic and cultural spheres. And also, with regards to development cooperation, these nations have been resorting to different approaches on the basis of their own policies, capacities and experiences of economic development.

Algeria located in North Africa is the second-largest natural gas producer and one of the top three oil producers in Africa (U.S. EIA 2014, para. 1). Algeria's political system is relatively stable compared to other African countries, and its GDP growth has been recorded between 2.8 and 4.1 percent over the last five years (IMF WEO 2015). It was mainly driven by heavy oil and gas export revenue. Meanwhile, its oil dependence is one of the major barriers for its economic growth, along with youth unemployment. As having been causing worry, the oil price decline in 2014 has directly influenced Algeria's economy. Eventually, Algerian government decided to freeze public sector hiring and postponed funding mega-projects to save cash in early 2015 (Khettab 2015).

From the development cooperation standpoint, it is interesting that Algeria is not an aid-dependent country but an oil-dependent one. Algerian government decided to stop borrowing loans from the outside world including multilateral banks in 2006. To achieve their economic

growth, Algerian government have mapped out national development plans, and developed preferentially their infrastructure with oil money. In fact, private sector's participation in the infrastructure sector is more important in Algeria than ODA-related cooperation from the development cooperation standpoint. For the infrastructure development, Algeria has been cooperating with Asian partners such as China, Japan, South Korea and India, as well as European partners such as France, Spain and Italy. In particular, China has been leading "Algeria Construction Boom" based on low bidding price and fast process for the last decade. Japan has been participating mainly in energy and transportation projects. And South Korea has been participating mostly in transportation, building and power plant construction projects (Washington Times 2010). Thus, Algeria has received more grants than loans from ODA agencies since 2006. As part of development cooperation by Asian countries, KOICA and JICA have been providing grant-type programs, mainly focusing on technical assistance.

## **B. OBJECTIVES OF THE RESEARCH**

From these facts, it would be worth analyzing Northeast Asian countries' approaches to Algeria which has huge growth potential thanks to a great deal of oil and gas reserves, especially in the field of infrastructure in which China-Japan-South Korea has been actively participating.

The objectives of this thesis are: 1) to ascertain the linkage between infrastructure development and economic growth in Algeria; 2) to understand the difference among these three countries' approaches to Algeria in the infrastructure sector through their histories about the relations with Algeria and some cases; 3) to investigate better cooperation between China-Japan-South Korea and Algeria by comparing the advantages and the disadvantages of these three countries' cooperation with Algeria in the infrastructure sector.

### **C. RESEARCH QUESTIONS**

The main research questions are: one is whether infrastructure development is linked to economic growth in Algeria. To answer this question, I will examine the importance of the infrastructure development in Algeria and I will review the relationship between AIDI (Africa Infrastructure Development Index) and GDP per capita, and the relationship between AIDI and HDI (Human Development Index) and other socio-economic data. Another is whether Northeast Asian countries' roles are different for the infrastructure development from the development cooperation standpoint. To answer this question, I will study the differences of Northeast Asian countries' cooperation with Algeria for the infrastructure development in Algeria by including the cooperation in the private sectors and the cooperation in the form of PPP (Public-Private Partnership), as well as the cooperation through ODA between these three countries and Algeria in the context of development cooperation.

### **D. METHODOLOGY**

The main data collection methods were through on-line interviews and archives. I conducted interviews with a Resident Representative in KOICA, a Korean senior engineer who is working in the infrastructure sector in Algeria, a former Algerian executive director of ANA (Algeria's National Agency of Highways: Agence Nationale des Autoroutes) and two Algerian engineers respectively at senior and medium level who are attending infrastructure projects in Algeria. For each interview, I sent them several questions and received their responses on-line, and then we communicated in real-time through communication platforms. These on-line interviews lasted for around 2 hours. Some interviewees attended on-line interviews more than once. For preliminary information, I searched for data on web pages of ODA-related international organizations such as WB, IMF, OECD, UNDP, AfDB, KOICA and JICA, as well as research papers and several journals etc.. Also I received directly some

documents from relevant organization such as KOICA in Algeria.

The structure of this thesis is as follows. Firstly, I will start with literature review and will look at the characteristics of China-Japan-South Korea's relations with other country, Cambodia and with Africa to look at three countries' features and other authors' diverse perspectives in the comparative studies on China-Japan-South Korea's approaches to Africa or other country in the development cooperation arena. Secondly, I will examine the linkage between infrastructure development and economic growth in Algeria. In this chapter, this thesis will show why Algeria was chosen, why infrastructure development is important in Algeria and how infrastructure development has affected Algeria. Thirdly, I will study the characteristics of three Northeast Asian countries' cooperation with Algeria, focusing on the infrastructure sector, as well as three Asian countries' development cooperation in Algeria by presenting one representative case per each country. Fourthly, I will discuss and analyze the findings of the study. It will include the meanings the infrastructure development in Algeria and China-Japan-South Korea's differences and similarities in the cooperation with Algeria. Finally, I will summarize the main points and will recommend some issues for the future study.

## II. LITERATURE REVIEW

So far, much has been said about Asian countries' approaches to Africa. However, even though the diplomatic and economic cooperation between these three Asian countries and Algeria has been recently energetic, little research has been carried out on Asian countries' approaches to Algeria. In terms of development cooperation, Algeria has been cooperating mainly with European countries such as France, Italia and Spain, not with Asian countries. Also, although diplomatic relations existed for a long time, the economic cooperation between China-Japan-South Korea and Algeria has been active since the 2000s.

Sato et al. (2011) analyze the institutions of foreign aid in Cambodia from a recipient perspective. They compare the differences between emerging donors such as China, Korea and Thailand and traditional donors like Japan. The authors use interview method in practical, concrete and in-depth manners. Sato et al. reach three conclusions. Firstly, although emerging donors do not have any DAC-style offices or coordination methods, they have tremendous diversity like "unique bilateral institutions that reflect their particular political, economic, and historical relationships with the recipient country and the aid strategies that these relationships have produced" (Sato et al. 2011). Secondly, emerging donors have "commonalities with their traditional counterparts" (Sato et al. 2011). That is, they have applied the experiences while they were the recipients to their current recipients. For example, Korea and Thailand follow the management styles on the basis of DAC standards, but China follows the way that Japan conducted in the 1970s and 1980s by dealing with the issues on site with the approval from headquarters in the home country. Thirdly, from the recipient perspective, emerging donors can be accepted because they can provide some solutions against financial crunch in the infrastructure sector while traditional donors cannot do that, because traditional donors concentrate on social sectors in the supply-driven way (Sato et al.

2011). In brief, Cambodia can have more options through donor fragmentation for its own economic development. Actually, for Cambodia, China is “a good partner” who can satisfy “the needs of the Cambodian government and predictability” (Sato et al. 2011). With interviews, the authors argue that the Cambodian government officials seem to be “satisfied with the amount, speed of delivery, cost, and responsiveness to Cambodian aspirations of aid from China.” In the article, the authors mention that emerging donors are “reliable and useful alternatives to promote balanced development” (Sato et al. 2011).

Iwata (2012) summarize the history of relations between four Asian countries (China, Japan, India and South Korea) and Africa. And then, he analyzes main characteristics of their African policies through comparative method. The author found “more similarities than differences” and “Asia-ness” among them (Iwata 2012). The author adds that these four Asian countries have pursued their own models in order to approach Africa on the basis of their own experiences (Iwata 2012). But he wonders whether these models are “really applicable to the African countries” and expects “a common framework of African policies and academic platforms of African studies in Asia” (Iwata 2012). Moreover, Iwata (2012) calls into question the absence of strategy by African countries against Asian countries.

Ky, Lee and Stauvermann (2012) consider critically the characteristics of China’s ODA as “a type of investment” for its economic and political interests. On the other hand, their point of view about Korea and Japan is more amicable. According to these authors, the ratio of grants by Korea is increasing in the infrastructure sector and in the soft infrastructure sector compared to the past, especially in order to improve infrastructure and communication facilities in Cambodia. According to the authors, Japan focuses on three points: “the recipient’s national security, economic development, and humanitarian contribution” and Japanese ODA is made up of mainly grants (Ky, Lee and Stauvermann 2012). The authors conclude that these three countries have different features in financing Cambodia with regard



to “the terms of business, target area, and purposes of disbursements” (Ky, Lee and Stauvermann 2012). More in detail, Although Cambodia can get “better infrastructure” from Chinese ODA, it should endure the loss in the long term, because China’s price is higher than competitive ones and because it wants to be overcompensated for the concessional loans that China has provided to Cambodia (Ky, Lee and Stauvermann 2012). China provides “jobs to unskilled Chinese workers” in Cambodia and lightens the burden in the labor market in China (Ky, Lee and Stauvermann 2012). According to the authors, through ODA, China can import natural resources which can make China have good infrastructures, and sometimes, the tendering procedures are not clear (Ky, Lee and Stauvermann 2012). In the meantime, Japan and Korea take more care of their own “national policy goals and the expected perceptions of their voters”, added the authors (Ky, Lee and Stauvermann 2012). In the end, the authors argue that the situations happening in African countries are not very different from those in Cambodia.

From these three articles, I found that three Asian countries have differences such as financial capacity, development goals, target area and development framework, as well as common ground. China as one of the emerging donors has own approaching style which is less transparent, fast and more applicable to developing countries, whereas emerging donors such as South Korea and Thailand seek to follow DAC-styles. Although these three Asian countries are now trying for more win-win strategies for two parties: the donors and the recipients, they have the tendency in common to pursue more economic interests than humanitarian or other purposes through ODA.

Some authors consider that emerging donors can be “useful alternatives” to enhance “balanced development” (Sato et al. 2011). Others argue that China tends to “distort the ODA allocations by other donors with unconditional loans or loans with conditionality focusing only on infrastructure” (Ky, Lee and Stauvermann 2012). China has benefited from providing

ODA, especially focusing on the infrastructure sector, because it can resolve its domestic problems in foreign developing countries. From the recipient perspective, the recipients can benefit from “better infrastructure” in the short term, but they also should endure the reverse side in the long term (Ky, Lee and Stauvermann 2012).

Fortunately, Algeria does not have many aid debts like other Sub-Saharan African countries. For that reason, it seems necessary to examine Asian approaches to Algeria in the private cooperation. Thus, I will focus on the cooperation in the infrastructure sector mainly funded by Algerian government thanks to abundant oil and gas reserves and the grant-type aids provided by aid agencies from the development cooperation.

The characteristics of China, Japan and South Korea’s approaches to other countries that I found from these three articles seem similar in Algeria. Algeria does not rely on foreign aid, but oil and gas resources. That is, the study on focusing on the features of natural resource dependence would be more needed for Algeria. To overcome oil dependency, industrial diversification is necessary. To achieve this industrial diversification, the infrastructure such as transportation, ICT, water & sanitation, and electric power should be basically equipped. Algeria is now at the stage of developing infrastructure systems. Algeria has cooperated with mainly European countries, but also it needs other economic development models. Therefore, it would be meaningful to study China-Japan-South Korea’s approaches to Algeria for Algeria’s economic development and the future cooperation among them.

### III. INFRASTRUCTURE DEVELOPMENT AND ECONOMIC GROWTH IN ALGERIA

#### A. WHY ALGERIA?

Algeria is selected for this thesis because this country has some attractive features to study on China-Japan-South Korea's approaches in the field of infrastructure in the context of development cooperation. Of special interests are the followings.

#### A.1. ALGERIA'S ECONOMY

Firstly, Algeria is an interesting country in geopolitical, political and economic aspects.

Algeria is located at the crossroads of three continents: Africa, the Middle East and Europe.

Algeria is politically stable compared to other countries in the African continent thanks to “a combination of minimal political reforms and public sector expenditure” (WB 2015). Algeria was little influenced by the Arab Spring compared with other neighboring countries (BNP Paribas 2012). In 2014, Abdelaziz Bouteflika won fourth term with 81.53 percent of the vote in Algeria's presidential elections (Market, and Chikhi 2014).

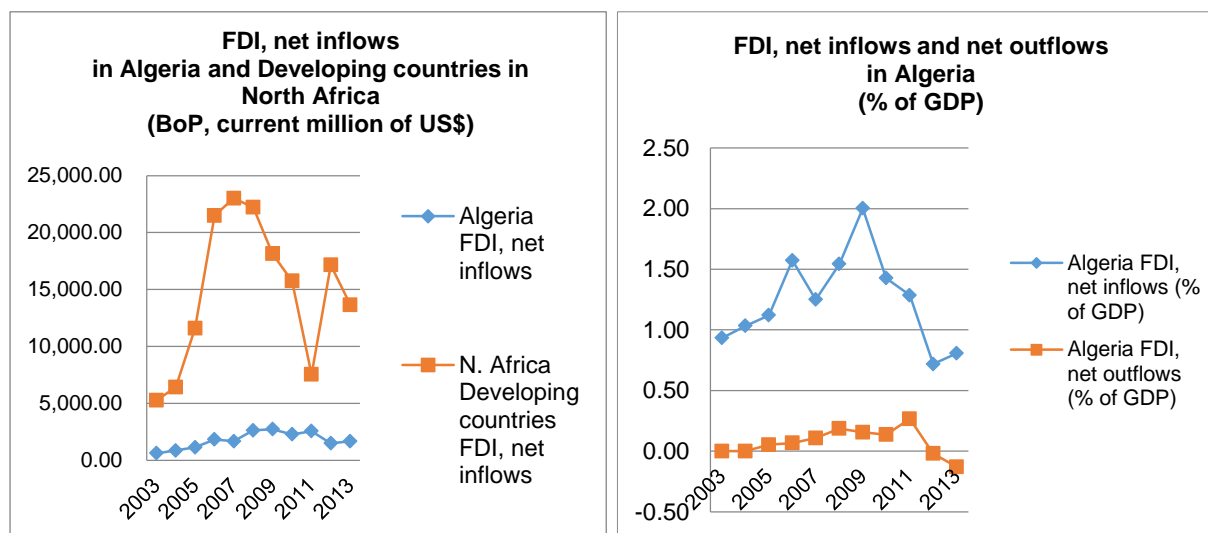
**Table1. Macroeconomic indicators**

	2012	2013	2014	2015 (p)	2016 (p)
Real GDP growth	3.3	2.8	4.1	2.6	3.9
Real GDP per capita growth	1.3	0.8	2.1	2.1	2.4
CPI Inflation	8.9	3.3	2.9	4	4
Budget balance % GDP	-4.8	-1.5	-7.0 (e)	-9.5	-8.2
Current account balance % GDP	5.9	0.4	-4.3	-15.7	-13.2

