

**UNCTAD**

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**Extractive Industries and Sustainable Job Creation**

**Education and training for engineers, workers by  
academic, business and governmental circles,  
and Japan's assistance to Africa**

By

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The views expressed are those of the author and do not necessarily reflect  
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**Extractive industries and sustainable job creation**

Wednesday, 25 November, 2015

Session 7 Training and capacity-building in the extractive  
industries for sustainable job creation

**Friendship Hall, Khartoum, Republic of the Sudan**

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by academic, business and governmental  
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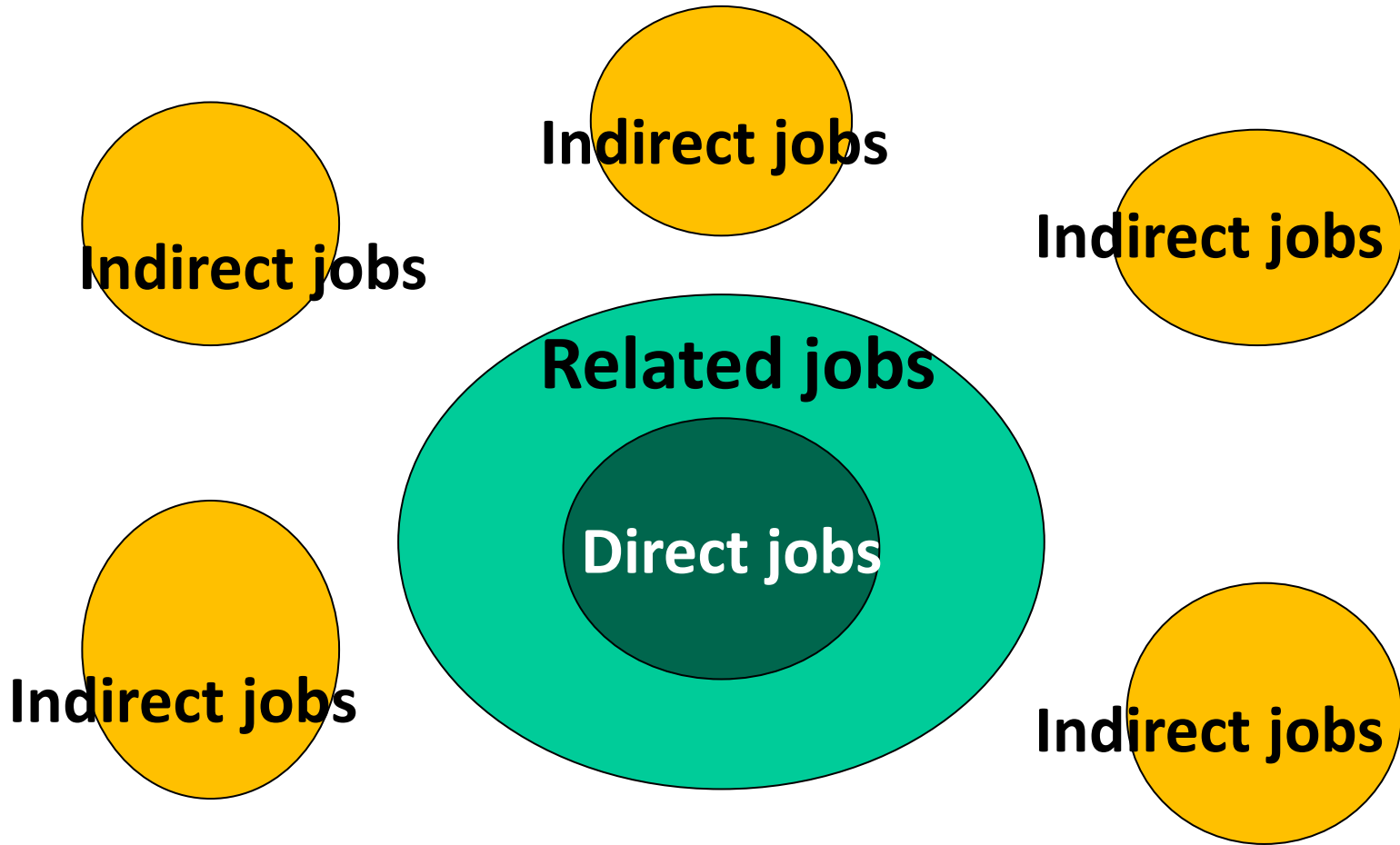
**Japan International Cooperation Agency (JICA)**

# **1. Education and training for engineers and workers by academic, business and governmental circles**

# Mine Development provide

- Economic Development
- Regional & Social Development
- Creation of towns or  
Growth of existing towns
- **Creation of business and jobs**
- Many benefits
- Negative Influences

# Mines create jobs



# Mining Industry and Job (1)

- **Direct Job Creation**

Mines create jobs directly as mining company's workers, such as engineers and workers (exploration, mining, mineral processing, metallurgy, electricity, machine, civil engineering etc.) and clerks (general affairs, purchase, accounting etc.)

Total employment will vary from site to site, and depend on the type of mining and stage of development.

# Mining Industry and Job (2)

- **Related Job Creation**

Mines needs supported business related to mining activities, such as exploration, drilling, engineering works, construction, cargo shipment, company kitchen etc.

In many cases, these business are contracted with mines. According to company, these supported business are included in companies.

# Mining Industry and Job (3)

- **Indirect Job Creation**

Mines create jobs in communities indirectly.

Many businesses provide services for mining companies such as transportation, meals, accommodation, and construction.

Expected labors together mining town, this leads also business needed in daily life, same as above.



# Change of Mining town

## 1. Mines create town

When mine is opened, employees, related business persons and their family people ingather, and town is created.

## 2. Growth of mining town

By hearing about mine development, people enter mine town to look for jobs. Labor moved. Prices go on rising. Traditional society is collapsed. Competition of skilled labor is occurred.

## 3. Downsizing and eventual closure mine

By deceasing production, town become downsizing. Reactivation town is need. In other case, town become Ghost town.

# Japan's Mining History and Industrialization, Prosperity

- Japan could accomplish economic development by mining industry since Meiji era(1868). (Before Meiji, Japan was Samurai era and closure of the country.)
- Japan have many kinds of mineral resources and was rich mineral country.
- In former times, Japan have had about 8,000 registered mines.

# Mining Industry of Japan

- Long and glorious history since the 7<sup>th</sup> C.
- Largest producer in the world. Silver and copper were exported in 17<sup>th</sup> -19<sup>th</sup> C.
- Many modernized mines started in Meiji era (1868-1912).
- 8000 mines were in Japan. In the 1970's, 350 metal mines. Now, only one, it is Hishikari gold mine that is discovered by Dr. Hosoi.
- Expanding domestic demand. Import concentrate and refining/smelting. (custom smelters)

# One example, Kosaka mine

- Before ore discovery, there is nothing, only a few feller came in the area sometimes.
- After mine development, staff/worker houses, company store, hospital and electric power plant were constructed. Many people came to the mine. New town appeared. Post office etc. are established.
- The value of production of Kosaka mine equal to eight-times of Akita provincial budget at one time.



**Kosaka mine in 1930s.**

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# Kosaka Mine and Town

## *Typical forepast Mine Development*

Mining company developed all facilities;

Company houses for executive staffs and employees

Electric generator plant and facilities (1897)

Water service facilities (completed in all area in 1905)

Railroad (passenger-cargo in 1909) Electric railcar (1904)

Hospital (1908: No.1 general hospital of Akita prefecture)

Library (1898)

Amusement facilities (1910 opera house “Korakukan”, cinema house, etc.)

Company shops for employees (1920)

Gymnasium, Post office

Scholarship (1903), Training school (1918)

# Education/Training

- For company workers by company
- For business persons by public corporation
- For engineers and academic persons by academic organization (Universities)
- Government supports companies, public corporations and academic organizations.
- For government officials and academic persons in developing countries by JICA

# Mining company

Mining company established “Mining School” for company’s young workers.

Company hire young workers who finish compulsory education, but do not request for them work full time.

Company send them to high school, and give them classroom lecture and on the job training at mine site.