Source: IMF WEO 2015, AfDB AfEO 2015 and 2014

**Figure1. FDI, net inflows in Algeria and Developing countries in North Africa  
(BoP, Current million of US\$) /  
FDI, net inflows and net outflows in Algeria (% of GDP)**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Algeria FDI, net inflows (current million of US\$)	633.70	881.90	1,156.00	1,841.00	1,686.74	2,638.61	2,746.93	2,300.37	2,571.24	1,500.40	1,691.89
N. Africa Developing countries FDI, net inflows (current million of US\$)	5,266	6,441	11,613	21,501	23,015	22,206	18,134	15,745	7,548	17,151	13,658
Algeria FDI, net inflows (% of GDP)	0.93	1.03	1.12	1.57	1.25	1.54	2.00	1.43	1.29	0.72	0.81
Algeria FDI, net outflows (% of GDP)	-	-	0.05	0.07	0.11	0.19	0.16	0.14	0.27	-0.02	-0.13



Source: World Development Indicators, UNCRAD

Based on the political settlement, Algeria's recorded Real GDP growth (% change) of 4.1 % in 2014 (2.8% in 2013 and 3.3% in 2012) with growth estimates of 2.6% in 2015 and 3.9% in 2016 (IMF WEO 2015). CPI Inflation (% change) was 2.9% in 2014 (3.3% in 2013 and 8.9% in 2012) (IMF WEO 2015). Algeria's external position remains firm in spite of some negative signs regarding the current account balance, which demonstrated a deficit in 2014 (- 4.3% of GDP) for the first time in 15 years (0.4% of GDP in 2013 and 5.9% of GDP in 2012) (IMF WEO 2015). The external financial situation remain solid, estimating at US\$ 186 billion in 2014 (US\$ 201 billion in 2013), whilst external debts are still low US\$ 4 billion in 2014 (1.9% of GDP) (IMF WEO 2015 and AfDB AfEO 2015). As shown in the following data, FDI net inflows to Algeria (% of GDP) tend to increase in the 2000s, and tend to decline in the 2010's comparing to the 2000's. In 2009, Algerian government adopted the 49/51 rule to "limit the participation of a foreign investor in local companies to 49%" (Santander TradePortal 2015).

Therefore, foreign investors should find local partners for big projects (Santander TradePortal 2015). In the short term, the 49/51 rule can be the barrier to foreign investors. Though the FDI net inflows (% of GDP) are recovering again, the levels are still insufficient.

In short, Algeria’s economic growth was driven by : “(i) an extensive public investment programme, carried out as part of the national strategy for the implementation of major anchor projects; (ii) domestic demand sustained by significant oil revenues; and (iii) external demand against the backdrop of high oil prices” (AfDB 2012).

Though Algerian economy has grown thanks to oil and gas export revenue, the most severe vulnerabilities of Algerian economy are also oil dependency, large public expenditure and high unemployment rate, especially among the youth (IMF 2011). According to the report of African Economic Outlook with the subject of “Algeria 2014” prepared by AfDB, OECD and UNDP, Algeria’s economy relies enormously on the oil and gas sector, representing 98% of exports, 58% of government revenue and 28% of GDP (Benbahmed, and Lohoues 2015). The recent drop in oil prices (down 48% between June 2014 to June 2015) and in gas prices (31% between June 2014 to June 2015) affected directly on Algerian economy (Steyn 2015). Eventually, Algerian government decided to freeze public sector hiring and put back funding mega-projects to save cash in early 2015 (Khettab 2015).

**Figure2. Europe Brent Spot Price FOB**

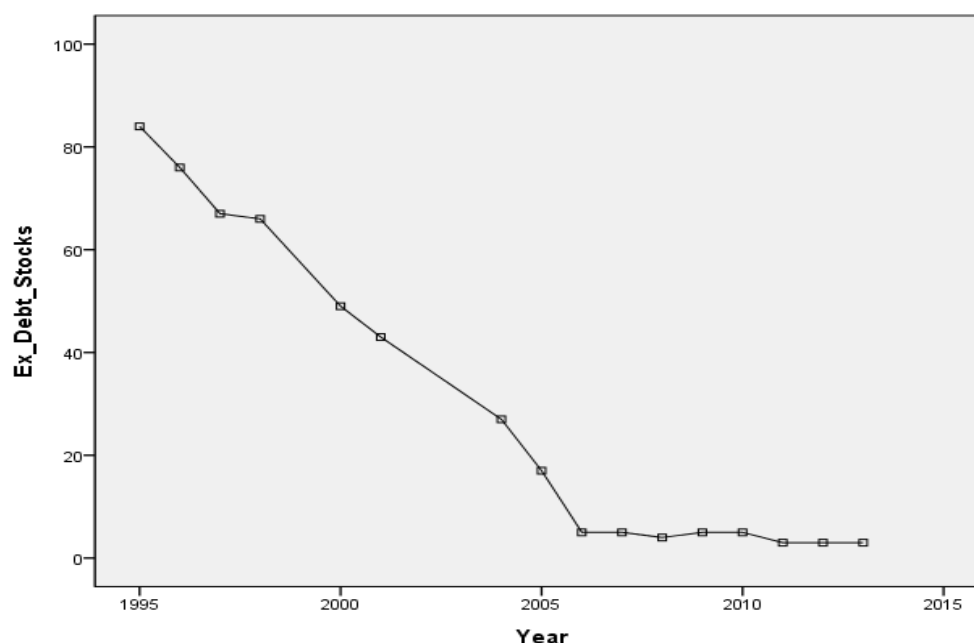


Source: EIA

## A.2. ALGERIA’S AID FLOWS

Secondly, Algeria is a country which is less dependent on ODA. In 2006, Algeria made a decision to stop external borrowing, even from the multilateral development banks. From 2004 to 2006, Algeria reimbursed the loans with the revenues from oil and gas exports. Since then, Algeria has opted for “prudent debt management” (AfDB 2011). On the following figures from the WDI (World Development Indicators) data, Algeria’s external debt stocks noticeably reduced from 2006.

**Figure3. Algeria’s External debt stocks (% of DNI)**



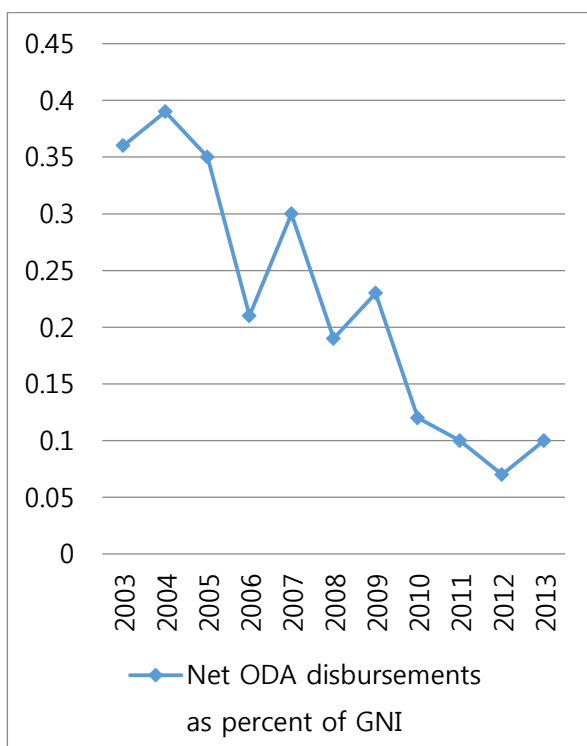
Year	1995	1996	1997	1998	1999	2000	2001	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
External Debt Stock	84	76	67	66	61	49	43	27	17	5	5	4	5	5	3	3	3

Source: World Development Indicators

The data from OECD/DAC (2015) shows that Net ODA disbursements as % of GNI (Gross National Income) has been decreasing, that Algeria has received more grants than loans as a recipient, that major DAC donors are France, United Arab Emirates, United States, Belgium, Germany, United Kingdom, South Korea, Switzerland, Turkey and Japan etc., and that those donors provide their assistance mainly in the sector of education, social sectors, economic infrastructure and services, humanitarian aid, multisector cross-cutting, and production sectors etc.

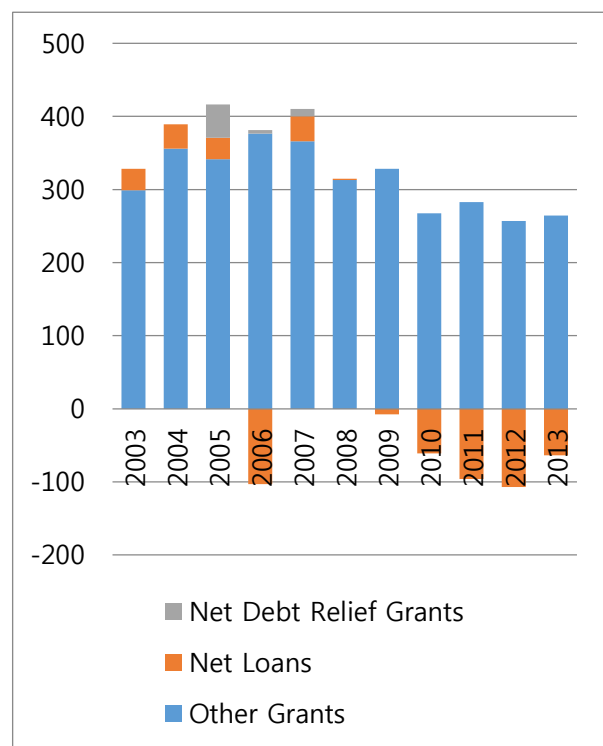
**Figure4. Algeria's Net ODA Disbursements as % of GNI in beneficiary view**

(by calendar year)



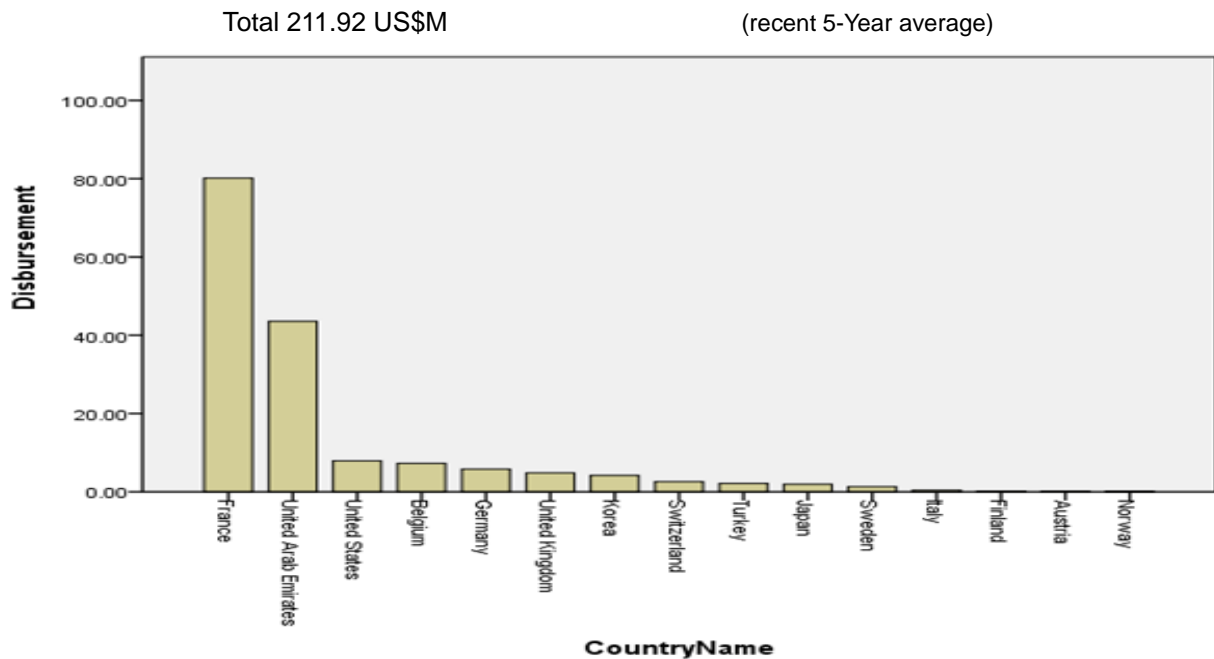
**Figure5. Algeria's Net ODA Disbursements by Type of Financing in beneficiary view**

(by calendar year in US\$M)



Source: OECD/DAC ([www.aidflows.org](http://www.aidflows.org)) accessed: Dec. 19 2015 Source: OECD/DAC ([www.aidflows.org](http://www.aidflows.org)) accessed: Oct.2 2015

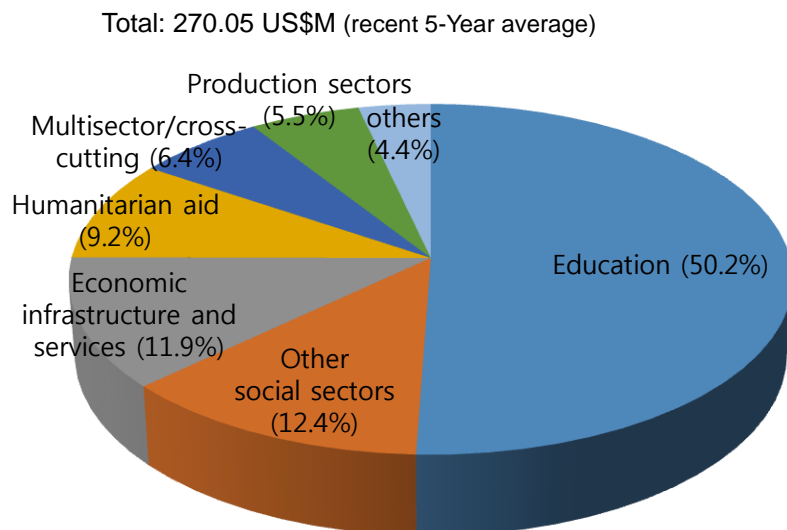
**Figure6. Algeria's Source of ODA: Top 15 Donors in beneficiary view (in US\$M)**



Source: OECD/DAC ([www.aidflows.org](http://www.aidflows.org)) accessed: Oct. 2 2015

According to the Dialogue Note 2011-2012 on Algeria drawn up by AfDB (African Development Bank), the AfDB approved around 40 operations for almost US\$ 3.2 billion in aggregate from 1971 to 2006. Most of them are invested in the infrastructure sector, reaching 43 percent (transport 13%, water & sanitation 13%, energy 11% and telecom 6%).

**Figure7. Algeria's Uses of ODA Disbursements by Sector in beneficiary view %**

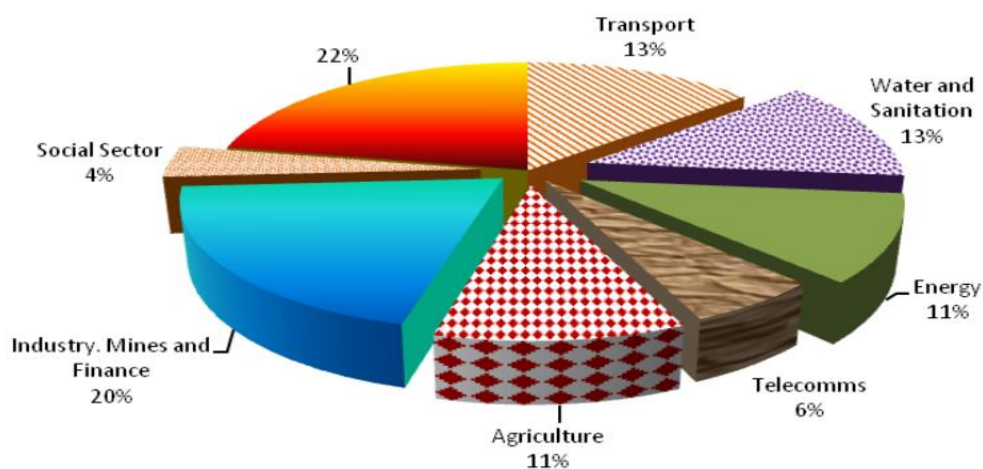


Source: OECD/DAC ([www.aidflows.org](http://www.aidflows.org)) accessed: Oct. 2 2015



**Figure8. Approved projects by sector 1971-2006 by AfDB**

Total: 3.2 billion US\$ (from 1971 to 2006)



Source: AfDB – Algeria Dialogue Note 2011-2012

Since Algerian government’s decision to cease borrowing foreign debts in 2006, the Bank is concentrating on “technical assistance, consultancy, dialogue, analytical work and training” and defined the new direction for the Bank’s cooperation with Algeria on the basis of the following three areas: “(i) public administration capacity building; (ii) private sector development; and (iii) regional integration are aligned with national development priorities” (AfDB 2011).

Also, “the World Bank-Algeria Country Partnership Strategy (2010-14) is focused on: Strengthening Growth through Diversification of the Economy: Promoting Sustainable Development and Reducing Spatial Disparities; Strengthening the Institutions of Economic Planning, Monitoring, Evaluation and Policy-Making” (the World Bank 2015)

### **A.3. ECONOMIC COOPERATION BETWEEN CHINA-JAPAN-SOUTH KOREA AND ALGERIA**

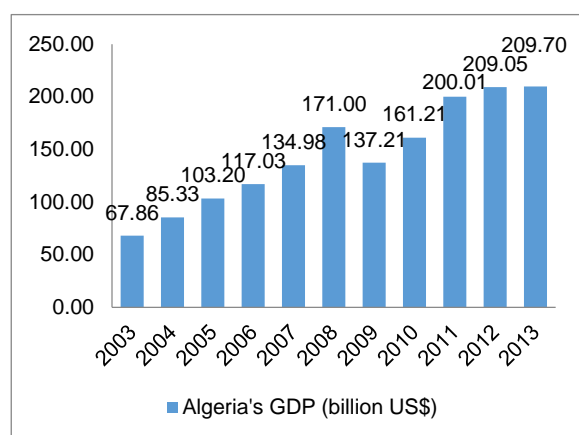
Thirdly, Algeria has been actively cooperating with three North-East Asian countries in the infrastructure sector for the last decade. Especially, China engendered Construction Boom in

Algeria during the last decade (Washington Times 2010). Japan has focused on the energy sector and the security sector. And Korea has been participating in several construction projects. Algeria recorded good performance in the infrastructure sector over the past decade. According to the report regarding the partnership between AfDB and Algeria for 40 years published by AfDB, Algeria set up the Government’s public investment programme as part of the 2005-2009 Five-Year Development Plan, and 2010-2014 Five-Year Development plan. Through these two plans, Algeria sought to the infrastructure modernization (US\$ 236 billion for the first plan and US\$ 150 billion for the second) (AfDB 2010)

Moreover, Algeria is setting up a new five-year development programme with US\$ 262 billion, which amounts to more than Algeria’s GDP in 2013, in order “to improve its impact on the local and human development, and also on the development of a productive and competitive economy in all the sectors” (Algeria Press Service 2014). It includes many public infrastructure projects such as “hospital construction and renovation, transportation infrastructure, wastewater management and desalination and ports/airports” (U.S. Department of State 2015). It will encourage more foreign investment and it will be good opportunities for international firms. MarketResearch.com described the Algeria Infrastructure Report 2015 by the BMI Research published in 2014 that, in spite of the falling of oil price in the international oil market, Algeria’s enormous

reserves make public expenditure to be continued (MarketResearch.com). From the above data, it seems that the infrastructure development in Algeria and the cooperation between China-Japan-South Korea and Algeria in the infrastructure sector will be continued despite of the oil shock.

**Table2. Algeria’s GDP at market prices (current US\$) (in billion US\$), 2003-2013**



Source: World Development Indicators

## B. WHY INFRASTRUCTURE?

According to the report on the AIDI (Africa Infrastructure Development Index) prepared by AfDB in 2013, infrastructure development enhances the “productivity and sustainable economic growth”, and “it contributes significantly to human development, poverty reduction, and the attainment of the Millennium Development Goals (MDGs)” (Letsara et al. 2013). Especially, “the Africa Infrastructure Country Diagnostic (AICD) results show that “investment in infrastructure accounts for more than 50 percent of the recent improvement in economic growth in Africa, and that it has the potential to achieve even more” (Letsara et al. 2013).

**Table3. AIDI Components and Indicators**

Composite Index/ Indicator for each component	Indicator(s)	Sub-indicators
I. Transport Composite Index	I.a. Total Paved Roads (km per 10,000 inhabitants) I.b. Total Road Network in Km (per km <sup>2</sup> of exploitable land area)	
II. Electricity Index: Net Generation (kWh per inhabitant)		
III. ICT Composite Index (ICT)	III.a. Total Phone Subscription (per 100 inhabitants)  III.b. Number of Internet Users (per 100 inhabitants) III.c. Fixed (wired) Broadband Internet Subscribers (per 100 inhabitants) III.d. International Internet Bandwidth (Mbps)	III.a.1. Fixed-line Telephone Subscriptions (% population) III.a.2. Mobile-cellular Subscriptions (% population)
IV. Water & Sanitation Composite Index (WSS)	IV.a. Improved Water Source (% of populations with access)  IV.b. Improved sanitation facilities (% of population with access)	

Source: AfDB 2013. \*Author sorted out only main indicators and sub-indicators, except for detailed explanation in the original table.

As quoted from the same report, in “the World Economic Forum’s Global Competitiveness Index 2012-2013”, “inadequate infrastructure” is the third serious barrier to “doing business” in Africa followed by “access to finance and corruption” (Letsara et al. 2013). Furthermore,

“the Africa Progress Panel” which members are eminent members such as “Kofi Annan, Michel Camdessus and Peter Eigen” mentioned “infrastructure development as a key priority for the advancement of Africa and has urged the G20 leadership to continue to give it their highest support” (Letsara et al. 2013).

As part of the efforts to enhance infrastructure development in Africa, the Africa Infrastructure Development Index (AIDI) was developed by AfDB in order “to monitor the status and progress of infrastructure development” (Letsara et al. 2013). The data was collected “under the Africa Infrastructure Knowledge Program (AIKP)”. The four components of this index are: Transport, Electricity, ICT, and Water & Sanitation, and these components have 9 indicators impacting directly or indirectly on “productivity and economic growth”. It can be useful for analysts, policy-makers, and investors”, as well as performers of “the monitoring and evaluation of infrastructure development” (Letsara et al. 2013).

Algeria’s Country Scores and Rankings from 2007 to 2010 are as below. Algeria was ranked between 7th and 8th in Africa during this period.

**Table4. AIDI, Country Scores and the Top Ten Rankings, 2007-2010**

Rank	Country	2007	Rank	Country	2008	Rank	Country	2009	Rank	Country	2010
1	Seychelles	73.85	1	Seychelles	73.82	1	Seychels	77.99	1	Seychelles	84.41
2	Libya	58.63	2	Libya	64.4	2	Egypt	70.18	2	S.Africa	78.97
3	Egypt	56.57	3	Egypt	61.78	3	Libya	68.96	3	Egypt	77.67
4	S.Africa	55.15	4	Mauritius	58.92	4	Mauritius	63.17	4	Libya	71.37
5	Mauritius	54.02	5	S,Africa	55.96	5	S.Africa	59.02	5	Mauritius	67.01
6	Tunisia	37.71	6	Tunisia	44.68	6	Tunisia	52.35	6	Tunisia	59.51
7	<b>Algeria</b>	<b>36.29</b>	7	<b>Algeria</b>	<b>38.57</b>	7	Morocco	45.06	7	Morocco	51.81
8	Morocco	35.35	8	Morocco	38.47	8	<b>Algeria</b>	<b>43.69</b>	8	<b>Algeria</b>	<b>47.78</b>
9	Cape Verde	33.06	9	Cape Verde	37.45	9	Cape Verde	40.45	9	Cape Verde	44.11
10	Botswana	30.61	10	Botswana	31.89	10	Botswana	32.59	10	Botswana	33.5

Source: AfDB 2013

## **C. LINKAGE BETWEEN INFRASTRUCTURE DEVELOPMENT AND ECONOMIC GROWTH IN ALGERIA**

In an interview conducted by IMF Survey online in 2011, Joël Toujas-Bernaté, the IMF's mission chief for Algeria resumed that the main features of Algeria's economy are oil dependency, high youth unemployment exceeding 20 percent, and "the predominant role of the state" (IMF 2011). He explained that "ninety percent of the country's banks are public, the hydrocarbon company is state owned, and government spending represents two-thirds of non-hydrocarbon GDP" (IMF 2011). Then, he focused on the necessity of industrial diversification. To do that, he argued that Algeria should change business environment by promoting more private sector development (IMF 2011). According to the IMF's mission chief for Algeria, although Algerian government performed a good macroeconomic management for the past decade and made huge efforts to develop infrastructure, especially in the sectors such as housing, water, energy and health and to foster qualified labor forces, the government should promote new enterprises and enhance the business climate "on the basis of these massive infrastructure and social investments" in the future (IMF 2011). According to Toujas-Bernaté, Algerian government should review their strategy on how to strengthen private sector, for example, about new regulations in 2009 for FDI limiting the ratio of foreign investors (with the 49/51% rule) (IMF 2011). And he emphasized the necessity of financial sector development "dominated by public banks" by modernizing the financial sector in order to "facilitate access to credit" and the usefulness of foreign partnership (IMF 2011).

In another op-ed article published in "Al Ghad" and presented on IMF website, Ahmed (2015) summarized the discussions with Algerian policymakers. The article indicated the oil crisis in 2014 can be a "Historic Opportunity for reform" against Algerian economic vulnerabilities. This article states that Algerian government have to change the current economic model to

stimulate the diversification through fiscal consolidation and have to promote private sector by opening more trade and investment (Ahmed 2015). And this article quoted “the World Economic Forum’s Global Competitiveness Report” and finalized that the efforts to eliminate corruption and bureaucracy would be effective for the improvement of private sector. Although the ways to reform Algerian economy do not seem to be easy, it would be possible thanks to its considerable financial resources and it needs to take action (Ahmed 2015).

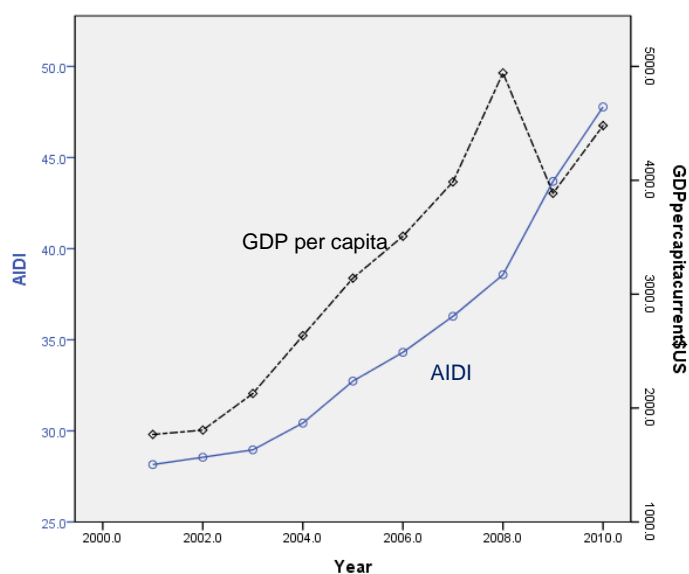
One of the other barriers for Algerian economic growth is security risks (EIA 2014). Terrorism can make foreign investors hesitate to enter into Algeria. When terror attack in Amenas gas facility happened in 2013, foreign companies withdrew their employees from their work place in Algeria. The terrorism in Saharan region is holding up the development of gas producing plants. In reality, when moving to site for construction work, foreigners should be authorized by the minister of public works. It can delay the construction period while the engineers wait for the authorization. Even if they receive the authorization, they should be escorted by military polices and cannot stay for a long time on site for security reason. Such difficult situation makes qualified foreign engineers hesitate to work in Algeria, and thus, the speed and the quality of the construction works can be inferior to those of the works fulfilled in foreign investors’ own countries. This situation can eventually generate one of the causes to increase the construction period and fee.