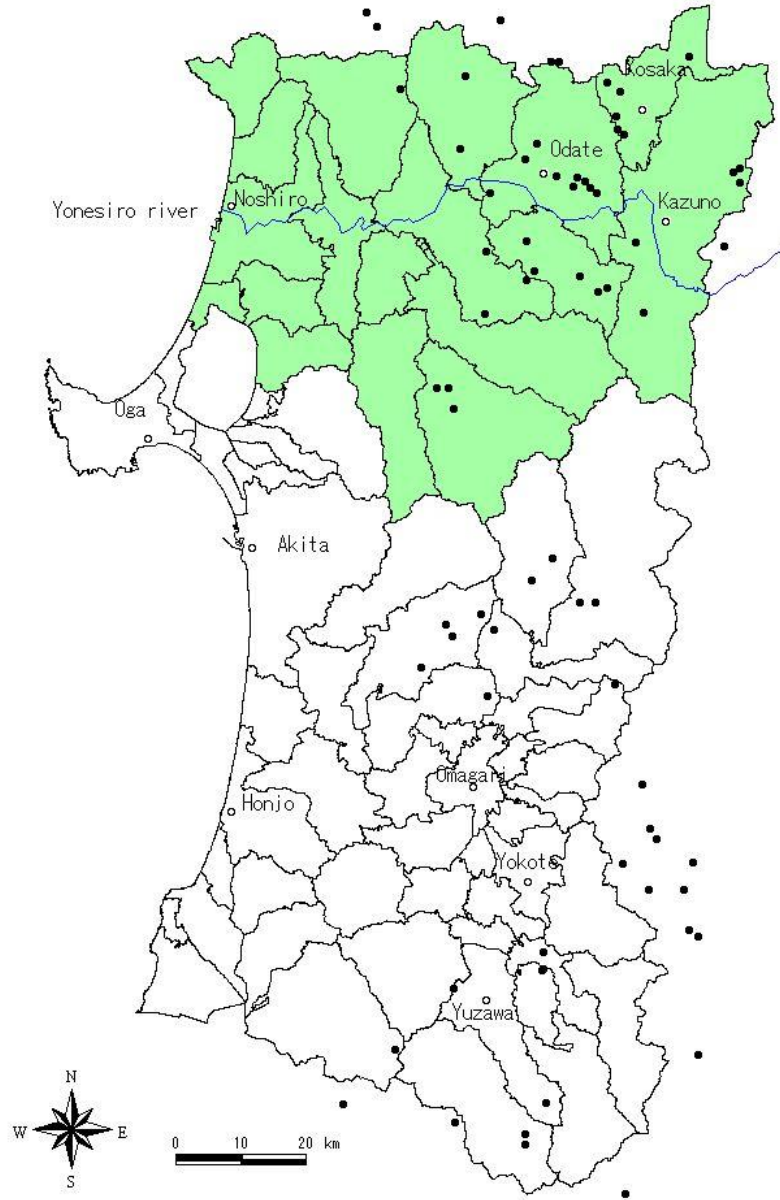
# Academy

Akita Mining College and mining course of other universities in Japan educated executive engineers.

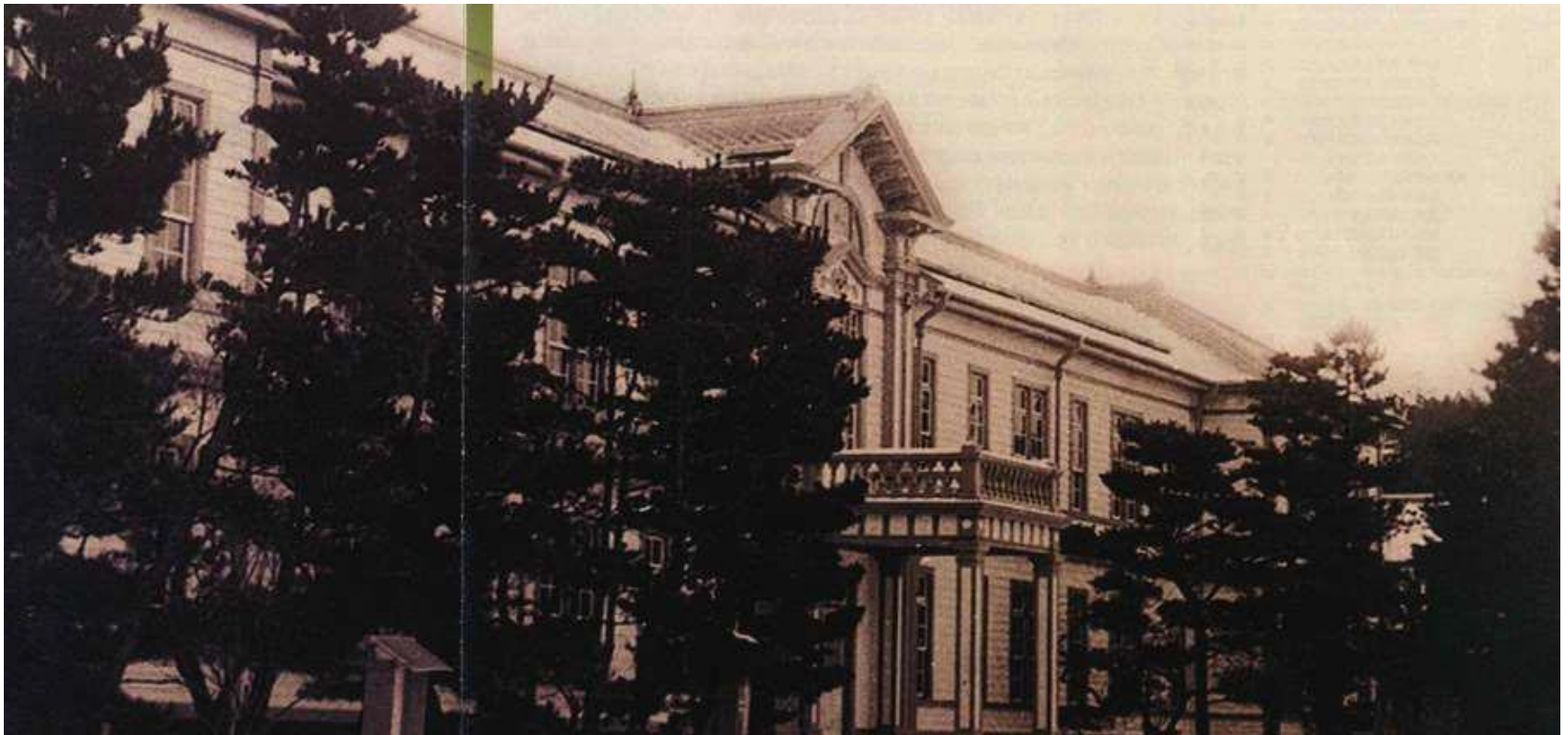
Japan formerly had many mines of many kind minerals, and mines were distributed widely in Japan.

That is a reason, Many universities had mining course in Japan.

# Mines in Akita Prefecture



**Akita Mining College was established in  
1910 as the first and only one  
specialized mining school in Japan.**



# Government

For Japan, Japanese Government supports universities and mining companies in the field of education/training. Mining companies support universities' students for research and training at mine site.

For developing countries, Japanese Government supports private, academic and governmental persons for education and training in Japan.

# **2. Japan's (JICA's) assistance to Africa in Mining Sector**

## 2. JICA's Assistance in Mining Sector

**- Objective -**

**To contribute economic growth of developing countries through mining sector development.**

# JICA's Strategy in Mining Sector for Sustainable Mining

## Strategic Target:

- (1) Investment Climate and Infrastructure Development
- (2) Human Resource Development

### Pillar I

- Infrastructure and Regional Development

### Pillar II

- Policy Support and Legal System Development

## JICA's Four Pillars

### Pillar III

- Mineral Resource Management

### Pillar IV

- Mine Safety and Environmental Measures for Mines

# JICA's Strategy in Mining Sector

## Pillar I

### Infrastructure and Regional Development

- Developing infrastructure; electricity, water and transportation
- Developing communities around mines
- Regional promotion, and measures for closing or closed mines, etc.



# JICA's Strategy in Mining Sector

## Pillar II

### Policy Support and Legal System Development

- Formulating mining sector master plan
- Organizing the laws and regulations related to mining exploration development, etc.
- **Human resource development**

# JICA's Strategy in Mining Sector

## Pillar III

### Mineral Resource Management

- Exploration and establishing Data Base
- Better estimation by advanced technology
- Mineral Inventory
- Establishing appropriate management systems, etc.
- **Human resource development**

# JICA's Strategy in Mining Sector

## Pillar IV

### Mine Safety and Environmental Measures for Mines

- Improving technology for mine pollution prevention and environmental restoration
- Organizing the law related to mine safety, environment and closing mine.
- **Human resource development**