In brief, GDP per capita means the gross domestic product divided by the number of people in the country. In general, this measure represents more exact degree of economic growth and productivity of the country.

As demonstrated on the following table, as AIDI increased gradually, GDP per capita also increased in Algeria from 2001 to 2010. Therefore, between AIDI and GDP per capita in Algeria, there is a proportional relation.

**Table5. Algeria's AIDI and GDP per capita (current \$US), 2001-2010**

Year	AIDI	GDP per capita (current \$US)
2001	28.15	1768.6
2002	28.55	1806.9
2003	28.96	2128.4
2004	30.43	2636.3
2005	32.73	3141.0
2006	34.31	3509.0
2007	36.29	3986.6
2008	38.57	4943.5
2009	43.69	3886.1
2010	47.78	4480.7

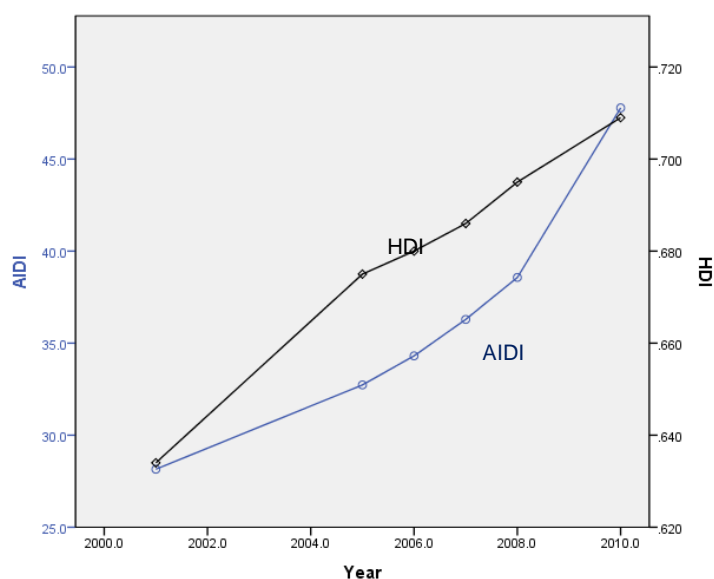


Source: AfDB 2013, IMF WEO 2015

HDI is a measure made up of key factors of human development: “a long and healthy life, being knowledgeable and have a decent standard of living” (UNDP 2015). As demonstrated on the above table, as AIDI increased gradually, HDI also increased in Algeria from 2001 to 2010. Therefore, it seems that between AIDI and GDP per capita in Algeria, there is a proportional relation.

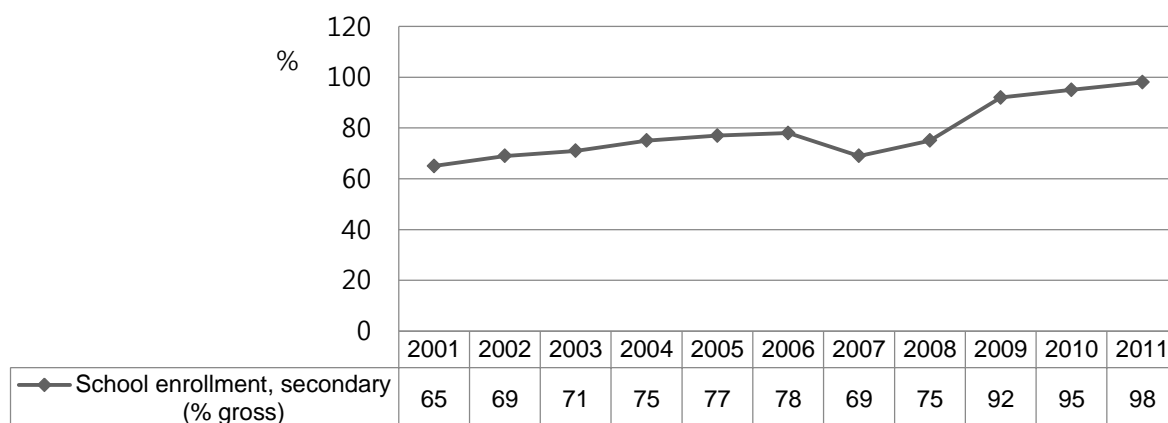
**Table6. Algeria's AIDI and HDI (current \$US), 2001-2010**

Year	AIDI	HDI
2001	28.15	0.634
2002	28.55	-
2003	28.96	-
2004	30.43	-
2005	32.73	0.675
2006	34.31	0.68
2007	36.29	0.686
2008	38.57	0.695
2009	43.69	-
2010	47.78	0.709



Source: AfDB 2013, UNDP 2015

**Table7. School enrollment, secondary (% gross)**



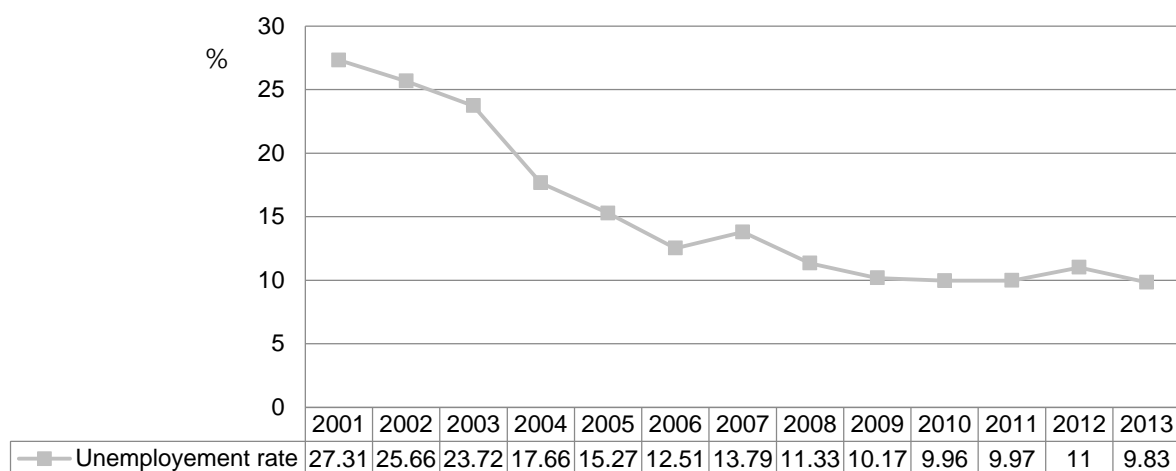
Source: WB

Total enrollment in secondary education increased gradually during the last decade.

In terms of unemployment rate and youth unemployment rate (percent of total labor force ages 15-24), they are largely reduced for the last decade as shown on the following tables. Nevertheless, the rates are high. It's a point to overcome through continuous infrastructure development and industrial diversification.

**Table8. Algeria's unemployment rate**

(Percent of total labor force)

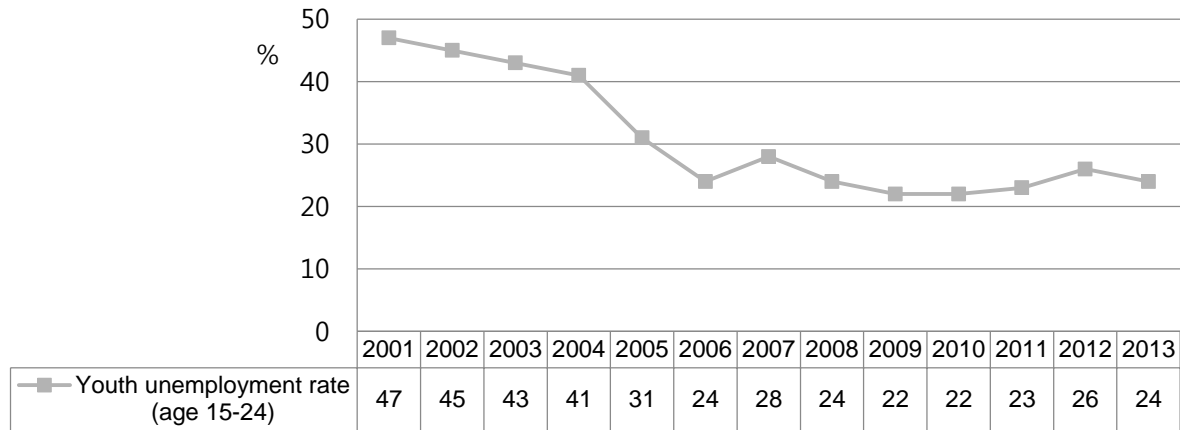


Source: IMF and National Statistical Office



**Table9. Youth unemployment rate**

(Percent of total labor force ages 15-24)



Source: WB and World Development Indicators (modeled ILO estimate)

Algeria is now establishing the infrastructure system. Given the above figures made up of diverse indexes, infrastructure development has enhanced Algerian people's Social-Economic wellbeing as well as economic growth. Furthermore, job creation through the continuous infrastructure development, the industrial diversification and the promotion of the private sectors would be needed to resolve Algerian high unemployment rate, especially among the youth.

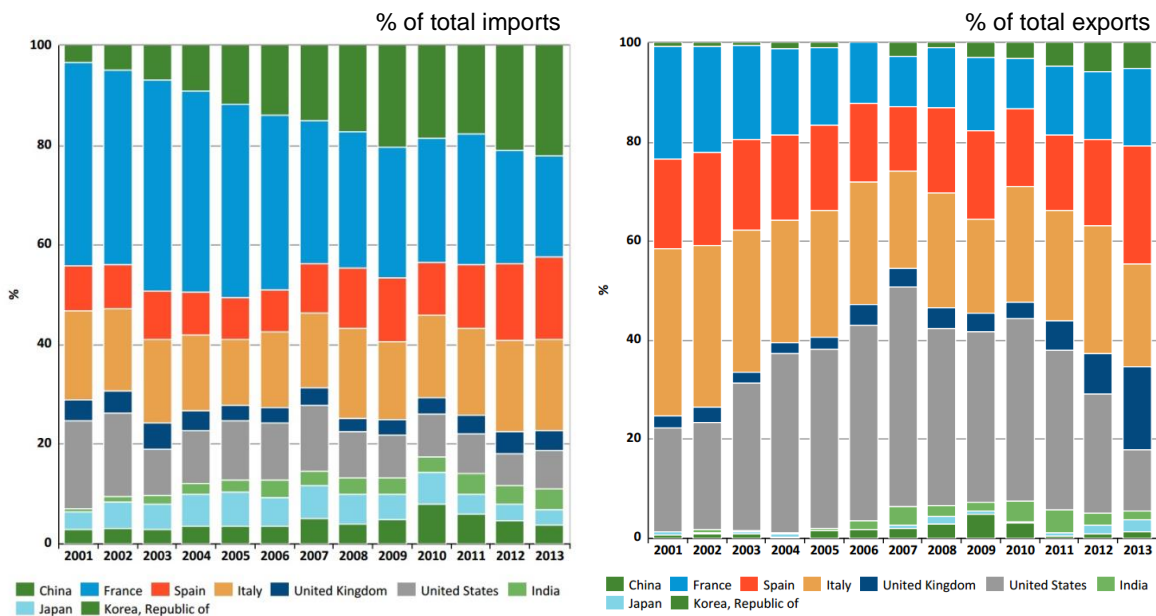
## IV. NORTHEAST ASIAN COUNTRIES'S APPROACHES TO ALGIEA

### GENERAL

Algerian government is attempting many policies for its economic growth although it takes time to see the light. In this context, the cooperation with Asian countries like China, Japan, India, South Korea and Thailand seems desirable for Algeria due to the advantages from the diversity. Although Algeria is still cooperating with many Western countries, the cooperation with Asian countries is increasing. In 2013, China became the first trade partner in the percent share of total imports, laying aside France, as shown the following figure on the UNCTAD data. Especially, with regards to the percentage of total imports and exports in Algeria, the proportion of China is increasing whereas the proportion of France is decreasing. Also, the figure shows that the proportion of trade with South Korea increased in 2006~2010.

**Figure9. Ratio by major trade partners**

**Figure10. Ratio by major trade partners**



Source: UNCTAD [United Nations Conference on Trade and Development](http://unctadstat.unctad.org/ReportFolders/reportFolders.asp)  
 Original data: <http://unctadstat.unctad.org/ReportFolders/reportFolders.asp>  
 made by author through the platform of [www.Opendataforafrica.com](http://www.Opendataforafrica.com)

**Table10. Major DAC Donors' ODA flows to Algeria**

All types of total; Total bilateral aid to all sectors; Flow Type: Disbursement; All channels  
Current Prices (US\$M)

Donor/ Year	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
France	185.4518	295.5274	219.1912	228.3449	177.5140	159.1536	138.0600	146.8450	134.8892	138.0271
Italy	9.9671	7.6642	10.8909	5.0773	10.2047	3.7900	4.8906	6.1237	0.8486	0.4225
Japan	1.7205	3.8985	5.5727	7.4597	4.0291	1.8610	15.4755	1.4282	3.0042	2.4129
S.Korea	..	..	1.8184	2.7192	3.4608	2.4325	2.8948	3.8702	2.4429	4.3879
Spain	29.8310	12.3860	78.1604	63.9598	70.4972	60.0233	16.1679	14.9604	2.0085	7.6506
U.K.	0.0106	..	..	0.5708	2.1145	3.6150	2.2865	1.4990	3.7731	5.2202
United States	3.7940	1.0540	0.7780	1.6907	9.1091	8.0664	8.5811	9.1384	10.7382	8.0349

Source: OECD (QWIDS: Query Wizard for International Development Statistics)

On the table about major DAC Donors' ODA flows to Algeria, Japan's cooperation was especially high in 2007 and 2010. And South Korea's ODA flows to Algeria is gradually increasing.