## 2. JICA's Assistance in Mining Sector

### Infrastructure and Regional Development

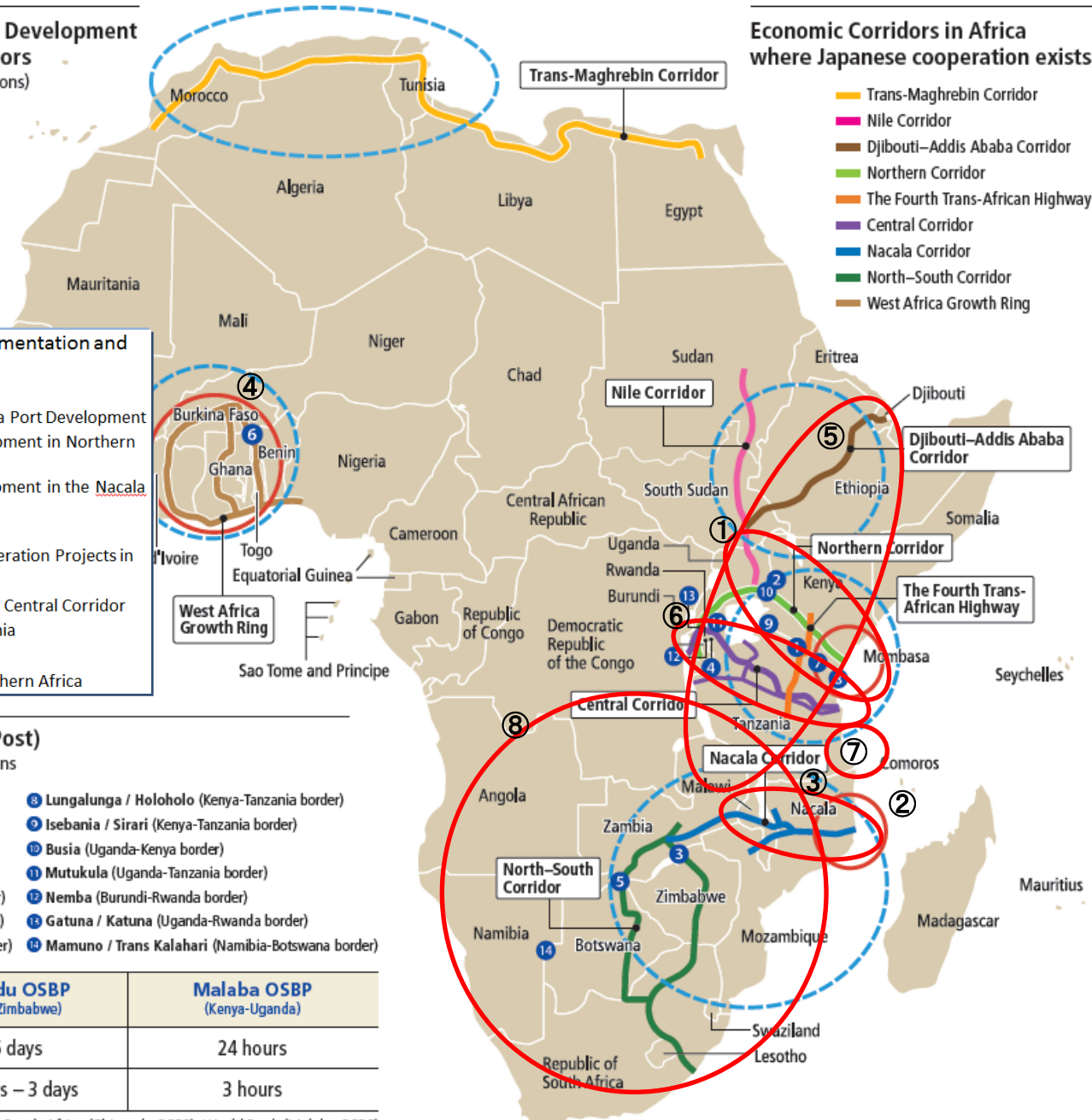
- Developing infrastructures; electricity, water, and transportation
- Developing communities around mines
- Regional promotion, and measures for closing/ed mines, etc.

# Economic Corridor Development and Strategic Master Plans

**Economic Corridor Development and Priority Corridors**  
(Five main candidate regions)

**Economic Corridors in Africa where Japanese cooperation exists**

- Trans-Maghrebin Corridor
- Nile Corridor
- Djibouti-Addis Ababa Corridor
- Northern Corridor
- The Fourth Trans-African Highway
- Central Corridor
- Nacala Corridor
- North-South Corridor
- West Africa Growth Ring



- The following 8 master plans under implementation and preparation**
- (under implementation)
- ① M/P on the Northern Corridor and Mombasa Port Development
  - ② M/P on the Natural Gas Value Chain Development in Northern Mozambique
  - ③ M/P on the Agricultural Value Chain Development in the Nacala Corridor
  - ④ M/P on the Growth Ring in West Africa
  - ⑤ M/P on the Geothermal Development Cooperation Projects in African Great Rift Valley
  - ⑥ Transport and Trade System Development in Central Corridor
  - ⑦ Natural Gas Utilization Value Chain in Tanzania
- (under preparation)
- ⑧ M/P on the regional power network in Southern Africa

## OSBP (One Stop Border Post)

Provision of support for 14 locations

- |   |   |
|---|---|
| ① Namanga (Kenya-Tanzania border)         | ⑧ Lungalunga / Holoholo (Kenya-Tanzania border)     |
| ② Malaba (Uganda-Kenya border)            | ⑨ Isebania / Siriri (Kenya-Tanzania border)         |
| ③ Chirundu (Zambia-Zimbabwe border)       | ⑩ Busia (Uganda-Kenya border)                       |
| ④ Rusumo (Rwanda-Tanzania border)         | ⑪ Mutukula (Uganda-Tanzania border)                 |
| ⑤ Kazungula (Zambia-Botswana border)      | ⑫ Nemba (Burundi-Rwanda border)                     |
| ⑥ Sankanse (Burkina Faso-Togo border)     | ⑬ Gatuna / Katuna (Uganda-Rwanda border)            |
| ⑦ Taveta / Holili (Kenya-Tanzania border) | ⑭ Mamuno / Trans Kalahari (Namibia-Botswana border) |

	<b>Chirundu OSBP</b> (Zambia-Zimbabwe)	<b>Malaba OSBP</b> (Kenya-Uganda)
<b>Before</b>	4 – 5 days	24 hours
<b>After</b>	Few hours – 3 days	3 hours

Source: Trademark South Africa (Chirundu OSBP); World Bank (Malaba OSBP)

# JICA's Assistance for Transport Sector in Africa since January 2013

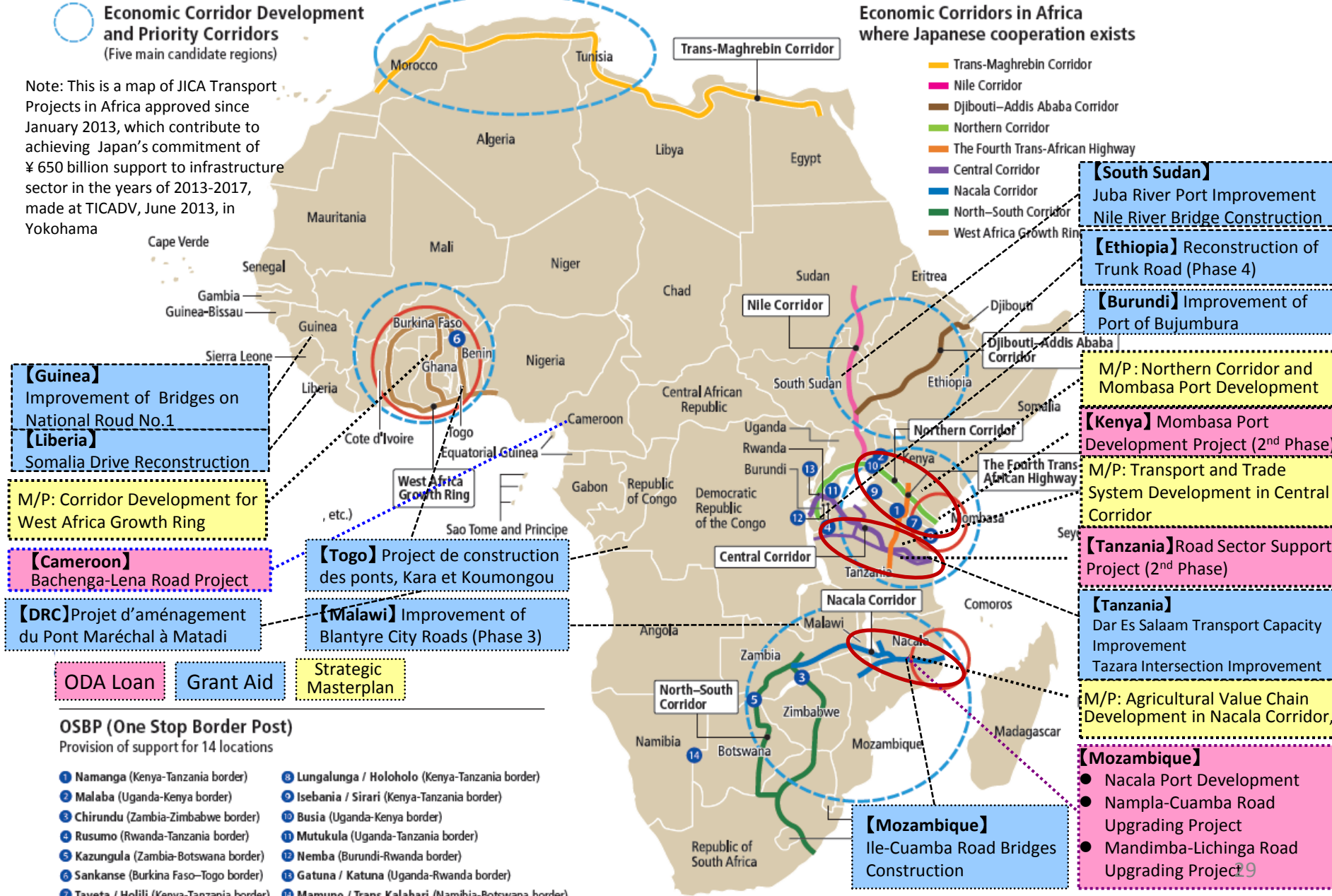
(as of April, 2015)

## Economic Corridor Development and Priority Corridors (Five main candidate regions)

Note: This is a map of JICA Transport Projects in Africa approved since January 2013, which contribute to achieving Japan's commitment of ¥ 650 billion support to infrastructure sector in the years of 2013-2017, made at TICADV, June 2013, in Yokohama

## Economic Corridors in Africa where Japanese cooperation exists

- Trans-Maghrebin Corridor
- Nile Corridor
- Djibouti-Addis Ababa Corridor
- Northern Corridor
- The Fourth Trans-African Highway
- Central Corridor
- Nacala Corridor
- North-South Corridor
- West Africa Growth Ring



**【Guinea】** Improvement of Bridges on National Road No.1  
**【Liberia】** Somalia Drive Reconstruction

M/P: Corridor Development for West Africa Growth Ring

**【Cameroon】** Bachenga-Lena Road Project

**【DRC】** Projet d'aménagement du Pont Maréchal à Matadi

**【Togo】** Project de construction des ponts, Kara et Koumougou

**【Malawi】** Improvement of Blantyre City Roads (Phase 3)

**【South Sudan】** Juba River Port Improvement  
 Nile River Bridge Construction

**【Ethiopia】** Reconstruction of Trunk Road (Phase 4)

**【Burundi】** Improvement of Port of Bujumbura

M/P: Northern Corridor and Mombasa Port Development

**【Kenya】** Mombasa Port Development Project (2<sup>nd</sup> Phase)

M/P: Transport and Trade System Development in Central Corridor

**【Tanzania】** Road Sector Support Project (2<sup>nd</sup> Phase)

**【Tanzania】** Dar Es Salaam Transport Capacity Improvement  
 Tazara Intersection Improvement

M/P: Agricultural Value Chain Development in Nacala Corridor,

**【Mozambique】**  
 ● Nacala Port Development  
 ● Nampla-Cuamba Road Upgrading Project  
 ● Mandimba-Lichinga Road Upgrading Project

**【Mozambique】** Ile-Cuamba Road Bridges Construction

- ODA Loan
- Grant Aid
- Strategic Masterplan

### OSBP (One Stop Border Post) Provision of support for 14 locations

- |   |  |
|---|--|
| 1 Namanga (Kenya-Tanzania border)         | 8 Lungalunga / Holoholo (Kenya-Tanzania border)      |
| 2 Malaba (Uganda-Kenya border)            | 9 Isebania / Sirari (Kenya-Tanzania border)          |
| 3 Chirundu (Zambia-Zimbabwe border)       | 10 Busia (Uganda-Kenya border)                       |
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| 5 Kazungula (Zambia-Botswana border)      | 12 Nemba (Burundi-Rwanda border)                     |
| 6 Sankanse (Burkina Faso-Togo border)     | 13 Gatuna / Katuna (Uganda-Rwanda border)            |
| 7 Taveta / Holili (Kenya-Tanzania border) | 14 Mamuno / Trans Kalahari (Namibia-Botswana border) |

# JICA's Assistance for Energy Sector in Africa since Jan. 2013

## West-Central Africa

### GHANA

- Improvement of Power Distribution System

### SIERRA LEONE

- Urgent Improvement of Power Distribution System in Freetown

## Southern Africa

### MALAWI

- Extension of Tedzani Hydropower Station

### MOZAMBIQUE

- Maputo Gas Fired Combined Cycle Power Plant Construction
- Nacala Corridor Transmission and Distribution Network Reinforcement
- Natural Gas Utilization Value Chain Development (Strategic Masterplan)

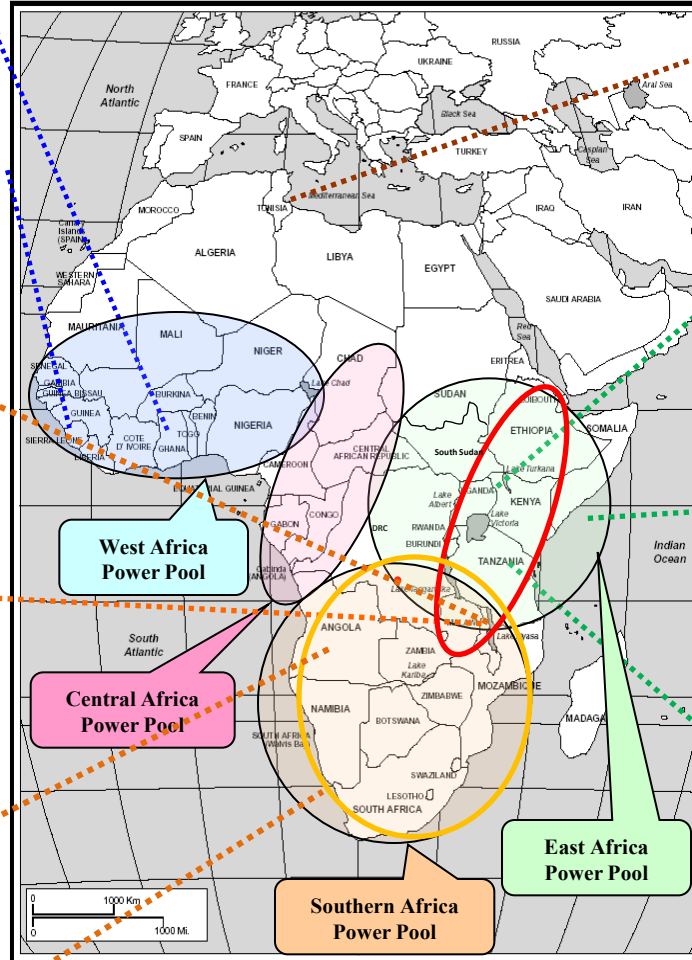
### Angola

- Power Sector Reform Support Program

Angola, Botswana, DRC, Lesotho, Namibia, Malawi, Mozambique, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe

- Regional Power Network in Southern Africa (Strategic Masterplan)

## AFRICA



■ Loans   
 ■ Grant   
 ■ M/P

## North Africa

### TUNISIA

- Rades Combined Cycle Power Plant Construction

## East Africa

### UGANDA

- Rural Electrification (Phase 3)
- Improvement of Queensway Substation

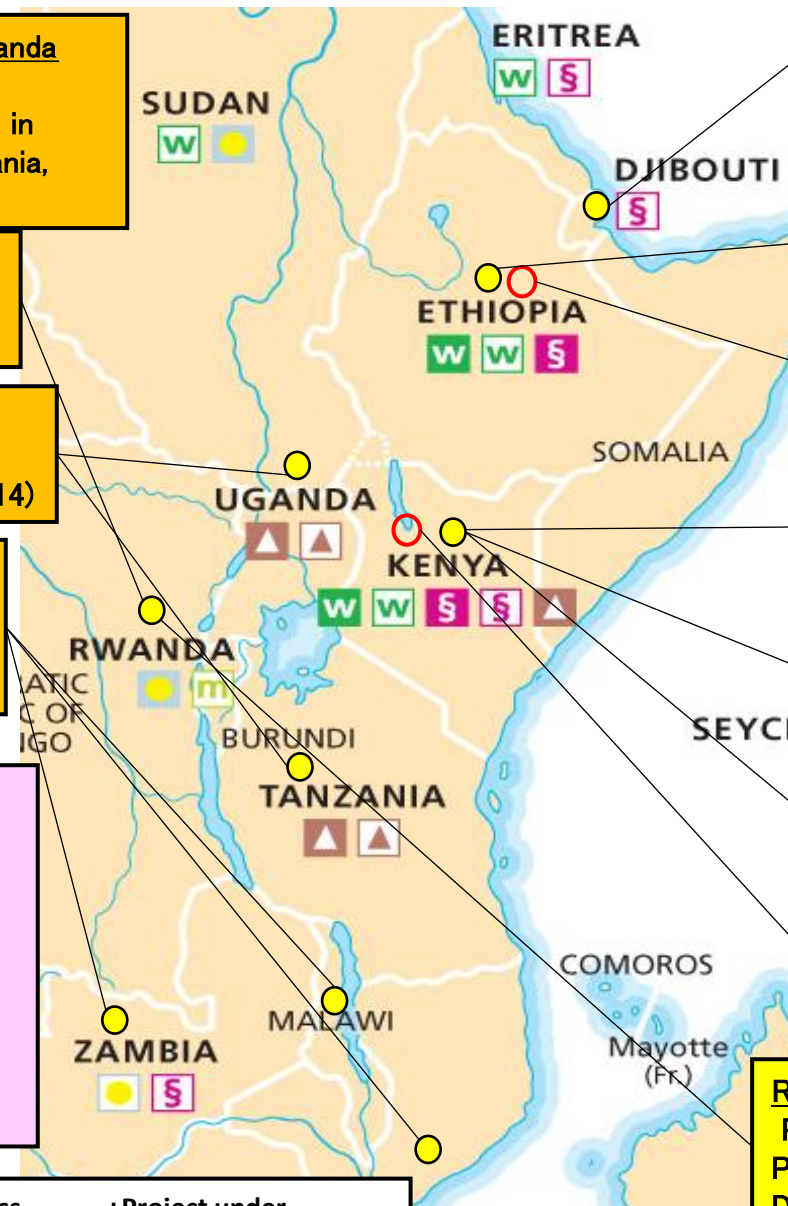
KENYA, ETHIOPIA, DJIBOUTI, UGANDA, RWANDA, TANZANIA, MALAWI, ZAMBIA, MOZAMBIQUE

- Geothermal Development Cooperation Projects in African Great Rift Valley (Strategic Masterplan)

### TANZANIA

- Reinforcement of Power Distribution in Dar Es Salaam
- Natural Gas Utilization Value Chain Development (Strategic Masterplan)

Note: This is a map of JICA Energy Sector Projects in Africa approved since January 2013, which contribute to achieving Japan's commitment of ¥ 650 billion support to infrastructure sector in the years of 2013-2017, made at TICADV, June 2013, in Yokohama