## **A. CHINA'S CASE**

### **A.1. CHINA'S APPROACH TO ALGERIA**

According to the report "China's role in development in Africa" published by the European Parliament, China does not have any ministry of development cooperation, that is, China does not deal with foreign development sector separately at the policy level. Foreign aid-related projects are "approved by the Ministry of Commerce (MOFCOM) and are related to foreign trade and investment sectors" (Grieger 2013). As China's framework for the relations with Africa, there is FOCAC (Forum on China-Africa Cooperation). In FOCAC II meeting, infrastructure development was one of the agenda. Especially, the Export-Import Bank of China (the China EXIM Bank) and the China Development Bank (CDB) were established in China in 1994. Since then, China regularized the funding to Africa (Grieger 2013). This funding was useful to narrow financing gaps, especially for mega-size infrastructure programs (Grieger 2013). Two banks' lending size outdid the World Bank's loan engagement

(Grieger 2013). China has had tendency to mix strategically aid and investment “through project-related funding” since the 1990s (Grieger 2013). The CDB manages the China-Africa Development Fund which was created in 2007 (Grieger 2013). Grieger (2013) states that China’s ways are not very transparent although China has enormous bilateral relationships with African countries. Furthermore, China recently established the Asian Infrastructure Investment Bank (AIIB). It will promote a lot more Chinese investment in the infrastructure sector in African countries. In brief, the key features of China’s policy toward Africa are: 1) South-South cooperation; 2) non-interference in each other’s internal affairs; 3) equality and mutual benefit (Grieger 2013).

The relations between China and Algeria go back to the Algerian War of Independence. China supported Algerian’s independence movement. From that time on, the close diplomatic and economic relations between the two countries have been strongly established.

China’s success in Algeria is especially through its exports to Algeria of building materials and textiles (Simon 2013). Since 1999 when Algerian government initiated oil-funded construction plan, China has closed a lot of contracts (Simon 2013). China participated in a lot of mega-projects in Algeria: the new terminal at Houari Boumerdiene International Airport in Algiers at 2.6 billion by CSCEC (China State Construction Engineering Construction), around two-thirds of the 1216-km East-West highway at over US\$ 11 billion by CRCC (China Railway Construction Corporation), Algiers Great Mosque at over US\$ 1 billion, which is the 3<sup>rd</sup> biggest mosque in the world, by CSCEC, the five hotels in Algeria including Sheraton Hotel, the Olympic Stadium of Oran, the biggest prison in the country, the Constitutional Court, and the offices of the ministry of foreign affairs etc. (Simon 2013). Also, China gave gift to Algeria by funding and building US\$ 30 million of Algiers Opera House. There are roughly 360 Chinese companies located in Algeria including CRCC, CSCEC (China Stage Construction Engineering Corporation) and CNPC (China National Petroleum

Corporation, SINOPEC (China Petroleum & Chemical Corporation) etc. and about 35,000 Chinese immigrants (RNW media accessed Oct. 2015).

To sum up, Algeria had faced the lack of housing and infrastructure. However, it had not sufficient skilled workers and equipment to carry out these urgent national tasks. Expanding its capacities to Africa, China was able to meet their needs. Chinese companies can bring in Chinese workers and building materials from China on the basis of enormous finance firepower. And they can provide low construction costs and short construction deadline. China also has the same experiences to develop the infrastructure sector in the home country as a developing country. Indeed, most of infrastructure projects are managed by state-owned companies. Therefore the delay of works due to the bureaucracy is rampant over most of projects. Chinese companies can understand well and satisfy the needs of Algerian government and officials. It enables Chinese companies to win a lot of bids (through interview with interviewees).

On the other hand, although Algerian government announced that Chinese construction projects should employ a quota of 20 percent Algerian workers, it is not clear whether this rule is observed at site (Pairault 2015). Also, the bidding process is not transparent. Although Chinese companies can present low bidding prices and meet the deadlines, the maintenance fees and period tend to extend. Also, Chinese companies tend to change the design during the progress of construction works, thus they sometimes increase the costs and the construction period. Also, among Chinese workers, of course, there are qualified engineers and, at the same time, insufficient engineers having lack of experiences. These insufficient engineers cause the lack of completion. Nevertheless, specialists say that Chinese capacities tend to be better than Algerian workers who delay too much the construction period bidding (through interview with interviewees).

## **A.2. CHINA: ALGERIA EAST-WEST HIGHWAY CASE (CENTRAL AND WESTERN SECTION)**

The East-West Highway project is the largest road project in Algeria, costing US \$11.2 billion. Financed by the Algerian government as part of national economic and social recovery program begun in 2005, it extends 1,216 km connecting Annaba in the northeast and Tlemcen in the northwest and connects Algeria to Morocco and Tunisia by passing through 24 Algerian provinces. The construction cost was raised by oil revenues. The works contributed to the economic growth of Algeria by reducing travel times in the northern part of the country and by creating more than 100,000 jobs ( Road Traffic Technology 2015).

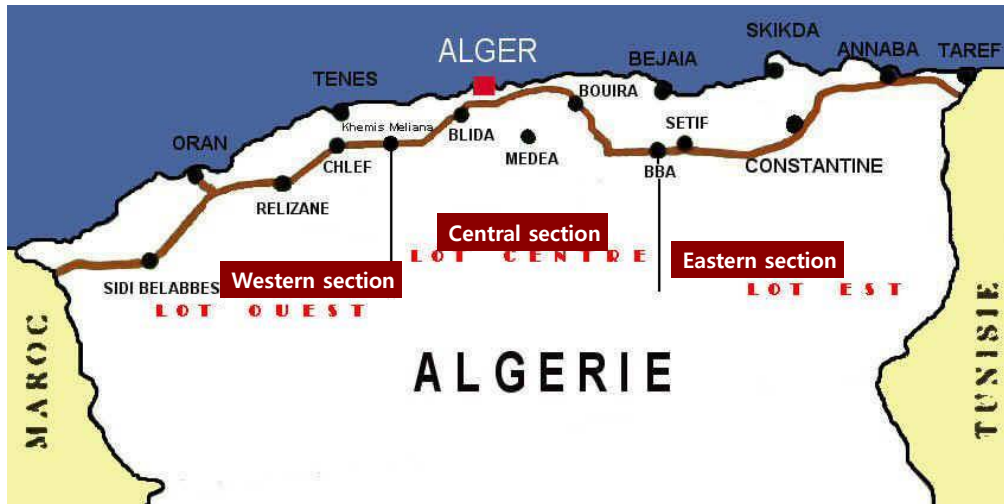
This East-West Highway with six lanes is divided into three sections: the Eastern section, Central section and Western section. For the 169 km Central and 359 km Western sections which is worth about US\$ 7 billion, a consortium of CITIC (China International Trust and Investment Corporation) and CRCC (China Rail Construction Corporation) won the bid in 2006. And the Eastern section was won by Japanese consortium COJAAL. Since its launching in 2009, it was scheduled to complete in the 4th quarter of 2013, but impeded (Road Traffic Technology 2015).

For China, this case would be helpful to improve the bilateral economic development and trade cooperation between Algeria and China according to Wu Xilin, director of the international economic cooperation department of the Ministry of Commerce (“Algeria’s East-West Motorway 2006).

However, when it comes to the quality of the construction, the car accidents have occurred due to the construction defect. For example, due to the lack of the construction capacity, uneven roads occur on the site with weak ground. Although rapid construction capacity and low bidding prices are main advantages of Chinese companies, in the same time, these advantages generates more long maintenance costs and period (through interview with

interviewees).

Figure11. Map of Algeria East-West Highway



Source: Data from Algérie 1.com. 2015

## B. JAPAN'S CASE

### B.1. JAPAN'S APPROACH TO ALGERIA

Japan's African policy is run by the Foreign Ministry. Japan has had a diplomatic goal into be a member of UNSC (United Nations Security Council), but it failed in 2006. In 1993, Japan made a framework firstly among Asian countries: TICAD (the Tokyo International Conference for Africa's Development). JBIC (Japan Bank for International Cooperation) and JICA (Japan International Cooperation Agency) are representative aid agencies in Japan. Japan participated in providing ODA at the request of the UN and European countries. Japan provided a lot of ODA-related assistance in the 1990's while Western countries were exhausted by "AID fatigue" (Iwata 2012)

Japan focused on the projects concerning natural resources. It did not have any special African policy. Japan used the "request based" and "self-helped efforts" principles for "highly tied projects of Japan's own economic promotion" (Iwata 2012). "Soft-power" and "human security" concepts were the basis of Japan's cooperation to Africa (Iwata 2012).

**Table11. Japan's Main ODA Projects in Algeria**

Fiscal Year	Loan Aid	Grant Aid	Technical Cooperation
2010			- Sahara Solar Energy Research Center (SSERC)
2011	-	- Grassroots Human Security Project	- Project on improving Research and Education at Ecole Nationale Superieure Maritime (12.02~15.01)
2012	-	- Grassroots Human Security Project	
2013	-	- Strengthening the Legal Regime against Terrorism	
2014			- Advisor for seismic engineering laboratory of CGS (2014~)
			- Capacity enhancement in the field of fisheries education (2014~)

Source: MOFA in Japan and interview with KOICA



There is a JICA (Japan International Cooperation Agency) office in Algiers. Japan does not provide the infra-related services to the country, but only technical assistance. JICA's direction to UMIC (Upper Middle Income Country) like Algeria has two points: 1) industrial diversification and 2) sustainable development (through interview with KOICA Algiers office). For these goals, Japan operates projects.

In the table, Japan has been providing supports with related to technical assistance and training in the energy, seismic engineering sector, fishery, and national security sectors.

The history of Japan and Algeria's economic cooperation was tragic. 10 engineers of a Japanese engineering firm JGC corporation who were working at a natural gas plant in the Sahara Desert were killed in hostage crisis in 2013 (McCurry 2013). Moreover, Japan who participated in the East part for the project of the construction East-West Highway almost failed. Two facts made Japanese companies' expansion in Algeria disappointed. Nevertheless, as Japan is a resource-poor country, it will continue to have economic cooperation with Algeria in the gas and oil sector.

In the legal framework, Japan offered grants to reinforce the legal framework against terrorism as shown in the above table. It seems that this cooperation will be helpful for Japanese companies to continue to invest in the projects related to natural resources such as the establishment of gas plants in Sahel region by helping Algeria reinforce the national security against terrorism.

According to the interview with Japanese Minister of Foreign Affairs during his visit to Algeria in 2015, Japan is interested in Algeria's enormous energy reserves, its big domestic market and the infrastructure sector through its high technology, the training of human resources and several scientific studies. In this interview, so far, Japanese investment to Algeria has focused on the energy sector. However Japan will be active in the domain of industrial installation for the industrial diversification (Liberté-Algérie 2010).

In another interview with the Ambassador of Japan in Alger in 2014 published in the magazine L'Eco, there are around 15 Japanese companies in Algeria for the construction of gas and petroleum complex and for the construction of buildings and public works. Also, for the security sector, the cooperation between Algeria and Japan has begun for the protection of Japanese in Algeria and the stability of the Sahel region after the terror attack in 2013 where there were 10 Japanese victims. And Japan wants to cooperate with Algeria for the capacity of production through technology transfer (Benarab 2014).

In short, Japan experience tragedy in Algeria in 2013, causing 10 casualties at the gas plant in the Sahel region. Nevertheless, Japan cannot help but to approach to Algeria, a holder of oil due to the scarcity of natural resources. Also, Algeria needs the sophisticated technology to develop their gas infrastructure facilities. Therefore, it seems that the needs of two countries make them set up certain regime against terrorism and that the cooperation between two countries would be continued. As grant-type assistances, Japan has been providing training and technical assistance in the area of energy and seism, as well as national security. Thus, Japan has been transferring its specialized technologies to Algeria.

## **B.2. JAPAN: ALGERIA EAST-WEST HIGHWAY CASE (EASTERN SECTION)**

The 399 km Eastern section of Algeria East-West Highway which is worth of around US\$ 5 billion was won by Japanese consortium COJAAL which is composed of Kajima Corporation, Nishimatsh Construction Company, Itoch Corporation, Hazama Corporation and Taisei Corporation. The type of project contract was a fixed lump sum. The contract period was from September 2006 to January 2011 and the works started in 2009 (Road Traffic Technology 2015).

However, COJAAL has difficulties in completing the works within the expected construction period. ANA (Agence Nationale des Autoroutes) and CNM (Commission Nationale des

Marchés) approved the extension of the contract period by May 2015. But, due to the delay of tunnel construction in 2013, the contract extension did not eventually come through. Finally, Algerian Ministry of Public Works announced that the consortium COJAAL had received a departure order without collecting invested capital. The unpaid amount is estimated at US\$ 1.2 billion.

There are two main reasons of this failure. First, this project was signed in a lump-sum contract that fixes the fixed price before beginning the work. But in this kind of contract, if extra expenses and/or extra construction costs are added, the constructor should pay for them. Secondly, the fundamental cause was because of the steep topography and the flimsy ground, especially the construction delay due to the cracks in the tunnel Eibel El Oudhch occurred the conflict between Algerian ordering organization and the Japanese consortium. The extra costs caused by this delay are now astronomical. The consortium filed a lawsuit to an arbitration tribunal, however the court costs will be considerable and a winning suit will not be clear. Thirdly, Although Japanese companies have the high-level construction technology, it seems that the methods of communication with Algerian government were not matched with Algerian officials (through interview with interviewees).

## **C. SOUTH KOREA'S CASE**

### **C.1. SOUTH KOREA'S APPROACH TO ALGERIA**

According to the Africa Economic Brief on the subject of “The Korea-Africa Partnership: Beyond Trade and Investment” published by AfDB (Kang 2011), Korea has been approaching to Africa through “knowledge sharing and policy dialogue” “beyond trade and investment”. Also, Korean government declared that “it would double its official development aid to Africa by 2012” through KOAFEC (Korea Africa Economic Cooperation) in November 2009 (Kang 2011). In the 1990s, Korean offered mainly ODA in the “economic infrastructure” such as “transportation and communication”, however, recently, in social infrastructure like “education, health and water supply and sanitation” (Kang 2011). In Korea, there are two representative public aid agencies: Korea EXIM Bank which is an export credit agency within the jurisdiction of Ministry of Strategy and Finance of Korea which operates EDCF (Economic Development and Cooperation Fund) and KOICA (Korea International Cooperation Agency) which is a grant-type aid agency within the jurisdiction of Ministry of Foreign Affairs of Korea. And these days, Korean government has been enlarging the budget for the development cooperation sector although it is not reaching the 0.7% ODA/GNI target that international societies request to Korean government and diverse Korean governmental authorities like KIET (Korea Institute for Industrial Economics & Trade) and KRIHS (Korea Research Institute for Human Settlements) and have been participated in the development cooperation projects.