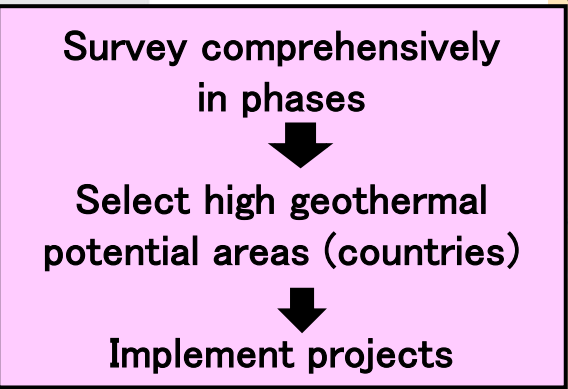


Kenya, Ethiopia, Djibouti, Tanzania, Uganda (D/C)  
 Situation analysis study on geothermal in Africa (Kenya, Ethiopia, Djibouti, Tanzania, Uganda) (2010)

Rwanda(D/C)  
 Data collection survey on geothermal development (2013)

Tanzania, Uganda(D/C)  
 Data collection survey on geothermal energy development in east Africa (2014)

Malawi, Mozambique, Zambia(D/C)  
 Data collection survey on geothermal energy development in south Africa (2013)



Djibouti (D/C)  
 Data collection survey on geothermal development (2013-15)

Ethiopia (T/C)  
 Formulating master plan on development of geothermal energy

Ethiopia (Loan)  
 Geothermal power plant project in Aluto Langano (Under consideration)

Kenya (T/C)  
 Capacity strengthening for geothermal development project (2013-17)

Kenya (T/C)  
 Reviewing GDC's geothermal development strategy (2014-16)

Kenya (Loan)  
 Olkaria I unit 4 and 5 geothermal power project (L/A 2009)

Kenya (Loan)  
 Olkaria V power plant (140MW) under consideration

Rwanda (T/C)  
 Preparation of Electricity Development Plan for Sustainable Geothermal Energy Development (2013-15)

Leg. : Project completion or in progress : Project under consideration  
 (D/C) : Data collection survey , (T/C) : Technical cooperation



## Improving the expected rate of return

### Human resources development

- To increase the success rate through capacity strengthening

### Development policy and plan

- To promote optimal development technically and economically

### Promotion of research and development

- To increase the exploration accuracy and to reduce the cost with the advancement of technology

### ODA loan

- To finance the production well and plant construction with concessional loans (from 0.01% interest, 40 yr. repayment, 10 yr. grace period)

### Exploratory drilling



Drilling OJT in Japan

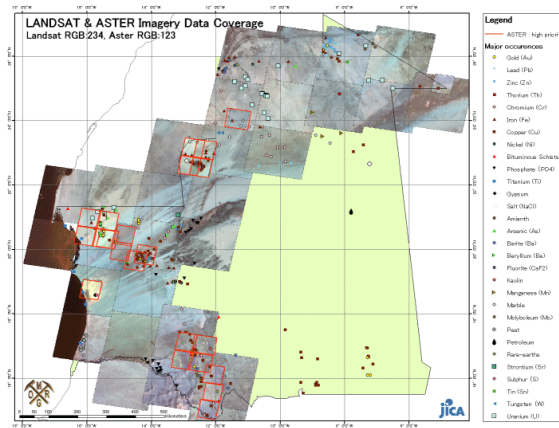


Geochemistry OJT in Menengai

## 2. JICA's Assistance in Mining Sector

### Policy Support and Legal System Development

- Formulating mining sector master plan
- Organizing the laws and regulations related to mining exploration development
- Human resource development



## Training Program in Japan: Sustainable Mining Development

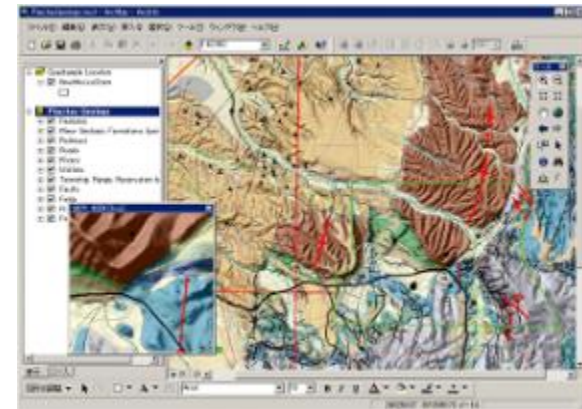
- Duration in Japan: 2-3 month
- Target: Officers of mineral resources sector in the government or governmental organization
- Objective: To obtain Knowledge and skills to promote and facilitate sustainable mining projects for their economic development with efficient and environment-friendly mining and recycling technology.
- Implementing Partner: International institute for mining technology (MINETEC)



## 2. JICA's Assistance in Mining Sector

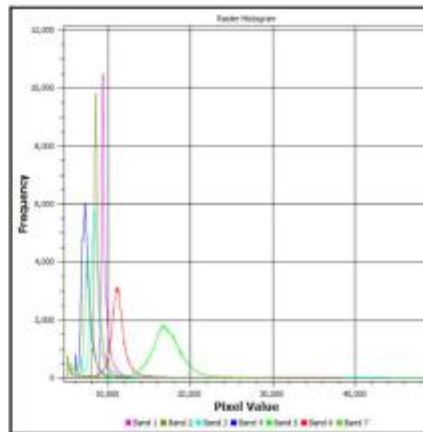
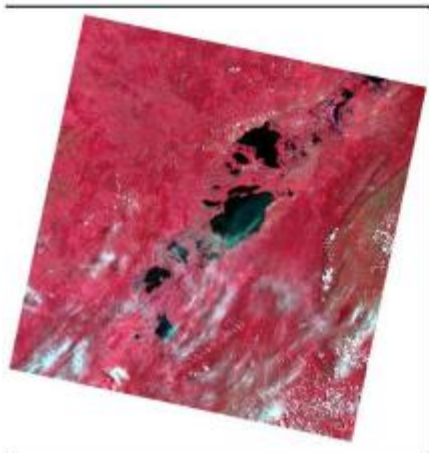
### Mineral Resource Management

- Better estimation by advanced technology
- Establishing appropriate management systems, etc.
- Human resource development



## Training Program in Japan: Geological Information Management for Mineral Exploration in Africa

- Duration in Japan: 2 month
- Target: Officers in charge of mineral exploration in the government or governmental organization
- Objective: To obtain Knowledge and skills to conduct mineral exploration with remote-sensing technology.
- Implementing Partner: International institute for mining technology (MINETEC)



## 2. JICA's Assistance In Mining Sector

### Mine Safety and Environmental Measures for Mines

- Improving technology for mine pollution prevention and environmental restoration
- Organizing the law related to mine safety
- Human resource development

# JICA's Activity in Mining Environment Sector in Africa

ZAMBIA : Visualization of impact of chronic / latent chemical hazard and Geo-Ecological Remediation in Zambia (in preparation)

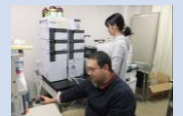
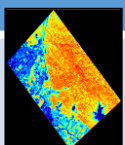
## 1. Background

- Kabwe City has been ranked among 'the ten most polluted places in the world' (BLACKSMITH Institute)
- Blood lead levels in children are over the level that clinical symptoms of Pb toxicity become visible.
- It is necessary to raise the level of environmental research and education as well as to develop social systems and technologies for environmental remediation



## 2. Project Activities

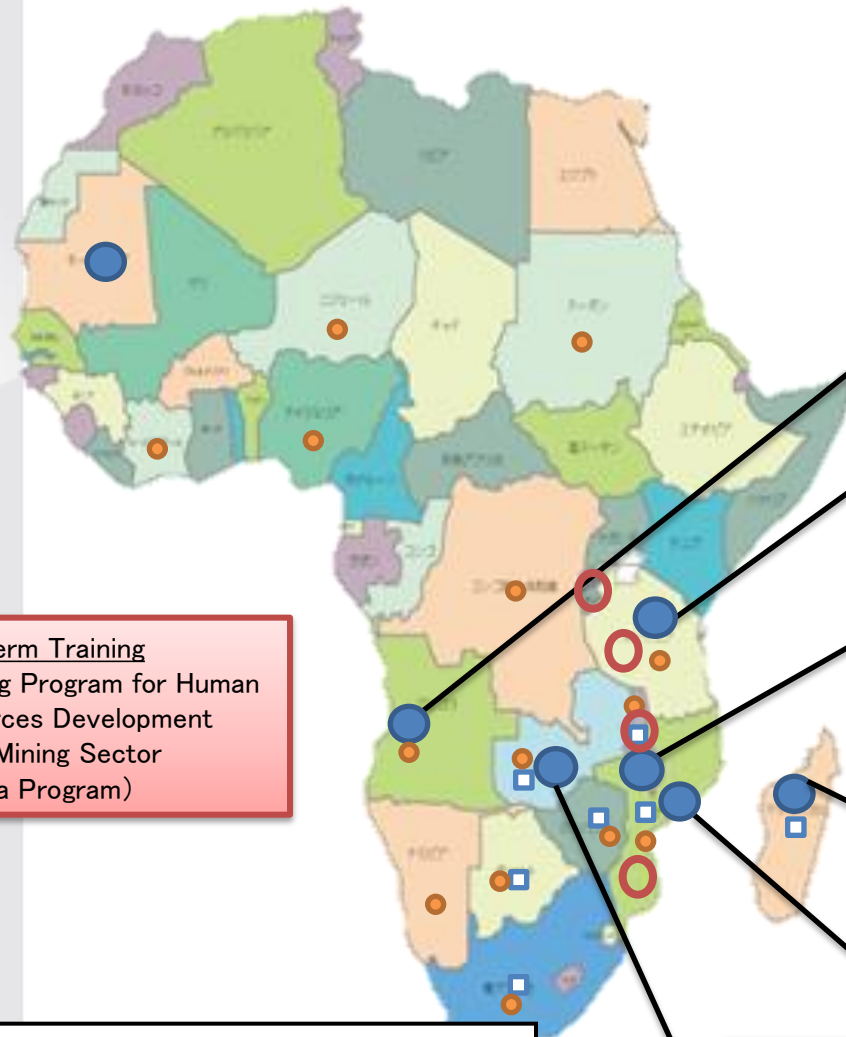
Research Group	Contents
① Elucidating a pollution mechanism to an ecological system, a person and an animal from ground	<ul style="list-style-type: none"> <li>a. Integrated evaluation of soil environment</li> <li>b. Wide area investigation (remote sensing and the ground)</li> <li>c. Migratory inspection and shift to an animal of lead and a person of lead in the ground</li> </ul>
② Follow up study to the harmful metal pollution in the child of the deposit area	<ul style="list-style-type: none"> <li>a. Risk assessment of the hazard with lead</li> <li>b. Economic assessment of the hazard with lead</li> </ul>
③ Development and evaluation of the on-demand environmental remediation technology	<ul style="list-style-type: none"> <li>a. Physical remediation</li> <li>b. Chemical remediation</li> <li>c. Bio-remediation and fight remediation</li> </ul>