After Algerian and Korean heads of states' reciprocal visit on December 2003 and on March 2006, the two countries launched Task-Force for economic cooperation in 2006. Since then, the volume of trade has increased rapidly and a lot of Korean companies entered into Algeria, especially in the infrastructure sector. Also, Korea designated Algeria as one of the “Priority

Partner countries on Natural Resources” in 2008 and Korea strengthened the cooperation with Algeria (MOFA of Korea 2011).

Many Korean companies including *Chaebols* such as Daewoo, Hyundai, Samsung, and Hanwha, as well as SMEs such as Kyongdong, Dongmyong, and Saman entered into Algeria for many infrastructure projects in the electricity, road, water & sanitation and ICT sectors since Daewoo had entered into Algeria in order to construct Hilton Hotel for the first time as Korean company in 1993.

**Table12. Policy Consultation through KSP (Knowledge Sharing Program) to Algeria**

Year	Project Name	Theme
2014	Development of Instrument for Measuring Impact Calculation of Budget and Fiscal Policies, Alternative Sources of Funding in the State Budget for the Development of Local Communities	Tax, Fiscal Policy
2013	Establishment of Algeria PPP Center	Development Planning and Policy
2012	Establishment of National Vision 2030	Development Planning and Policy
2011	Establishment of National Vision 2030	Economic Development and Growth
2006	Enhancing the Consumer Credit Market in Algeria: With Special Reference to the Credit Card Market	General Financial Markets

Source: Ministry of Strategy and Finance, [www.ksp.go.kr](http://www.ksp.go.kr)

Korean government provided the policy consultation to Algerian government through KSP (Knowledge Sharing Program). So far, five projects were achieved as following. At present also, other projects are continuously being implemented ([www.ksp.go.kr](http://www.ksp.go.kr)).

The objectives of the KOICA Office in Algeria for the year 2015 are: 1) to support continuously the performance-oriented development cooperation grant consistent with the country locating at the exit phase; 2) to jointly develop the projects and to establish the evaluation system through the reinforcement of network with the recipient; and 3) to enhance

the awareness of advanced aid agency through public relations by means of “selection and concentration” strategy (through the document received from KOICA). According to the interview with the director of the KOICA, technical assistance is growing and the assistance to the infrastructure sector is decreasing in Algeria.

**Table13. KOICA's Major ODA Projects in Algeria**

Project Period	Main Project Name	Project Costs
2013-2018	The CATICA Project	US\$ 12 million
2014-2017	The Development Experience Exchange Partnership (DEEP) program for productivity improvement in the fisheries industry	US\$ 5 million
2008-2011	The Project for Capacity Building for Shrimp Farming in Algeria	US\$ 2.4 million
2007-2010	The 1st Tiaret Seed Potato Project	US\$ 1.8 million
2011-2014	The 2nd Tiaret Seed Potato Project	US\$ 0.4 million
2010 ~ 2015	The Project for the Capacity Building of Shrimp Farming in the Sahara Desert	US\$ 6 million
1991-2014	TOTAL	US\$ 24,228,000

Source: KOICA Office in Alger

## **C.2. SOUTH KOREA: ALGERIA EL HARRACH RIVER RESTORATION PROJECT CASE**

Algeria El Harrach river restoration project is a PPP (Public-Private Partnership) project signed on June 2012, costing around US\$ 500 million. Algerian Ministry of Water Resources awarded the project to a consortium of Algerian national construction company Cosider and Korean private construction company Daewoo E&C at 30:70. The construction, which is scheduled to be completed by December 2015, covers restoring river water by rigging waste treatment facilities and creating entertainment facilities at riverside (Lee 2012).

In 2009, Korean government set up a five-year plan for overseas market penetration through

cooperation between the public and private sectors. For the Master Plan for Environment Improvement of Developing Countries by Korean Ministry of Environment, Korean Ministry of Environment established the Master Plan and set up network for the intergovernmental cooperation, KEITI (Korea Environmental Industry and Technology Institute) managed overseas projects and supported private companies. The consortium of Daewoo E&C, Dongmyong E&A, HiEntech and Korea Bio System performed this Master Plan for the improvement of the environmental conditions of Algeria in 2011. The Korean delegates had several meetings with Algerian government and the delegates from Korean Embassy in Algeria and Daewoo E&C met with Algerian minister of water resources for this project (Lee 2012).

Despite the difficulties of the construction progress due to the lack of Algerian standards concerning this area and the construction delay, this project is meaningful in the way that it features a PPP project which was launched through the efforts of public and private sectors between two countries and that it is an environment related project (through interviews with interviewees).

## V. DISCUSSION

Since Algeria had announced its decision to stop incurring foreign debts in 2006 thanks to the revenue from the oil and gas exports, it has not nearly received credit assistance, but many grants mainly from Western countries like France, Spain, Italia, United Kingdom, United States, and from two Asian countries like Japan and Korea. Also, Algeria received gifts such as funding and building for opera house from China. France focused mainly on the education sector, Japan on the energy, national security and technical assistance sector and Korea on the policy consulting, agriculture, fisheries, transportation, communication and education sector (OECD 2015).

The findings about the first research question “whether infrastructure development is linked to economic growth in Algeria” are as below.

The relationship between AIDI and GDP per capita (current US\$) over 10 years (2001-2010) is proportional. Also, on the table4, as AIDI increased gradually, GDP per capita also increased in Algeria from 2001 to 2010. Therefore, between AIDI and GDP per capita in Algeria, there is a correlation. Furthermore, given other socio-economic data such as during the same period, Algeria is now establishing infrastructure system. Given the results, if Algeria develops better the infrastructure system, the level of life of Algerian people could be a lot better than now although there would be some time lags for the people to feel the real change.

The findings about the second research question “whether Northeast Asian countries’ roles are different for the infrastructure development from the development cooperation standpoint” are as below.

In case of China, it is not a DAC member. But China’s leverage on African recipients is gigantic. In many recipient countries, China has written off debts, provided huge favorable



loans, abolished tariff for the imported products and constructed the infrastructure installation. In response, China was able to ensure the access to natural resources. As Algerian government executed national plans based on the infrastructure development in the 2000s, China entered into Algeria with its huge financial firepower and landed many infrastructure contracts with a backdrop of the strong diplomatic relations between Algeria and China which had started since the pre-independent period when China supported Algerian independence activists. Eventually, China became the first trading partner in 2013, pushing aside France.

Japan's approach to Algeria is related with their economic interests in the energy sector. The development cooperation between Japan and Algeria is mainly through JICA and economic cooperation on the private level. Through JICA, Japan provides grant-type assistants such as technical assistance, training regarding seism, national security and energy. The areas provided through JICA represent Japan's specialized technologies which are valuable for Algeria to be transferred. Especially, the cooperation in the national security is noticeable from the diplomatic and economic points of view. Thus, in spite of the terrorism in the Sahel gas plant occurring 10 Japanese casualties, this resource-poor country will continue to cooperate with Algeria in the private and public sectors.

The cooperation between South Korea and Algeria is implemented through KSP programs, KOICA and mostly private cooperation by Korean companies. Especially, KSP programs as national policy consulting services are valuable for Algeria to map out their national plans. KOICA's grants also helps Algerian industrial diversification by providing technical assistances in the agriculture and fisheries.

The findings about the advantages and disadvantages in the infrastructure projects between China-Japan-South Korea and Algeria are as below. To obtain these findings, I tried to interview the persons in charge of the infrastructure sector and synthesized them.

China's strengths are low costs and rapid progress in the construction works by inputting directly Chinese workers and materials from its home country, as well as the financial force and the good match to Algerian local business environment including 'can-do' attitude. Comparing with Japan, Japan tends to be eager to receive the approval in all the progress steps from Algerian order organizations, thus it takes long time. On the contrary, China shortens time loss resulting from the administrative process by proceeding with works first, and then informing of the progress to the Algeria officials. Also, China has 'can-do' attitude for all the difficulties in Algeria. This makes China get a lot of contracts.

China's weaknesses are relatively low quality of works compared to those conducted by Japan or South Korea, non-transparency during the bidding process, high maintenance costs and long maintenance period. China brings in cheap and young labors from its home country to implement the projects. Therefore, it causes low quality of work and generates longer maintenance period and higher maintenance costs. In a different point of view, for China, it can foster many specialists in Algerian business environment. This could be a strong advantage for the cooperation between China and Algeria in the long term.

Japan's strengths are quality assurance through the cutting-edge and economic construction technology. Thanks to Japan's high construction quality, the maintenance fees and period can be significantly reduced.

Japan's weaknesses are high bidding prices and construction delay due to the insistence on the quality of work, as well as the lack of flexibility. As mentioned above, that Japan's lack of flexibility in Algerian local business environment can be a barrier to satisfy the needs of Algerian officials who manage most of projects in Algeria.

South Korea's strengths are good technical skills including exact and rapid construction progress in terms of cost-effectiveness comparing to European countries, the attitude of respect for organizational hierarchy originated from the Korean culture, and good quality of

outputs. The backbone of Korean construction knowledge and technologies is the will power to eager to accomplish thoroughly their works, which is already known in the Middle-East region, and are being applied to Algeria.

South Korea's weaknesses are relatively weak price competitiveness comparing to Chinese or Indian companies, the language barrier according to a Korea interviewee and the lack of young specialists in Algerian business environment compared to Chinese cases. In the long term, fostering young specialists in Algeria seems necessary for sustained cooperation between South Korea and Algeria.

As for the findings in the policy framework, China-Japan-South Korea and Algeria are not simply economic partners or development cooperation partners, but also partners in the policy or national security area.

China was an old friend for Algeria since the pre-independent period. Algerian government designated a quota of 20 percent of employment for Algerian workers on site. As the construction boom has surged, the number of jobs has been increasing. But it did not seem sufficient to lower youth unemployment rate in Algeria. Therefore, Algerian government imposed the rule of quota, but it seems unclear whether it is observed well on all the sites.

Japanese government strengthened the assistance of Algerian security sector after the terrorist attack in 2013 through the meetings between high ranking government officials and JICA. The cooperation between Japan and Algeria in national security, which was conducted by the needs of two countries, will promote the development of Algerian energy sector and the diplomatic cooperation between two countries. Also Japan reinforced Japanese system of Trade Insurance for the Japanese investors to dangerous regions after the terror (KOTRA 2014). Thus, we can see the multidirectional efforts by the Japanese government to promote entering into this resource-rich but somewhat risky country.

Korean government provided a policy consulting services to Algerian government through

KSP (Knowledge Sharing Programs) to enhance the industrial diversification and to establish the advanced governance for the economic growth. Not only KSP or KOICA, but also several Korean state-run research institutes such as KIET (Korean Institute for Industrial Economics and Technology) and KHIHS (Korean Research Institute for Human Settlement) are trying to cooperate with developing countries as part of the increase of government's budget in the development cooperation sector in Korea.

**Table13. China-Japan-South Korea's differences and similarity**

	CHINA	JAPAN	SOUTH KOREA
DAC Member	x	o	O
Aid Agency in Algeria	none	JICA	KOICA
Algeria's exports of total all products to China-Japan-S.Korea (in 2013) (thousand US\$)	6,827,545	1,002,267	1,124,487
Algeria's imports of total all products from China-Japan-S.Korea (in 2013) (thousand US\$)	2,181,280	1,038,756	563,197
Main cooperation sectors	building, housing, transport	energy, transport and national security	building, electricity, transport and water & sanitation
Strengths in the infrastructure sector in Algeria	low cost and rapid progress, capital strength, a lot of young workers, 'can-do' attitude	high quality, cutting-edge and economic technology, transparency, low maintenance fees and short maintenance period	good quality in terms of cost-effectiveness, respect for hierarchy, will power
Weaknesses in the infrastructure sector in Algeria	weak transparency, low quality, high maintenance costs and long maintenance period	high price, lack of flexibility	relatively weak price comparativeness, language barriers lack of young workers
Policy cooperation	(close and long diplomatic relations)	national security cooperation	KSP (Knowledge Sharing Program)

Source: Author summarized the findings of the study

The efforts in the policy framework by three Asian countries seem significantly valuable for Algerian economic growth and governance by presenting new methods and practical success growth models.

## **VI. CONCLUSION AND RECOMMENDATIONS**

### **A. CONCLUSION**

In summary, infrastructure development in Algeria contributes to socio-economic wellbeing as well as economic growth. Also, for Algeria, which is an oil-rich but still poor country, infrastructure development would be the foundation for the industrial diversification to settle the barriers such as oil dependency and youth unemployment. Also, the current infrastructure development would be helpful for Algeria to enter into the World Trade Organization by enlarging trade volume resulting from the increase of purchasing power through job creation.

In the infrastructure sector, China has been generating Construction Boom with the strengths of low bidding prices and fast construction progress on the basis of huge financial power by bring in directly Chinese labor forces and construction machineries from the mainland against the backdrop of the long friendly diplomatic relations with Algeria since the pre-independent period. Japan has focused on mainly energy sector with top-level technology and national security, as well as technical assistance and training through grant-type agency. South Korea has been actively contributing to Algerian infrastructure development on the private cooperation level, by building power plants, designing and supervising several highways, improving river and doing business in the ICT sector. Especially from the development cooperation standpoint, the cooperation in the policy consulting through KSP is noticeable to enhance Algerian governance and to help the country draw up its national plans. Also, the grant-type cooperation with KOICA has contributed to the development of Algeria agriculture and fisheries.

From the development cooperation standpoint, although Algeria is not an ODA-dependent country, Northeast Asian countries' approaches which are different from European countries' approaches to Algeria are needed in order to understand different economic development

models to apply to the country. This thesis would be helpful for the future cooperation between these Northeast Asian countries and Algeria by examining how they have cooperated with one another up to now, by having different perspectives from the existing European ones and by helping understanding different economic development methods for Algerian economic development. Although Algeria is now actively developing infrastructure systems, the economic development models for the industrial diversification will be necessary for the sustained development.

## **B. LIMITATION OF THE STUDY**

Due to the almost complete absence of comparative studies on China-Japan-South Korea's approaches to Algeria, I tried to access directly to the pages regarding data on the web sites of the IMF, AfDB, WB, UNCTAD, U.S. EIA and AID FLOWS etc. so as to find data and tried to interview with practical specialists in Algerian infrastructure. So interview method was inevitable and useful to study for this thesis.

As Algeria is not an aid-dependent country, I focused on the private sector development in the infrastructure sector by including the private sector development in the context of the development cooperation. Although the development cooperation between these Asian countries and Algeria through aid agencies seems a lot less than that in the private sectors, it is useful to foster diverse industries and human resources.

I did not mention about the ICT sector. However, from now on, the development of the ICT sector seems to be infinite in Algeria.

## **C. RECOMMENDATIONS**

Algeria is much unknown to Asian people. In fact, as Algerian people use French, Arab or Berber, it is not easy to approach this country for Asian peoples. Also, it is geographically far

from Northeast Asia. Nevertheless, Algerian people's mentality is rather oriental. Therefore, once two sides understand the features of each side, the cooperation between Asian countries and Algeria could be much effective. Moreover, the needs of two sides seem a puzzle that can make each side satisfy their own needs. More detailed and advanced studies than this study are needed to sustain and enhance more effectively the cooperation between Asian countries and Algeria.

Although these three Asian countries contributed to mainly Algeria's infrastructure development until now, from now on, the cooperation in diverse industries would be effective in order to switch Algeria from an oil-dependent country to an oil-based growing country, by utilizing Asian best experiences and specialties. Once manufacturing business in Algeria is activated, huge consumer markets such as African countries as well as European countries are open.

In case of Japan, grant-type aid is strongly related with Japan's specialties, as well as economic interests. In case of South Korea, diverse grant-type aid programs would be possible by making use of South Korean strong fields such as ICT, vocational training and technical assistance for the future.

Also, further studies on Algerian health sector and the scheme of cooperation with China-Japan-South Korea in the industry would be valuable. According to an article by Kaci Racelma (2013), there were strikes due to Algerian poor health systems that it could affect the country's political stability. Three Asian countries' capacities in the health industry could be useful for the development of Algerian health sector.

Lastly, this thesis would be helpful for Algerian government officials, private investors, foreign and local workers in Algeria, as well as development professionals who plan to set direction for cooperation with Algeria.



## REFERENCE

U.S. Energy Information Administration (U.S. EIA). 2014. "Country Analysis Brief: Algeria."

Last updated February 5, 2014.

<http://www.eia.gov/beta/international/analysis.cfm?iso=DZA>

Sato, Jin, Hiroaki Shiga, Takaaki Kobayashi, and Hisahiro Kondoh. 2011. "Emerging Donors"

From A Recipient Perspective: An Institutional Analysis Of Foreign Aid In Cambodia'. *World Development* 39 (12): 2091-2104.

Iwata, Takuo. 2012. "Comparative Study on "Asian" Approaches to Africa: an Introductory reflection." *African Study Monographs* 33 (4): 209-231.

Ky, Sereyvath, Cheon-Won Lee, and Peter J. Stauvermann. 2012. "A Comparative Study on Characteristics of ODA of China-Japan-Korea to Cambodia." *Journal of East Asian Economic Integration* 16 (4): 333-361.

Letsara, Nirina, Slaheddine Saidi, and Charles Layeka Lufumpa. 2013. *The Africa Infrastructure Development Index (AIDI)*. Denmark: African Development Bank.

World Bank (WB). "Algeria Overview." Last updated March 31, 2015.

<http://www.worldbank.org/en/country/algeria/overview>

Markey, Patrick, and Lamine Chikhi. 2014. "Algeria's Bouteflika wins re-election with 81.5 percent: official results." *Reuters*.

<http://www.reuters.com/article/2014/04/18/us-algeria-election-idUSBREA3H0D620140418>

Matondo-Fundani, Nono, Assitan Diarra-Thioune, Robert Kossi Eguida, Abou Amadou Ba, Malek Bouzgarou, Issa Koussoube, Ferdinand Bakoup, Pascal Bitoumbou, Septime Martin, Marie-Laure Akin-Olugbade. 2012. *People's Democratic Republic of Algeria: Dialogue Note 2011-2012*. Africa Development Bank.

[http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Algeria-%20Dialogue%20Note%20%202011-2012%20\(01%20juin%202011\)%20Revised%20English%20final.pdf](http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Algeria-%20Dialogue%20Note%20%202011-2012%20(01%20juin%202011)%20Revised%20English%20final.pdf)

Matondo-Fundani, Nono, Assitan Diarra-Thioune, Catherine Baumont-Keita, Robert Kossi Eguida, Malek Bouzgarrou, Tarik Benbahmed, Saida Benchouk-Issaad, Aissatou Ba, Ferdinand Bakoup, Abdourahmane Diaw, Marcellin Ndong Ntah, Pascal Yembiline. 2012. *People's Democratic Republic of Algeria: Combined 2011-2012 Dialogue Note Completion Report and Country Portfolio Performance Review*. Africa Development Bank.

<http://www.afdb.org/fileadmin/uploads/afdb/Documents/Project-and-Operations/Algeria%20-%20Combined%202011-2012%20Dialogue%20Note%20Completion%20Report%20%20and%20Country%20Portfolio%20Performance%20Review%202012.pdf>

Benbahmed, Tarik and, and Hervé Lohoues. 2015. *ALGERIE 2015*. African Economic Outlook.

[http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2015/CN\\_data/Cn\\_L\\_ong\\_FR/Algerie\\_2015.pdf](http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2015/CN_data/Cn_L_ong_FR/Algerie_2015.pdf)

International Monetary Fund (IMF). 2011. "Algeria Should Reduce Reliance on Oil, Create More Jobs, Says IMF." *IMF Survey Online*.

<http://www.imf.org/external/pubs/ft/survey/so/2011/int012611a.htm>

Ahmed, Masood. 2015. "Algeria's Historic Opportunity for Reform." International Monetary Fund.

<https://www.imf.org/external/np/vc/2015/022515.htm>

Pairault, Thierry. 2015. *China's economic presence in Algeria*. École des hautes études en sciences sociales (EHESS)

<https://hal.inria.fr/halshs-01116295/document>

Grieger, Gisela. 2013. *China's role in development in Africa*. European Parliament.

[http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/130521/LDM\\_BRI\(2013\)130521\\_REV1\\_EN.pdf](http://www.europarl.europa.eu/RegData/bibliotheque/briefing/2013/130521/LDM_BRI(2013)130521_REV1_EN.pdf)

Sun, Yun. 2014. *Africa in China's Foreign Policy*. Washington: John L. Thornton China Center and Africa Growth Initiative.

Simon, François. 2013. "Algeria: Africa's largest Chinese community." *The Dragon's Trail*.

<https://dragonstrail.wordpress.com/2013/02/26/algeria-china-community-affairs/>

McCurry, Justin. 2013. "In Japan, sadness and frustration over Algeria hostage crisis." *Global Post*.

<http://www.globalpost.com/dispatch/news/regions/asia-pacific/japan/130127/japan-sadness-frustration-algeria-hostage-crisis>

Liberté-Algérie. "L'Algérie est une des plus grandes puissances économiques africaines." Last updated December 13, 2010.

<http://www.liberte-algerie.com/actualite/lalgerie-est-une-des-plus-grandes-puissances-economiques-africaines-86639>

Benarab, Nassima. 2014. "La coopération sécuritaire avec l'Algérie est indispensable." *L'Eco news*.

[http://www.leconews.com/fr/politique/politique-internationale/diplomatie/la-cooperation-securitaire-avec-l-algerie-est-indispensable-19-05-2014-169554\\_372.php](http://www.leconews.com/fr/politique/politique-internationale/diplomatie/la-cooperation-securitaire-avec-l-algerie-est-indispensable-19-05-2014-169554_372.php)

Ministry of Foreign Affairs of Japan. "Japan's ODA Data for Algeria." Last updated March 31, 2015.

<http://www.mofa.go.jp/policy/oda/data/pdfs/algeria.pdf>

Ministry of Foreign Affairs of Japan. "Japan-Algeria Relations." Last updated September 9,

2015.

<http://www.mofa.go.jp/region/africa/algeria/data.html>

Korea International Cooperation Agency (KOICA). 2015. *KOICA 알제리주재원 사무소 업무현황 보고*. Algiers: KOICA Algiers Office.

Sukkarieh, Mona. 2012. “Chinese investments in Algeria: a vital asset that must be reviewed.” *Middle East Strategic Perspectives*.

<http://www.mesp.me/2012/09/23/chinese-investments-in-algeria-a-vital-asset-that-must-be-reviewed/>

Roadtraffic technology.com. “East-West Highway, Algeria.” Accessed September 9, 2015.

<http://www.roadtraffic-technology.com/projects/eastwesthighway/>

Algeria.com. 2006. “Algeria’s East-West Motorway.” Accessed September 9, 2015.

<http://www.algeria.com/forums/business-affaires/17562-algerias-east-west-motorway.html>

Kang, Gil-Sung. 2011. “The Korea-Africa Partnership: Beyond Trade and Investment.” *Africa Economic Brief 2* (9): 1-8. AfDB Chief Economist Complex.

[http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AEB%20VOL%202%20Issue%209%20June%202011\\_AEB%20VOL%202%20Issue%209%20June%202011.pdf](http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/AEB%20VOL%202%20Issue%209%20June%202011_AEB%20VOL%202%20Issue%209%20June%202011.pdf)

Korea Trade-Investment Promotion Agency (KOTRA). 2014. *일본 COJAAL 사(社)의 출국 조치 사례와 시사점*. Algiers: KOICA Algiers Office.

[http://www.globalwindow.org/gw/overinvest/GWOIFS020M.html?BBS\\_ID=17&MENU\\_CD=M10302&UPPER\\_MENU\\_CD=M10301&MENU\\_STEP=2&Page=1&RowCountPerPage=10&MODE=L&ARTICLE\\_ID=5017244&cmmtPage=1&cmmtRowCountPerPage=5&cmmtMODE=&REPLY\\_ID=&UPPER\\_REPLY\\_ID=&REPLY](http://www.globalwindow.org/gw/overinvest/GWOIFS020M.html?BBS_ID=17&MENU_CD=M10302&UPPER_MENU_CD=M10301&MENU_STEP=2&Page=1&RowCountPerPage=10&MODE=L&ARTICLE_ID=5017244&cmmtPage=1&cmmtRowCountPerPage=5&cmmtMODE=&REPLY_ID=&UPPER_REPLY_ID=&REPLY)

[TEXT MO=&REPLY TEXT RE=&SCH TYPE=SCH SJ&SCH VALUE=&SCH AREA CD=00000&SCH NATION CD=000000&SCH TRADE CD=0000000&SCH ARTICLE SE=00000&SCH START\\_DT=&SCH END\\_DT=](#)

Lee, Bumjin. 2012. “알제리 하천복원에 4대강 기술이 간다.” *Weekly Gonggam*.

[http://korea.kr/gonggam/newsView.do;JSESSIONID WEEKLY=0Y2HJ6nJp1JqGyT52W7yQBpbH1VwQWzjPbQSRnNT5CG6RPRJRGSn!-614520321!591874153?newsId=148734904&sectId=gg\\_sec\\_23](http://korea.kr/gonggam/newsView.do;JSESSIONID WEEKLY=0Y2HJ6nJp1JqGyT52W7yQBpbH1VwQWzjPbQSRnNT5CG6RPRJRGSn!-614520321!591874153?newsId=148734904&sectId=gg_sec_23)

Stander TradePortal. “Algeria Foreign Investment.” Last updated September 2015.

<https://en.santandertrade.com/establish-overseas/algeria/foreign-investment>

Steyn, Lisa. “As oil prices tumble, from Algeria, Nigeria, Gabon to Angola, Africa’s producers are in tears.” *Mali & Guardian Africa*. Last updated August 14, 2015.

The Washington Times. 2010. “China leads Algeria construction boom.” Last updated January 27, 2010.

<http://www.washingtontimes.com/news/2010/jan/27/china-leads-algeria-construction-boom/?page=all>

African Development Bank (AfDB). 2010. *The AfDB and Algeria 40 years of Partnership*.

<http://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/ALGERIE%20Country%20profil%20202.pdf>

Algeria Press Service. 2014. “Investment: New five-year plan to develop competitive, diversified economy.” Last updated May 08 2014

<http://www.aps.dz/en/economy/2520-investment-new-five-year-plan-to-develop-competitive,-diversified-economy>

U.S. Department of State. 2015. “Direct Line: Opportunities in Algeria’s Growing Infrastructure.” Bureau of Economic and Business Affairs. Last updated April 16, 2015.

<http://www.state.gov/e/eb/directline/events/239792.htm>

MarketResearch.com. “Description: Algeria Infrastructure Report 2015.” Accessed September 25, 2015.

<http://www.marketresearch.com/Business-Monitor-International-v304/Algeria-Infrastructure-8550301/>

Ministry of Foreign Affairs of the People’s Republic of China. “Historical Data for Sino-African Cooperation: Fifty Years of Friendly Sino-African Cooperation.” Last updated Oct 18, 2014

<http://www.fmprc.gov.cn/ce/ceza/eng/zghfz/zfgx/t165323.htm>

Qiang, Zeng. “Sino-African Relations at a New Stage of Development.” CICIR.

[http://www.ide.go.jp/Japanese/Publish/Download/Kidou/pdf/2007\\_03\\_03\\_3\\_zeng\\_e\\_o.pdf](http://www.ide.go.jp/Japanese/Publish/Download/Kidou/pdf/2007_03_03_3_zeng_e_o.pdf)

Wu, Chenchen. “China’s Foreign Policy towards Africa.”

[https://www.google.co.kr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0C DYQFjACahUKEwjUu4rdzKfIAhWl46YKHWVkc84&url=http%3A%2F%2Fwww.pol.ed.ac.uk%2F\\_data%2Fassets%2Fword\\_doc%2F0018%2F15633%2Fchenchen\\_wu\\_paper.doc&usg=AFQjCNFGp\\_K6BhYckhB3TPQCqemLvKTQ&bvm=bv.104317490,d.dGY](https://www.google.co.kr/url?sa=t&rct=j&q=&esrc=s&source=web&cd=3&ved=0C DYQFjACahUKEwjUu4rdzKfIAhWl46YKHWVkc84&url=http%3A%2F%2Fwww.pol.ed.ac.uk%2F_data%2Fassets%2Fword_doc%2F0018%2F15633%2Fchenchen_wu_paper.doc&usg=AFQjCNFGp_K6BhYckhB3TPQCqemLvKTQ&bvm=bv.104317490,d.dGY)

RNW media. “Chinese in Algeria – work, quarrels and mixed marriages.” Accessed Oct. 1<sup>st</sup>, 2015.