## 3. Remarks

- Collaboration with many department of Hokkaido Univ. (veterinary medicine, Economy, Science, Engineering, Agriculture, Information Science, Environmental Sienece)
- Cooperate with WB in the sector of environmental remediation in future

# Project Map in Mining Sector in Africa



**Group Training**  
 Sustainable Mining Development (2012~2014)  
 Enhancement of Geological Information System for Minerals with Modern Techniques in Africa (2012-2014)

Data Collection and Confirmation Study on the Mine Environment and Safety in the African Area (2013-2014)

**Angola**  
 Capacity Building of Institute of Geology (IGEO) (2012-2013)

**Tanzania**  
**Data Collection Survey on Natural Gas Utilization Master Plan**

**Malawi**  
 Project for Establishment of Integrated Geographic Information System (GIS) Database for Mineral Resources (2011-2013)  
**Project on Capacity Development in Mining Sector (2013-2019)**

**Madagascar**  
 The Geological Mapping and Mineral Information System Project for Promotion of Mining Industry (2008-2011)

**Mozambique**  
**Project on Capacity Development in Mineral Resource Sector (2013-)**

**Zambia**  
 Capacity Building in GIS Database Management (2010-2011)  
 Geological Mapping and Mineral Information Service Project for Promotion of Mining Industry in the Republic of Zambia (2007-2010)  
**SATREPS Visualization of impact of chronic / latent chemical hazard and Geo-Ecological Remediation in Zambia (2015-2020)**

**Long term Training**  
 Training Program for Human Resources Development in the Mining Sector (Kizuna Program)

**Legend**

- : JICA's Project (including **On-going one**)
- : Target countries by Data Collection and Confirmation Study on the Mine Environment and Safety in the African Area
- : Trainee on Group Training Courses (after 2010)



# JICA's Activity in Mining Sector in Africa (1/2)

## MOZAMBIQUE : Project on Capacity Development in Mineral Resource Sector

### 1. Background

- ❑ Mining project on Natural gas production, coal production, is ongoing in Mozambique.
- ❑ Government of Mozambique and higher educational institute need to develop human resources to manage natural resources effectively.

### 2. Outline of the Project

- ❑ **Project Purpose**
  - o develop capacity of mineral resources administration and education for sustainable development and promotion of the mineral resources sector
- ❑ **Activities**
  - Long term training program in Japan
  - Training program on coal management
  - Review and advise to improve the educational structure and curriculum in related institutions
  - Provide necessary equipment and facilities for education and research.



Tete Polytechnic Institute

### 3. Remarks

- ❑ Akita Univ. supports this project as Akita Univ. has partnership agreement with Eduardo Mondlane University, and with JICA.

# JICA's Activity in Mining Sector in Africa (2/2)

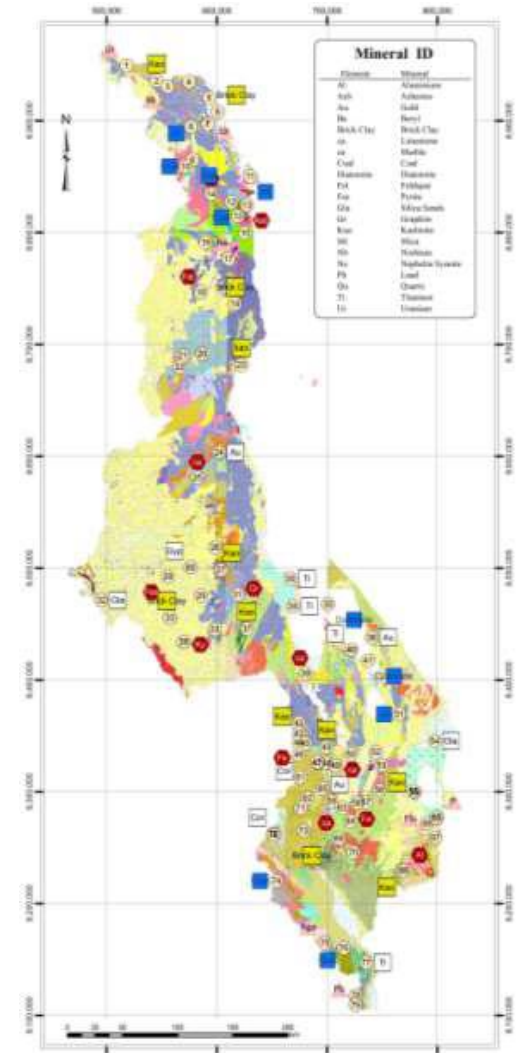
## MALAWI : Project on Capacity Development in Mining Sector

### 1. Background

- ❑ Malawi has much potential of Mineral resources such as rare earth elements, Uranium, etc.
- ❑ In order to promote the investment in mining sector, updating the Geological Information is necessary.
- ❑ JICA supported for updating geological map under the Project for Establishment of Integrated Geographic Information System (GIS) Database for Mineral Resources (2011–2013)
- ❑ To include geochemical information into the geological information, “Project on Capacity Development in Mining Sector” has started in 2014

### 2. Outline of the Project

- ❑ **Project Purpose**  
Ministry of Mining is equipped with nationwide geochemical survey plan, geochemical data of model areas, upgraded geological database and enhanced human capacity by field survey and long-term training.
- ❑ **Activities**
  - Geochemical Survey
  - Integrating survey results into GIS database
  - Long-term training in Japan



# **3. Training Program for Human Resources Development in the Mining Sector**

# Kinds of Training Course & Program in Mining Sector

- On the Job Training within implementing Technical Cooperation Program
- Short term training in Japan within implementing Technical Cooperation Program
- Theme Focused group training course in Japan
- Country Focused group training course in Japan
- Region Focused group training course in Japan
- **Long term training in Japan (Human Resources Development)**

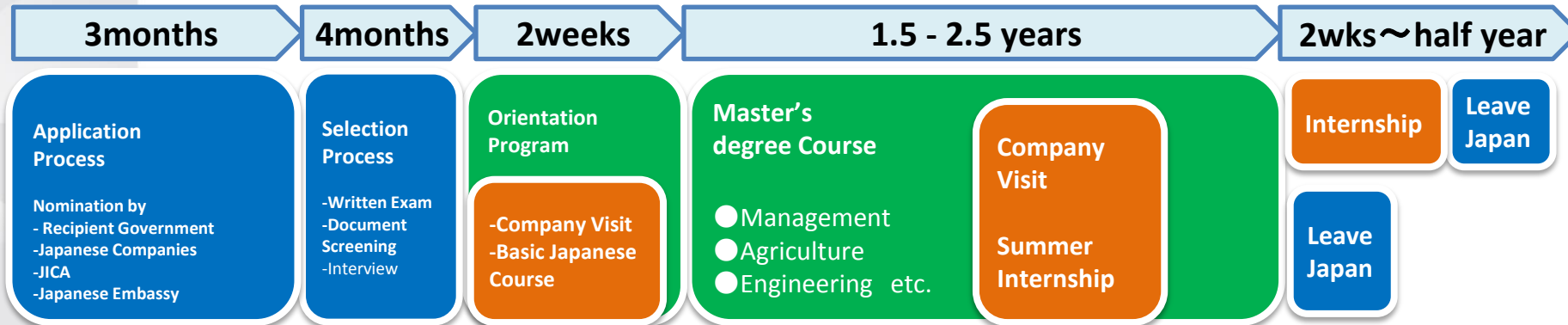
**“Shigen no Kizuna”(in Japanese)=“Human Bridge in Mineral Resource Filed” (in English)**

# Africa Business Education Initiative for the Youth (ABE Initiative)

## Master's Degree and Internship Program Implementation Image

### Objective

- To invite young personnel who have the potential to contribute to the development of industries in target sectors as well as the development of Japanese companies in Africa
- To cultivate excellent personnel, who can recognize and understand the contents of Japanese society and system of Japanese enterprises, to lead Japanese businesses to engage further in economic activities in Africa