<https://www.rnw.org/archive/chinese-algeria-work-quarrels-and-mixed-marriages>

Ministry of Foreign Affairs of Korea. 2011. *알제리개황(2011)*. Seoul: 중등2과

[http://www.mofa.go.kr/trade/data/publication/trade/index.jsp?mofat=001&menu=m\\_30\\_210\\_60&sp=/incboard/faimsif/publicview.jsp%3FITEM\\_ID=F4E61D00FD52EBAD492578500022AE84](http://www.mofa.go.kr/trade/data/publication/trade/index.jsp?mofat=001&menu=m_30_210_60&sp=/incboard/faimsif/publicview.jsp%3FITEM_ID=F4E61D00FD52EBAD492578500022AE84)

OKhettab, Djamila Ould. 2015. "Oil price slump threatens to erode Algeria's status quo."

*Aljazeera*. Last updated February 03 2015.

<http://www.aljazeera.com/news/2015/02/oil-price-slump-threatens-erode-algeria-status-quo-150203102439772.html>

Racelma, Kaci. 2013. "Crisis in Algeria's Health Sector May Affect Political Stability." *Al-Monitor*. Last updated May 12 2013.

<http://www.al-monitor.com/pulse/originals/2013/05/algeria-health-sector-strikes-paralysis.html>

Table1. Macroeconomic indicators (extract from IMF World Economic Outlook 2015, AfDB African Economic Outlook 2015 and 2014)

Table2. Algeria's GDP at market prices (current US\$) (in billion US\$), 2003-2013, (World Development Indicators)

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Table4. AIDI, Country Scores and the Top Ten Rankings, 2007-2010 (extract from Letsara, Nirina, Slaheddine Saidi, and Charles Layeka Lufumpa. 2013. *The Africa Infrastructure Development Index (AIDI)*. Denmark: African Development Bank).

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Figure2. Europe Brent Spot Price FOB (U.S. EIA (Energy Information Administration)).

<http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RB RTE&f=D>

Figure3. Algeria's External debt stocks (% of DNI) (World Development Indicators).

Figure4. Algeria's Net ODA Disbursements as % of GNI in beneficiary view

(OECD/DAC) [www.aidflows.org](http://www.aidflows.org) accessed : Dec. 19 2015.

Figure5. Algeria's Net ODA Disbursements by Type of Financing in beneficiary view

(OECD/DAC) [www.aidflows.org](http://www.aidflows.org) accessed : Oct. 2 2015.

Figure6. Algeria's Source of ODA: Top 15 Donors in beneficiary view (in US\$M)



(OECD/DAC) [www.aidflows.org](http://www.aidflows.org) accessed : Oct. 2 2015.

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(OECD/DAC) [www.aidflows.org](http://www.aidflows.org) accessed : Oct. 2 2015.

Figure8. Approved projects by sector 1971-2006 by AfDB (extract from Matondo-Fundani, Nono, Assitan Diarra-Thioune, Robert Kossi Eguida, Abou Amadou Ba, Malek Bouzgarou, Issa Koussoube, Ferdinand Bakoup, Pascal Bitoumbou, Septime Martin, Marie-Laure Akin-Olugbade. 2012. *People's Democratic Republic of Algeria: Dialogue Note 2011-2012*. Africa Development Bank).

Figure9. Ratio by major trade partners (UNCTAD (United Nations Conference on Trade and Development)

Original data: <http://unctadstat.unctad.org/ReportFolders/reportFolders.asp>  
made by author through the platform of [www.Opendataforafrica.com](http://www.Opendataforafrica.com))

Figure10. Ratio by major trade partners (UNCTAD (United Nations Conference on Trade and Development)

Original data: <http://unctadstat.unctad.org/ReportFolders/reportFolders.asp>  
made by author through the platform of [www.Opendataforafrica.com](http://www.Opendataforafrica.com))

Figure11. Map of Algeria East-West Highway (Data from Algérie 1.com. 2015)

Appendix 1. List of Bank-Approved Projects in Algeria (1971-2010) (extract from Matondo-Fundani, Nono, Assitan Diarra-Thioune, Robert Kossi Eguida, Abou Amadou Ba, Malek Bouzgarou, Issa Koussoube, Ferdinand Bakoup, Pascal Bitoumbou, Septime Martin, Marie-Laure Akin-Olugbade. 2012. *People's Democratic Republic of Algeria: Dialogue Note 2011-2012*. Africa Development Bank).

Appendix 2. Algeria's trade volume with major countries (2001-2010) (Source from UNCTAD)

Interview with SEO Ho-Jin, Resident Representative of KOICA's Algiers Office, Sept. 22,

2015.

Interview with LEE Jae-Sung, Korean senior engineer, Sept. 15, 2015.

Interview with Karim NAZEF, Algerian former executive director who worked for ANA, Sept. 15, 2015.

Interview with Rachid CHABANE, Algerian senior engineer, Sept. 21, 2015.

Interview with Rachid ZOUBIRI, Algerian engineer, August 24, 2015.

## APPENDIX

### Appendix 1 List of Bank-Approved Projects in Algeria (1971-2010)

	PROJECT NAME	DATE OF APPROVAL	CLOSING DATE	AMOUNT APPROVED (UA)	AMOUNT APPROVED (USD)
<b>Sector: Agriculture</b>					
1	BOU-NAMOUSA I	23/03/1971	31/12/1975	3 000 000	4 710 000
2	BOU NAMOUSSA II	06/11/1973	31/03/1981	240 000	376 800
3	POULTRY DEVELOPMENT PROGRAMME	14/12/1987	31/12/1997	96 800 000	151 976 000
4	MOYEN CHELIFF IRRIGATION DEVELOP	18/04/1989	31/12/1998	68 160 000	107 011 200
5	HABILITATION OF HABRA IRRIGATED AREA	05/01/1993	30/06/1995	690 789	1 084 539
6	SIDI BEN TAIBA IRRIGATION DAM	31/08/1993	31/12/2003	50 600 000	79 442 000
	<b>Total: Agriculture</b>			<b>219 490 789</b>	<b>344 600 539</b>
<b>Sector: Industry/Mines</b>					
7	MANUFACTURE OF AGRICULTURAL EQUIPMENT	14/12/1987	-	-	-
8	INSTI. SUPPORT POULTRY TECHNO. DEV. CENTRE	27/01/1992	30/06/1994	4 1 446 052	2 270 302
	<b>Total: Industry/Mines</b>			<b>1 446 052</b>	<b>2 270 302</b>
<b>Sector: Infrastructure</b>					
<b>Subsector: Transport</b>					
9	EL GOLEA – INSALAH ROAD	21/07/1971	31/12/1974	3 000 000	4 710 000
10	AIR ALGERIA MAINTENANCE BASE	18/09/1989	30/10/2003	40 170 000	63 066 900
11	CONSTRUCTION OF EL ACHIR NEW TUNNEL (I)	17/06/1991	30/04/2002	49 080 000	77 055 600
12	ROAD STRENGTHENING	25/03/1992	31/12/1999	36 000 000	56 520 000
13	EQUIPMENT OF DJEN-DJEN PORT	24/11/1993	31/03/2001	21 800 000	34 226 000
14	CONSTANTINE HIGHWAY	22/11/1995	30/06/2003	25 750 000	40 427 500
15	CONSTRUCTION OF EL ACHIR NEW TUNNEL (II)	20/11/2000	31/12/2003 2	27 950 000	43 881 500
	CONSTANTINE HIGHWAY LOOP ROAD	04/12/2002	31/12/2007	76 850 000	120 654 500
	<b>Total: Transport</b>			<b>280 600 000</b>	<b>440 542 000</b>

<b>Subsector: Water and Sanitation</b>					
17	CONSTRUCTION OF KOUDIAT ACERDOUNE DAM	31/08/1993	31/12/2001	106 400 000	167 048 000
18	SIDI BEL ABBES WATER SUPPLY	09/12/1998	30/06/2006	70 040 000	109 962 800
19	KOUDIAT.AC ROLLER COMPACTED CONCRETE DAM	04/10/2000	31/12/2005	87 480 000	137 343 600
<b>Total: Water and Sanitation</b>				<b>263 920 000</b>	<b>414 354 400</b>
<b>Subsector: Energy</b>					
20	SONELGAZ I	10/02/1976	31/12/1977	5 000 000	7 850 000
21	SONELGAZ II	28/12/1977	31/12/1988	5 000 000	7 850 000
22	SONELGAZ III	22/08/1978	31/12/1994	5 000 000	7 850 000
23	ELECTRICITY PROJECT IV	20/09/1994	30/06/2001	57 700 000	90 589 000
24	GAS TRANSPORTATION AND DISTRIBUTION PROJECT	08/07/1998	30/09/2005	150 610 000	236 457 700
<b>Total : Energy</b>				<b>223 310 000</b>	<b>350 596 700</b>
<b>Subsector: Telecommunications</b>					
25	TELECOM. SECTOR SUPPORT PROJECT	03/07/2002	31/12/2007	120 313 000	188 891 410
<b>Total: Telecommunications</b>				<b>120 313 000</b>	<b>188 891 410</b>
<b>Sector : Finance</b>					
26	AGRICULTURAL LINE OF CREDIT	22/12/1986	31/12/1994	60 000 000	94 200 000
27	INDUSTRY AND TOURISM LINE OF CREDIT	23/08/1988	30/06/1995	40 000 000	62 800 000
28	LINE OF CREDIT TO CREDIT POPULAIRE D'ALGERIE II	10/12/1996	30/06/2001	100 000 000	157 000 000
29	SECOND AGRICULTURAL LINE OF CREDIT TO BADR	07/07/1999	31/12/2003	102 000 000	160 140 000
30	SECOND AGRICULTURAL LINE OF CREDIT TO BADR	07/07/1999	31/12/2004	105 000 000	164 850 000
31	ELECTRONIC BANKING DEVELOPMENT TECHNICAL ASSISTANCE PROJECT	07/11/2007	31/12/2010	494 800	776 836
32	MAGHREB LEASING ALGERIA	22/04/2009		5 340 739	8 384 960
<b>Total: Finance</b>				<b>412 835 539</b>	<b>648 151 796</b>
<b>Sector: Social Sector</b>					
33	TECHNICAL EDUCATION STRENGTHENING	18/12/1989	30/09/2000	81 000 000	127 170 000

34	TECHNICAL EDUCATION STRENGTHENING (LOAN)	18/12/1989	30/09/2000	607 894	954 394
	<b>Total: Social Sector</b>			<b>81 607 894</b>	<b>128 124 394</b>
<b>Sector: Multi-Sector</b>					
35	ECONOMIC REFORM SUPPORT LOAN	17/04/1990	30/06/1994	150 000 000	235 500 000
36	EXTERNAL TRADE ADJUSTMENT PROGRAMME	24/06/1992	30/06/1997	150 000 000	235 500 000
37	STRUCTURAL ADJUSTMENT PROGRAMME	10/12/1996	31/12/1999	150 000 000	235 500 000
38	TA-MODERN. COLLABO. SYST, COMM. TO FINANCE	20/07/2009	31/12/2013	496 500	779 505
39	TECHNICAL ASSISTANCE TO CNED	22/05/2007	30/06/2010	600 000	942 000
	<b>Total: Multi-Sector</b>			<b>451 096 500</b>	<b>708 221 505</b>
	<b>Grant Total</b>			<b>2 054 619 774</b>	<b>3 225 753 045</b>

Source: AfDB – Algeria Dialogue Note 2011-2012

## Appendix 2 Algeria's trade volume with major countries (2001-2010)

### Algeria's exports of total all products to major countries (2001-2010)

(unit: thousand US\$)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
China	195303	341759	518810	915860	1333054	1707751	2389400	4066949	4750577	4605097	4737289	5964816	6827545
France	2381841	2697461	3236499	4124341	4472291	4370250	4613613	6503786	6159889	6119686	7115360	6433334	6257798
Spain	522176	623027	743125	885902	967548	1026783	1587922	2914795	2971493	2643622	3427159	4343277	5084229
Italy	1038128	1139101	1274373	1547140	1523818	1881184	2406875	4308610	3659741	4113168	4674954	5191037	5652696
U.K.	252136	305468	411229	392955	357720	386099	551582	641067	725606	767622	1011619	1283329	1176549
United States	1031502	1163299	709312	1087847	1367348	1425739	2134758	2197573	2013729	2125530	2176828	1769703	2370397
India	38900	83136	137072	216941	294892	422889	444353	749378	805383	777530	1092577	1107591	1306679
Japan	206763	372649	380355	656421	780971	709698	1064596	1416735	1193754	1570193	1072895	929708	1002267
S. Korea	161906	207831	220258	360980	402329	445556	809620	961111	1119718	1987806	1615121	1290963	1124487

Source: UNCTAD

### Algeria's imports of total all products from major countries (2001-2010)

(unit: thousand US\$)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
China	86619	77467	89356	248531	273189	13842	1106294	503332	874397	1173443	2173826	2596663	2181280
France	2913475	2554279	3113228	3656189	4595319	4569914	4099711	6370446	4424345	3776057	6533567	6124176	6786095
Spain	2302487	2247427	2998137	3608082	5047957	5982906	5338352	9093340	5402419	5908645	7186051	7809365	10344328
Italy	4308272	3911254	4725646	5165202	7531540	9314361	7967152	12293916	5701581	8779265	10440847	11512555	9016807
U.K.	309352	382747	393371	497393	691288	1623795	1576789	2241412	1141756	1290000	2855041	3668058	7202280
United States	2673738	2591752	4908021	7576592	10597618	14856773	18090636	18952459	10365201	13827316	15127342	10778214	5340529
India	18099	66808	15114	63097	136809	651107	1550498	1166180	506947	1565149	2236778	1067142	816233
Japan	75142	37348	91793	121361	5622	55395	257531	856718	220874	125952	235680	854486	1038756
S. Korea	88969	105859	134819	46769	452531	628651	800495	1498244	1459780	1157525	256959	357940	563197

Source: UNCTAD