### Features

- Combination of Master's course and Internship
- Development of African Industrial Personnel who have deep understanding on Japanese Society after long stay in Japan
- Strengthening Network between African Industrial Personnel and Japanese Private Sector
- Possibility of Recruitment by Japanese Companies
- Capacity Development of African higher education Institutions developing Industrial Personnel
- Contribution to Industrial Development by making use of the vitality of Japanese Private Sector

#### All 54 African Countries

- Private sector personnel
- Government official
- Academic personnel

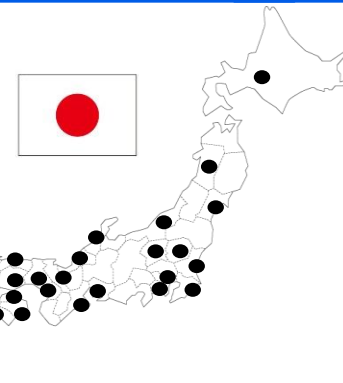
Total: 800-900



Give an opportunities of Master's course and Internship



Support Japanese companies to start business in Africa



#### University

- 69 Universities
- 135 courses
- 788 students per year

#### Company

- Entry by 120 companies

# Africa Business Education Initiative for the Youth (ABE Initiative)

## Master's Degree and Internship Program

### ➤ **Schedule:**

Nov. 2013~Oct. 2021 (Arrival: September 2014-2017)  
(1<sup>st</sup> Batch: Sep. 2014, 2<sup>nd</sup>: 2015, 3<sup>rd</sup>: 2016, 4<sup>th</sup> (final): 2017)

### ➤ **Target Number of Participants:**

1<sup>st</sup> Batch 156 (actual), 2<sup>nd</sup> Batch 317(actual),  
3<sup>rd</sup> Batch 300(plan), 4<sup>th</sup> Batch 100(plan)

### ➤ **Target Countries:**

All African Countries (54 countries)

### ➤ **Target Participants:**

Young personnel from private, public, and education sector

### ➤ **Accepted Field:**

All academic field.

(when the research theme matches the concept of ABE initiative)

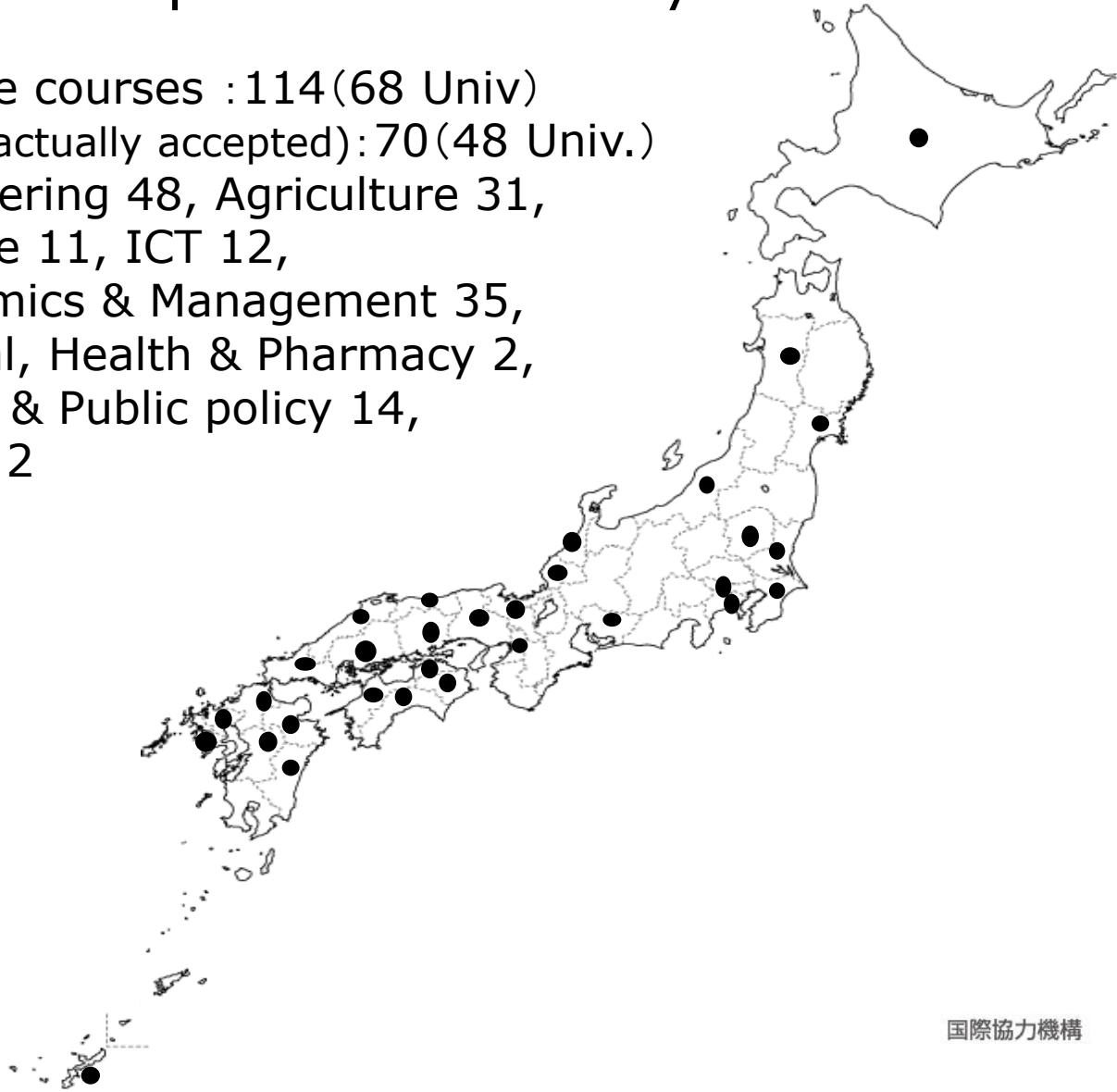
### ➤ **Cooperating University in Japan**

70 Universities, 148 graduate courses

# 1<sup>st</sup> Batch (Arrival: Sep. 2014 )

- Cooperation of Japanese University

- Registered graduate courses :114(68 Univ)
- Graduate courses (actually accepted):70(48 Univ.)
- By Subject: Engineering 48, Agriculture 31,  
➤ Science 11, ICT 12,  
➤ Economics & Management 35,  
➤ Medical, Health & Pharmacy 2,  
➤ Politics & Public policy 14,  
➤ Others 2



# 1<sup>st</sup> Batch + 2<sup>nd</sup> Batch

▪ Participants by country ※( ) with recommendation

Algeria	4	Ethiopia	53(3)	Mozambique	48(22)	Swaziland	2
Botswana	3	Gabon	2	Namibia	3	Tunisia	2
Burkina Faso	2	Ghana	1(1)	Nigeria	23(2)	Tanzania	61(9)
Burundi	2	Kenya	97(17)	Rwanda	16(8)	Uganda	3
Benin	2	Madagascar	6(2)	Senegal	12(1)	Zambia	2(1)
Cameroon	3	Morocco	16(1)	Seychelles	1	Zimbabwe	2
Congo	4	Mauritania	2	Sierra Leone	1(1)		
Côte d'Ivoire	12(5)	Mauritius	2	South Africa	47(14)		
Egypt	26(3)	Malawi	5	Sudan	8		

▪ Participants by sector ※( ) with recommendation

	Engineering	Agriculture	Science	ICT	Economics & Management	Medical & Health	Governance & Politics	Others
1 <sup>st</sup> Batch	48	31	11	12	35	2	14	2
2 <sup>nd</sup> Batch	83	30	19	33	84	3	57	8
Total	131	61	30	45	119	5	71	10



## Long Term Training

# “Shigen-no-Kizuna”= “Human Bridge in Mineral Resource Field”

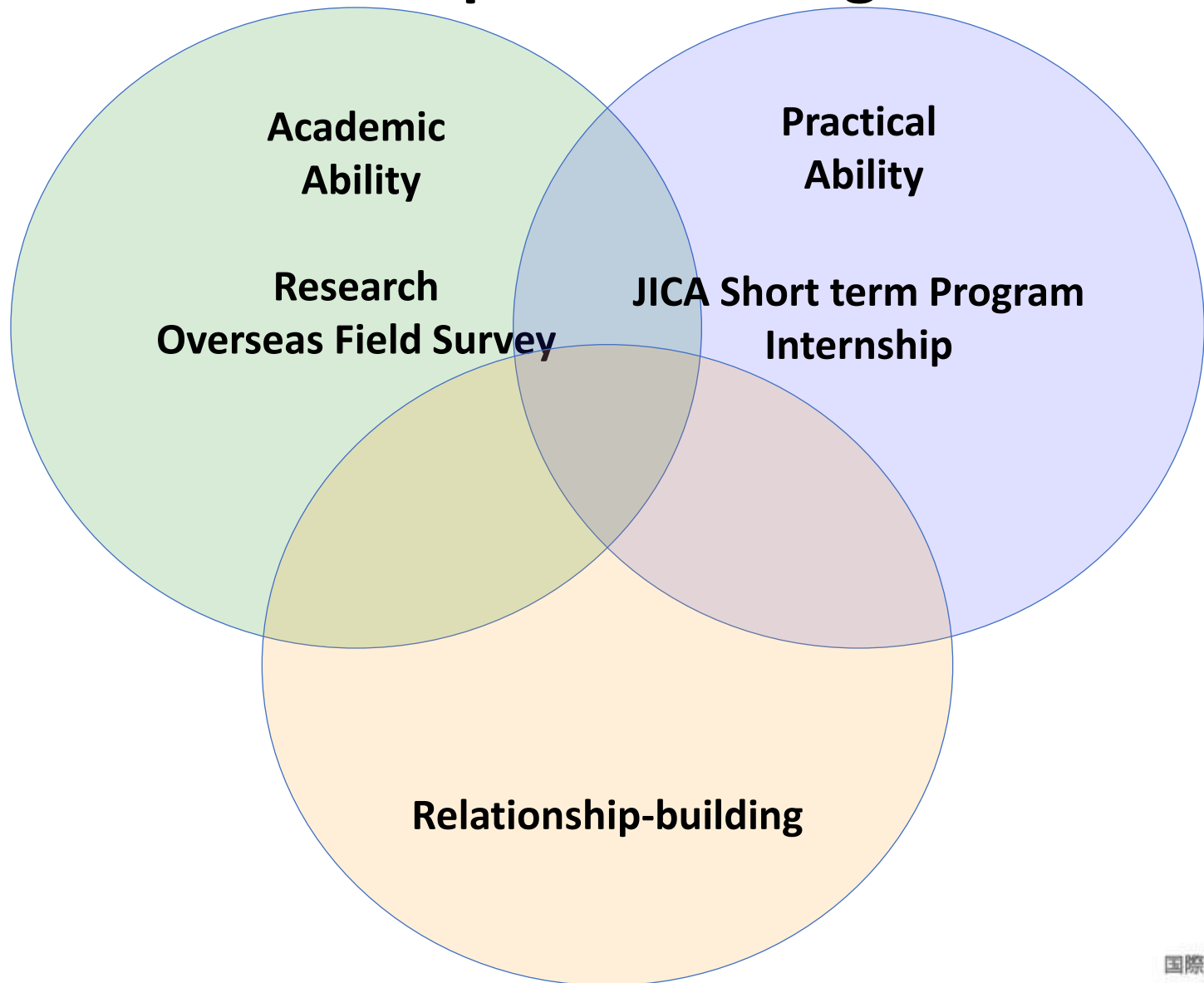
## Objective

To nurture governmental officials, educators and researchers who **contribute to the mining development** in the developing countries.

## The Expected Outcome

To **establish a network** of potential contributors to the mining development in the development countries.

# “Shigen-no-Kizuna” Concept of the Program



# “Shigen-no-Kizuna”= “Human Bridge in Mineral Resource Filed” Training Program for Human Resources Development in the Mining Sector

## 1. Objective

- ① Human Resource Development in Mining Sector
- ② Network building among Developing countries and Japan

## 2. Contents

- ① Obtain the Master/Doctor Degree
- ② Internship Program
- ③ JICA short term program
  - Mining Policy and management Course (in summer)
  - Mining value chain in Japan (in spring)
- ④ Overseas Field Research Program



Overseas Field Research (Image)

## 3. Target Number of Trainee

- 22 trainees , including 13 trainees from Africa countries, are under the Program as of May 2015
- 20-30 trainees will join the program every year
- Target number of trainee is over 200 for coming 10 years

# Contents of Program

- ① **Obtain the Master/Doctor Degree**
  - Research Students Program (6 month)
  - Graduate Course Program (2-3 years)
  
- ② **Internship Program**
  
- ③ **Social Networking/Short term Program**
  - Private company
  - University, research Institute
  - Government Agency
  
- ④ **Overseas Field Research**

# Target Participants and University in Japan

**Governmental Officials: Master Courses**  
Governmental Officials who engage in mining administration (technocrats, research officers)

**Educator candidates: Doctor Courses**  
Educator candidates in universities (who have not yet completed master/doctor course) such as graduate students, assistant professors, lectures.

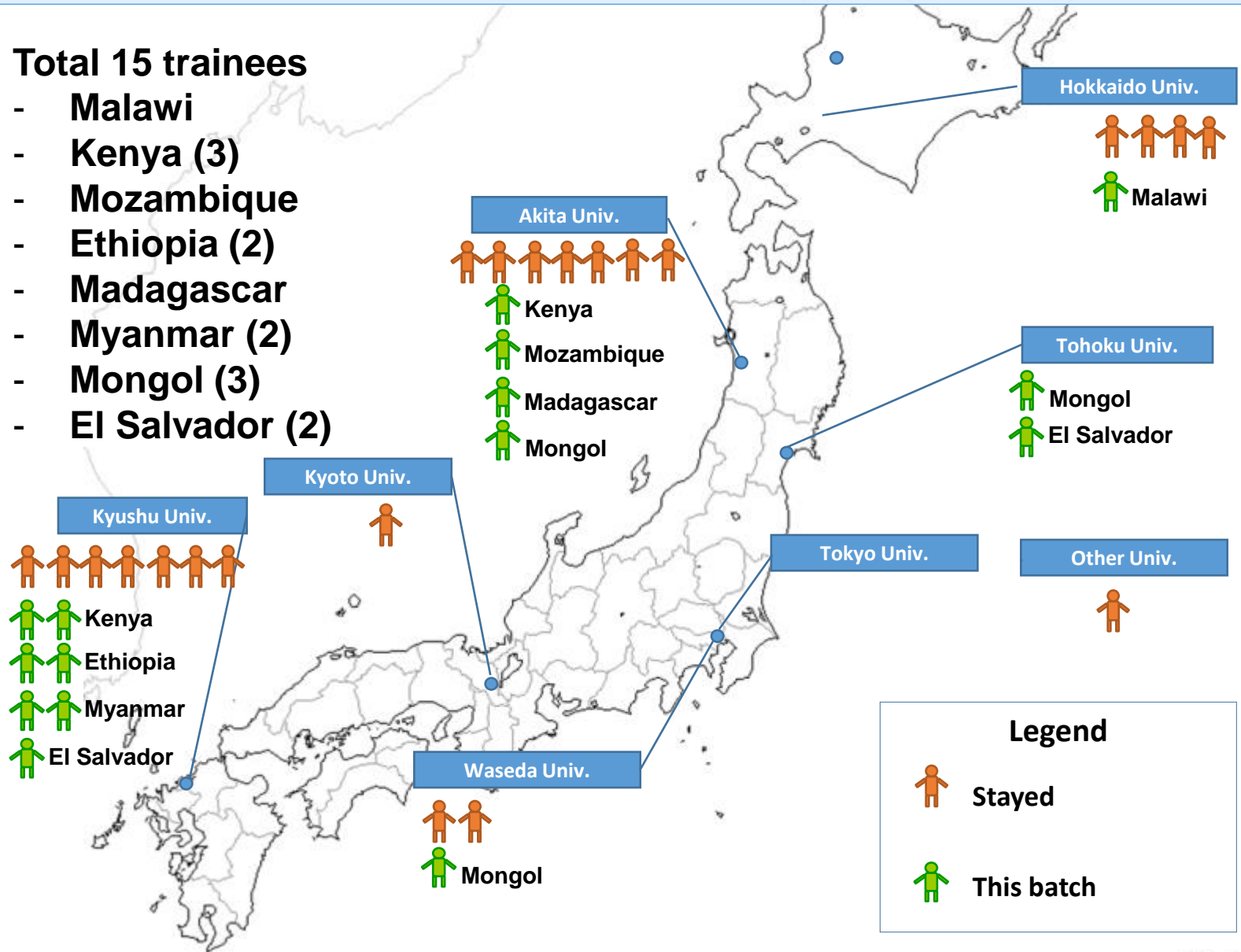
Training Program for Human Resources Development in Mining Sector  
(ABE Initiative)

Hokkaido Univ., Akita Univ., Tohoku Univ., Tokyo Univ., Waseda Univ., Kyoto Univ., Kyusyu Univ.

# Trainees coming on this batch

Total 15 trainees

- Malawi
- Kenya (3)
- Mozambique
- Ethiopia (2)
- Madagascar
- Myanmar (2)
- Mongol (3)
- El Salvador (2)



**Legend**

Stayed

This batch

## 7 Universities in Japan (1/2)

- Graduate School of Engineering and Resource Science, Akita University
  - <http://www.eng.akita-u.ac.jp/eng/>
- Department of Earth Resources Engineering, Graduate School of engineering, Kyusyu University,
  - [http://www.mine.kyushu-u.ac.jp/english/info\\_daigakuin.html](http://www.mine.kyushu-u.ac.jp/english/info_daigakuin.html)
- Course of Sustainable Resources Engineering, School of Engineering, Hokkaido University
  - [http://www.eng.hokudai.ac.jp/edu/course/rescirc/index\\_e.html](http://www.eng.hokudai.ac.jp/edu/course/rescirc/index_e.html)
- Department of resources and Environmental Engineering, School of Creative Science and Engineering, Waseda University
  - <http://www.env.waseda.ac.jp/english/outline/index.html>

## 7 Universities in Japan (2/2)

- **Department of Civil and Earth Resources Engineering  
Graduate School of Engineering, Kyoto University**
  - <http://www.ce.t.kyoto-u.ac.jp/en>
- **Graduate School of Environmental Studies, Tohoku University**
  - <http://www.kankyo.tohoku.ac.jp/en/>
- **Department of Systems Innovation, Graduate School of Engineering, The University of Tokyo**
  - <http://www.sys.t.u-tokyo.ac.jp/indexe.html>
  - **Graduate School of Life and Environmental Sciences, University of Tsukuba**  
<http://www.geol.tsukuba.ac.jp/index-e.html>



**Thank you for your attention.**

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